Criterion 3

3.3: Research Publication and Awards

3.3.1 Number of research papers published per teacher in the Journals notified on UGC care list during the last five years

Sr. No.	Parameter	Academic Year	No. of Research papers
1	Research Papers	2021-22	85
2		2020-21	65
3		2019-20	71
4		2018-19	68
5		2017-18	22

M. College of Engineering Pune-52

Academic Year
2020-21

Academic Year
2020-21

Academic Year
2020-21

Academic Year
2020-21

Hassle - Free and Secure e-KYC System Using Distributed Ledger Technology

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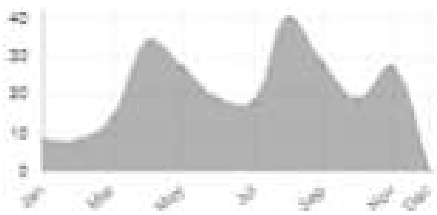

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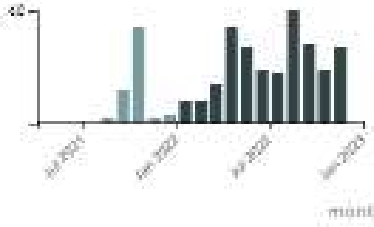

Volume 12, Special Issue 2, April 2021

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Abstract

The blockchain technology is a prominent, reliable and secure technology which is getting into almost every industry. The fundamental essence of blockchain technology offers features like transparency, decentralization, immutability, resilience, disintermediation, collaboration, security and trust. In this paper, we have focused on how the present banking industry, especially the KYC document verification process, can be impacted after using blockchain to store and track the records. The current day banking KYC processes are highly reliable on paper which is an outworn process. It is utmost essential today to have an upgraded KYC system, embedded with a reliable and trustable technology like blockchain, that could withstand frauds, and resolve the scalability and security issues. In the proposed system, the use of blockchain in KYC process restricts the presence of middlemen. This results in a reduction of fraudulent activities and errors that may occur when there are a lot of manual activities involved. Furthermore, the document verification process is only conducted only one time, no matter what is the number of financial institutions with which the customer is working with. This system provides more efficiency, reduction in costs, enhanced customer rendezvous and end-to-end transparency during the process of integrating the customer documents into the bank database.

How to Cite

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More Citation Formats

STRESS DETECTION WITH RECOMMENDATION OF PREVENTIVE MEASURES USING MACHINE LEARNING APPROACH

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Abstract : Mental disorders can be recognized by how a person behaves, feels, perceives, or thinks over a period of a lifetime. Nowadays, a large number of people are feeling stressed with the rapid pace of life. Stress and depression may lead to mental disorders. Work pressure, working environment, people we interact, schedule of the day, food habits, etc. are some of the major reasons behind building stress among the people. Thus, stress can be detected through symptoms through some convention medical symptoms such as headache, rapid heartbeats, feeling low energy, chest pain, frequent colds, infections, etc. The stress also may reflect in normal behavior along with abnormal day-to-day activities. Individuals may share their day-to-day activities and interact with friends on social media. Thus, it may be possible to detect stress through social network data.

There are many ways to detect stress levels. Some of the instruments are used to detect stress while there is a medical test to know the stress level. Also, there are apps that analyze the behavior of the person to detect stress. Many researchers had tried to use machine learning techniques including the use of various algorithms such as decision tree, Naïve Bayes, Random forest, etc. which gives lower accuracy of 70% on average. In this paper, we are using a closeness of stress levels with social media data shared by many users. In our proposed system design, facebook posts are being accessed using a token. Further, we recommend the use of machine learning algorithms such as Conventional Neural Network (CNN) to extract facebook posts, Transductive Support Vector Machine (TSVM) to classify posts and K-Nearest Neighbors (KNN) to recommend nearby hospitals. With the help of these algorithms, we predict the stress level of the person as positive, negative. Thus, we are expecting more accuracy to detect the stress along with the preventive recommendation.

Keywords **- Social Media, Facebook, Stress Detection, Recommendation, Conventional Neural Network, Transductive Support Vector Machine, K-Nearest Neighbors**

I. INTRODUCTION

Mental disorders are threatening people's health. They are considered to be a major factor of change the mood of a user and the user goes into a depression. Nowadays users can be stressed due to social interactions of social networks. The rapid increase of mental disorders or stress has become a great challenge to human health and life quality. It is difficult to timely detect mental disorders or stress for proactive care. Thus, there is significantly important to detect mental disorder before it turns into severe problems.

Our proposed design join hands to detect stress to avoid further consequences such as going into depression, self-harming acts, etc. Once stress is detected, people can take the help of stress management methodologies such as meditation, 'smile and laugh', reading motivational books, etc. A person can also follow proper treatment suggested by doctors, consultants. But for this, there is a need to suggest nearby hospitals so that a person gets help as quickly as possible.

There are also some techniques that are implemented to detect the mental state of mind using different machine learning algorithms. For this, real-world social media data has been analyzed. But algorithms like decision tree, naïve bayes, random forest failed to achieve expected accuracy. These algorithms gave an approximate accuracy of 70%.

II. LITERATURE REVIEW

Nowadays people are constantly using social media to reflect their lives over the internet. Social media platforms like Facebook, Twitter, Snapchat, Instagram, LinkedIn, Tumblr, Pinterest, etc. engage people more than one-to-one human interactions. Though social media has provided a platform to facilitate the sharing of thoughts, feelings, career interests, etc. on the internet, unfortunately, it's overuse leads to addiction to social media and stress.

Research says that symptoms of mental disorder can be noticed from interactions over social media so that delays in treatment can be avoided. The emphasis is on Cyber-Relationship addiction, Net compulsion, Information overload to detect social network mental disorders [1]. Features like social relationships, self-disclosure or self-esteem, loneliness, bursting temporal behavior, etc. are analyzed. To build the SNMD-based Tensor Model, the Transductive Support Vector Machine (TSVM) is used that gave an accuracy of 84.3%. Mining online social behavior provides an opportunity to detect mental disorders based on features extracted from data logs of online social networks [1].

The main emphasis of previous studies is on the classification of emotions of tweets, posts gathered from social media platforms like Twitter, Facebook. This is because these platforms are the most frequently used platforms. Preprocessing includes classification of a dataset into a training dataset and testing dataset to carry out tokenization further [2]. Next to it, pre-processing of tweets is done which includes removing handles, removing URLs, timings of tweets, #hashtag, etc. [2]. Support Vector Machine (SVM) and Decision tree algorithms are implemented to obtain positive or negative results. Thus, the accuracy of 82% for SVM is obtained.

Comparative study of different classification algorithms such as Naïve Bayes, Decision Tree, Random Forest has done for sentiment analysis of the social networks [3]. The pre-processing phase involves many steps such as remove noise, remove duplicate tweets, remove punctuation, remove stop words, tokenization, join words. A Hybrid model [CNN + CNN (word to vector) + RNN (word to vector)] has

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ANALYSIS FOR FIRE DETECTION SYSTEM FOR IMPROVEMENT IN ACCURACY

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ABSTRACT

The video surveillance machine has come to be an essential element within the security and safety of towns. The video surveillance machines has become an essential element within the security and safety of towns. Reliable fire detection systems with high accuracy and speed are essential for the safety of smart city services. A fire detection system requires precise and firm mechanisms to make the right decision in a fire situation. Since maximum commercial fire detection systems use a sensor, their fire recognition accuracy is poor because of the limitations of the detection capability of the sensor. After event happen this video sequence is used to find out causes of an occasion/fire but trouble is after occasion passed off we are not able to keep loss by way of that event .So there is need to such system which is able to assist us in early fire event detection and pre-alert generation. Purpose behind these proposed work is to invent pre-alert technology machine modern deep learning networks using without any hardware in addition to sensor. Accuracy of this proposed device approx. 85% or extra which is better than current machine.

Key words: Closed Circuit Television (CCTV), Intelligent Video Surveillance (IVS), Conventional Neural Network (CNN)

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http://www.iaeme.com/IJARET/issues.asp?JType=IJARET&VType=11&IType=9

1. INTRODUCTION

In February and March of 2020, there were many extensive fire accidents around the world, such as fires accidents in India, America, the Notre Dame fire in France, forest fires in Italy, and the grassland fire in Russia, which caused great damage to people's lives and property. Therefore, fire detection is very significant role in protecting people's lives and property. The

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Proposed System for Remote Detection of Skin Diseases Using Artificial Intelligence

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ABSTRACT

Skin diseases are prevalent diseases with visible symptoms and affect around 900 million of people in the world at any time. More than a half of the population is affected by it at an indefinite time. Dermatology is uncertain, unfortunate and strenuous to diagnose due to its complications. In the dermatology field, many times thorough testing is carried out to decide or detect the skin condition the patient may be facing. This may vary over time on practitioner to practitioner. This is also based on the person's experience too. Hence, there is a need for an automated system which can help a patient to diagnose skin diseases without any of these constraints. We propose an image based automated system for recognition of skin diseases using Artificial intelligence. This system will make use of different techniques to analyze and process the image data based on various features of the images. Since skin diseases have visible symptoms, we can use images to identify those diseases. Unwanted noise is filtered and the resulting image is processed for enhancing the image. Complex techniques are used for feature extraction such as Convolutional Neural Network (CNN) followed by classifying the image based on the algorithm of softmax classifier. Diagnosis report is generated as an output. This system will give more accurate results and will generate them faster than the traditional method, making this application more efficient and dependable. This application can also be used as a real time teaching tool for medical students in the dermatology domain.

Keywords : Dermatology, Image Processing, Artificial Intelligence(AI), Neural Network, Automated Disease Diagnosis, Convolutional Neural Network(CNN)

I. INTRODUCTION

According to ScienceDaily, skin diseases are the one of the leading causes of human illness.[1] Skin diseases may be caused by infections, fungi, bacteria, allergies, or viruses. A skin disease may cause a change in the texture or colour of the skin. Skin diseases are usually chronic and infectious, and some can also develop into melanoma (skin cancer). Therefore, skin diseases must be diagnosed early to reduce their development

A Proposed Design for an Augmented Reality Application with Deep Learning for 3D Model Generation

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Abstract— **The boom in the numerous features of mobile devices combined with inexpensive Internet access and other advancements in cloud computing, networking has transformed Augmented Reality as fiction to reality. One of the biggest breakthroughs came in the form of Mobile Augmented Reality(MAR) Applications. Although there are few limitations regarding the computational powers when compared to computers, using multitude of sensors can help in development of more advanced MAR applications. Using projection-based Augmented Reality(AR) for MAR applications requires 3D models to be generated, which is a tedious task. The 2D-to-3D conversion methods that are available, those that involve human operators have been most successful and accurate, but also costly and time-consuming. Hence, generating these 3D models automatically will save man-power and time. In this paper, we propose a design for an Augmented Reality Application which uses computational methods like Convolutional Neural Networks (CNN) and Depth Image-Based Rendering(DIBR) for generating 3D models; the models thus generated will be projected in the real world through the application on selection by the user.**

Keywords- **Augmented Reality, Deep Convolutional Neural Networks, Depth Image-Based Rendering, 2D-to-3D Conversion, Android Application.**

I. Introduction

The use of Augmented Reality and Virtual Reality is increasing day-by-day. The past decade has seen phenomenal growth of Augmented Reality and has attracted academia as well as industrialists [1]. It seamlessly blends virtual reality with the real world and is being used in various quarters. In recent times we saw the emergence of Augmented Reality Mobile Applications (e.g., Google Glass, Microsoft HoloLens) and evolution of powerful development kits (e.g., ARCore and ARKit) combined with improved performance. Augmented Reality has offered prominent advantages in many areas, such as education, entertainment, navigation, retail, and so on.

In this paper, we are proposing an application which will automatically convert the given input of 2D images to 3D models. The initial problem faced in this conversion is depth estimation for a single 2D image. The quality of depth estimates matters in further process, but the problem is generally undermined. Multi-view stereo images are often used to recover the depth by calculating the approximate of the object from different angles. Although we intend to work on similar lines, we use all the images available in 2D image repository for the object and select the suitable ones for depth recovery.

DIBR is one of the most important techniques used in recent times to incorporate these different viewpoints in a single virtual view using 3D wrapping process. In automatic 2D to 3D conversion the process tends to become a little complex. Further to catch the large displacements we would use multi-scale deep architectures. We intend to combine single image depth estimation with DIBR which will allow us to train the model end-to-end through stereo image pairs only[2]. In the proposed work, we integrate the DIBR process into CNN using a probable disparity map. The 3D models thus generated will be imported by Unity Asset Store.

There are two basic applications of Projection based AR, marker-based application and marker-less based application. In the initial years of research, the use of marker-based AR was an immensely popular choice. With the advancements in technology use of markerless technique in a mobile application is possible.

The main purpose of this application is to provide customers with the enhanced view of the products, inspect the object in the environment. Many times, the customers cannot deduce appropriate knowledge about the products by only viewing 2D

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Handwritten Character Recognition using Neural Networks forBanking Applications

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ABSTRACT

Banks often accept handwritten forms for various purposes like application for creating or closure of accounts, loans, net banking, etc. The form takes a lot of user information consisting of sensitive data viz. Aadhar card number, pan card number. This information is usually taken in pen-paper format and needs entry to the bank database to document the particulars in the system or the bank requires to store a physical copy of the form for future reference. Manual entry of these details into the bank database is a tedious process and might be erroneous at times. Also, maintaining the original copy of the form or like document generate stockpiles of paper. In an attempt to overcome these discrepancies, the proposed problem statement provides a solution by making use of Handwritten Character Recognition which will input data in the form of an image to store and maintain it in a digital library

Keywords

Artificial Neural Networks, Deep learning, Convolutional Neural Networks(CNN), Handwritten Character Recognition(HCR)

1. INTRODUCTION

Despite the availability of digital writing tools, many tasks such as filling the form for Bank related work are still preferred as pen paper. This cannot be considered as a limitation of technology but the convenience of users over keyboard, mouse, and touchscreens. Loss of information from physically stored records, difficulty in accessing the records, erroneous manual entry to the database are the common problems faced especially in the Indian banking sector. Taking credentials from customers is pen-paper based, but at the same time, it is difficult to store and access physical documents efficiently. Also manual entry of user credentials to the database, introduces the risk of sensitive data not being digitalized or erroneous manual data entry to the system. Thus, storage, access, and retrieval could be made digital, without any need to store the physical hard copy of the document. This process can find efficient solutions by making use of Deep learning technology.[1] Handwritten character recognition is the process of recognizing the handwritten text, then feeding it to the character recognition model as an electronic translation of images.[2] The process would happen by making use of the Convolutional Neural Networks (CNN)-image processing and then storing the contents of the image into the database in machine-editable text format, using the python libraries. Convolutional Neural Networks are primarily used in the field of pattern of pattern recognition and are analogous to ANN. CNN comprise of neurons that have the ability to optimize themselves through learning that is these take raw input vector and perform operations to get a final output of the class score.[3] In this proposed system, the system would take blocks of handwritten characters as an input vector and the same would be recognised and stored in a database.

1.1 Why use CNN?

Architecture of CNN is well suited for 2D data and it uses 2D convolutional layers to process data such as images. Convolutional layer is the key building block of CNN. According to Alexander Del Toro Barba, the ConvNets are computationally efficient than the machine learning algorithms and have the ability to handle unstructured data, thus have successfully evolved in areas such as image recognition.[5]

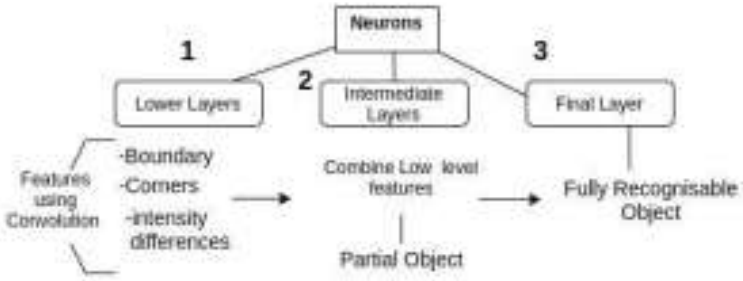

Fig. 1. Feature Extraction in Neurons

Predicting COVID-19 Pneumonia Severity based on Chest X-ray with Deep Learning

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ABSTRACT
Pneumonia is an infectious disease that affects one or both lungs in the human body commonly caused by bacteria called Streptococcus pneumonia. It is an infection of microscopic particles in the air sacs of the lungs, called alveoli. Chest X-Rays are used to diagnose pneumonia and which needs an expert radiotherapist for evaluation. This may vary over time from practitioner to practitioner. This is based upon the person's experience too. Therefore, an automated system is required that can help patients to diagnose pneumonia without any of these constraints. We propose an image-based automated system that detects pneumonia diseases using Artificial intelligence. The system will be making the use of computational techniques for analyzing, processing, and classifying the image data predicated upon various features of the images. Unwanted noise is filtered and the resulting image is processed for enhancing the image. Complex techniques are used for feature extraction like the Convolutional Neural Network (CNN) followed by classifying images based upon various algorithms. The diagnosis report is generated as an output that also contains a severity score. This system will generate more precise results and will provide them faster than the traditional method, making this application more efficient and dependable. This application can also be used as a real-time teaching tool for medical students in the radiology domain.

Keywords
Image Processing, Artificial Intelligence(AI), Neural Network, Deep Learning, COVID-19, Viral pneumonia.

1. INTRODUCTION
Coronavirus is caused by a severe acute respiratory syndrome coronavirus 2 i.e SARS-CoV-2, which was first found in Wuhan City, Hubei Province, China. The Chinese authorities reported an increasing number of cases of pneumonia, which they later identified the causative organism to be a coronavirus. Various deep learning algorithms have obtained much attention for classification of the disease to analyze medical images. Also various features are learned and extracted from the pre-trained CNN model on large-scale datasets are useful in image classification tasks. In this process, we need to evaluate the functionality of pre-trained CNN models utilized for feature-extraction followed by different classifiers for the classification of abnormal and normal chest X-Rays. We analytically determine the CNN model for this purpose. Statistics show that the results obtained to demonstrate that pre-trained CNN models worked along with supervised classifier algorithms can be very beneficial in analyzing images used to predict Pneumonia. This system can also redirect the images to an expert in case the accuracy of the classification for a particular image is found to be very low. This solution is targeted for use by the general public for remote self-diagnosis. Chest X-rays provide a non-invasive tool to monitor the progression of the disease. Images from COVID-19 pneumonia database backtracked by three blinded experts in terms of the extent of lung involvement as well as the degree of opacity.

2. LITERATURE SURVEY
The use of artificial intelligence-based systems is very common in detecting those caught in the COVID-19 epidemic. As given in Table, there are many studies on this subject in the literature. In binary classification, it is common to distinguish COVID-19 positive from COVID-19 negative. The researchers used 70% data for the training, 10% for validation, and 20% for the test. As a result, they obtained 94.40% accuracy over test data with the CNN model they suggested and proposed a two-class study using limited data. They reported their performances by dividing the dataset at different training and testing rates. They achieved the highest accuracy of 94.65 ± 2.1 at 70% training - 30% testing rates. In their study, they set the CNN hyper-parameters using multi-objective adaptive differential evolution. Afshar et al. conducted their studies using a method called COVIDCAPS with multi-class (Normal, bacterial pneumonia, viral pneumonia, and COVID-19 studies. They achieved 95.7% accuracy with the approach without pre-training and 98.3% accuracy with pre-trained COVID-CAPS. However, although their sensitivity values are lower than general accuracy, they detected the without pre-training and 98.3% accuracy with pre-trained COVID-CAPS as 90% and 80%, respectively. From their point of view, considering that this pandemic period affects the whole world, there is a serious increase in the work density of radiologists. In these manual diagnoses and determinations, the expert's tiredness may increase the error rate. It is clear that decision support systems will be needed in order to eliminate this problem. Thus, a more effective diagnosis can be made. The most important issue that restricts this study is to work with limited data. Increasing the data, testing it with the data in many different centers will enable the creation of more stable systems. In future studies,

Springer Link

Original Paper | Published: 04 May 2021

Signature-less ransomware detection and mitigation

Yash Shashikant Joshi, Harsh Mahajan, Sumedh Nitin Joshi, Kshitij Pradeep Gupta & Aarti Amod Agarkar

Journal of Computer Virology and Hacking Techniques **17**, 299–306 (2021) | Cite this article

557 Accesses | **3** Citations | Metrics

Abstract

Ransomware is a challenging threat that encrypts a user's files until some ransom is paid by the victim. This type of malware is a profitable business for attackers, generating millions of dollars annually. Several approaches based on signature matching have been proposed to detect ransomware intrusions but they fail to detect ransomware whose signature is unknown. We try to detect ransomware's behaviour with the help of a mini-filter driver using a signature-less detection method. The proposed technique combines the working of Shannon's entropy and fuzzy hash to provide better results in detecting ransomware. Not only this technique has been practically tested but has been successful in detecting over 95% of the tested ransomware attacks on windows operating systems.

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Devanagari Text Detection From Natural Scene Images

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Abstract

Text present in a camera captured scene images is semantically rich and can be used for image understanding. Automatic detection, extraction, and recognition of text are crucial in image understanding applications. Text detection from natural scene images is a tedious task due to complex background, uneven light conditions, multi-coloured and multi-sized font. Two techniques, namely 'edge detection' and 'colour-based clustering', are combined in this paper to detect text in scene images. Region properties are used for elimination of falsely generated annotations. A dataset of 1250 images is created and used for experimentation. Experimental results show that the combined approach performs better than the individual approaches.

Article Preview

Top

1. Introduction

Devanagari script is used in India for writing many official languages like Hindi (National Language of India), Marathi, Sindhi, Nepali, Sanskrit and Konkani (Jayadevan, Kolhe, Patil, & Pal, 2011). Official documents, instruction boards, street boards, banners etc. are generally written in regional languages. Though there is a significant improvement in printed script recognition from documents, there is lot of scope for research on regional text processing in scene images (Pal, Jaydevan, & Sharma, 2012). Camera captured scene images are complex due to dust, uneven light conditions, shadows, perspective distortions, poor quality etc. Also it is difficult to identify text with different styles, colours and sizes. Thus, it is very challenging to detect text in camera captured scene image as shown in Figure 1.

Rapid growth of multimedia and handheld systems demands more efficient techniques to process digital data. Text present in camera captured images is useful in many applications. An automatic text detection and recognition system can be used in various applications like content-based image searching, automatic navigation system, object recognition, text to audio conversion and language translation. Smart phone-based applications can be developed to translate information written in Devanagari script (Hindi, Marathi, Nepali, Konkani etc.) present in scene images to other target languages. Such a system will be very useful to foreigners and others who can't read the language (script). Text detection and recognition are two major steps in such applications.

Figure 1. Key challenges in text detection: (a) Complex background, (b) Poor quality text due to various climatic conditions, (c) Shadow effect, (d) Perspective distortion, (e) Uneven light condition: (f) Multi coloured and multi sized text, (g) Curved text, (h) Artistic font
IJCVIP.2020070104.f01

To detect Devanagari text from scene images, two techniques are proposed in this paper. The first technique is based on edge detection and the second is based on colour information. Later the two techniques have been combined to achieve higher accuracy. Edges play an important role in multi sized, multi coloured and multi oriented text identification. In the edge-based technique, image is preprocessed before applying the edge detector. Region-based properties are used for elimination of irrelevant edges. Text regions are then identified by connected component analysis. Colour homogeneity is also an important feature for text detection in high contrast images. In the colour-based technique, background and foreground regions are separated by colour based clustering followed by region-based property filtering and connected component analysis. A dataset of natural scene images is created and experimentation is carried out to check the accuracy of individual and combined approaches.

This paper is organized as follows: Survey of existing text detection methods is summarized in section 2. The proposed techniques are described in further sections. Section 3 presents edge detection-based technique and its experimental results. Colour-based technique based on clustering in YCbCr colour space is mentioned in section 4. Finally, these two techniques are combined to achieve higher accuracy. The combined approach is explained in section 5. Observations of all these techniques are concluded in section 6.

Top

2. Related Work

Plenty of work is carried out on English text detection and recognition from scene images. There is some improvement in research related to languages like Indic scripts (Jayadevan et al., 2011; Pal et al., 2012), Farsi/Arabic (Maryan, & Mohammad, 2012) and Chinese script (Bai, Chen, Feng, & Xu, 2014) for the last few years. The state of the art of various text detection & recognition techniques are mentioned by Zhu et al. (2016) and H. Zhang et al. (2013). Text detection is the process of identifying text region present in the image. In text recognition, the detected text from the image is converted into a machine readable format. Text present in camera captured images is different in style, size, colour and orientation. It is very difficult to apply a common method for text identification due to this variation. The work becomes more challenging due to complex background, perspective distortion, poor resolution, dust and shadow effect. Different methods that can be used for text detection are connected component, edge-based, colour-based, texture-based and stroke-based methods (H. Zhang et al., 2013; J. Zhang, Cheng, Wang, & Zhao, 2013).

Complete Article List

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Recognition of Devanagari Scene Text Using Autoencoder CNN

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Abstract

Scene text recognition is a well-rooted research domain covering a diverse application area. Recognition of scene text is challenging due to the complex nature of scene images. Various structural characteristics of the script also influence the recognition process. Text and background segmentation is a mandatory step in the scene text recognition process. A text recognition system produces the most accurate results if the structural and contextual information is preserved by the segmentation technique. Therefore, an attempt is made here to develop a robust foreground/background segmentation(separation) technique that produces the highest recognition results. A ground-truth dataset containing Devanagari scene text images is prepared for the experimentation. An encoder-decoder convolutional neural network model is used for text/background segmentation. The model is trained with Devanagari scene text images for pixel-wise classification of text and background. The segmented text is then recognized using an existing OCR engine (Tesseract). The word and character-level recognition rates are computed and compared with other existing segmentation techniques to establish the effectiveness of the proposed technique.

Key Words: scene text recognition; Devanagari script; OCR; segmentation technique; encoder-decoder CNN

1 Introduction

Text recognition systems are becoming more efficient due to the increasing availability of multimedia data, low-cost image capturing devices, and high-performance computing devices. Understanding the text present in a scene image like nameplates, instructional boards, navigation boards, banners, wall paintings, etc. is essential for effective communication. But, understanding the text written in an unknown language or script is a massive challenge in scene text recognition. A solution can be provided by developing a smartphone-based system that can process, detect, recognise and translate the text present in a scene image from one language to a known language. Detection and recognition of the text are the two major steps in such applications. The process of localization and extraction of text regions from the image is called text detection. The output of the text detection is always in the image format. The process of converting that text image into the corresponding digital format (Unicode) is called text recognition. This paper presents a technique to recognize Devanagari text from natural scene images. In the last few decades, various methods have been reported regarding the recognition of text present on document images. But scene text recognition is still a challenging task compared to the document image recognition [1, 2]. Foreground and background

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Recent Advancements in Text Detection Methods from Natural Scene Images

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Abstract

Effect of digitization and globalization has narrowed down the gap of geographical boundaries. Text/language plays an important role in getting connected with people utilizing oral or written communication. Nowadays text data is easily available in the form of multimedia e.g. audio, videos. A technique is needed to understand and interpret the text present in the videos/images which are rich in contents compared to audio data. Text detection and recognition are two main steps of such text-based applications. Text detection from natural scene images is tedious compared to text detection from document images. Various methods are available for text detection from natural scene images. Text detection methods are generally script specific. The main purpose of this paper is to highlight available text detection methods with pros and cons, challenges in the text detection process, evaluation parameters as well as recent achievements. The paper will act as a roadmap for upcoming researchers to select an appropriate text detection method.

Keywords: natural scene, text extraction, text detection, image understanding, text localization

I. INTRODUCTION

Digitization has completely changed the database architecture that supports storage and retrieval of a rapidly generated huge amount of multimedia data. High availability of computing devices make processing and understanding of content present in multimedia data easier and hence content-based applications are gaining popularity. In this era of globalization, text-based applications can provide ease of communication and connectivity between geographically located different regions. A smartphone-based application can be developed that can capture, process and understand text written in one language and translate it into the target language. Text detection and text recognition are two main steps involved in text processing applications. Text detection is the process of locating and extracting the text present in the image. Text recognition is the process of converting text detected in image format to ready to use text (digital) format. Text detection from camera captured natural scene images is complex due to various challenges [1]. There are several factors affecting text detection process and can be categorized into i) Font perspective: different font size, font style, multi-coloured, multi orientation and multilingual etc. ii) Quality perspective: Complex background, Poor quality due to climatic conditions, deformed image etc. iii) Device perspective: poor resolution, perspective distortion, image with shadow effect and uneven light conditions etc. Few of the text detecting challenges from natural scene images with Devanagari text are mentioned in Fig.1.

The challenges present in the text detection attract many researchers to contribute in this area. Accuracy of any text recognition technique relies on the correctness of the text detection technique. Over the period, remarkable success is achieved in the text detection techniques by many researchers. Paradigm of text detection methods is shifting rapidly from the usage of fundamental features to modern and more intelligent algorithms. The main objective of this paper is to present a brief review of existing state of art methods for text detection and recent advancements in this decade.

II. EXISTING TEXT DETECTION METHODS

In the literature survey, a lot of work is found on Latin scripts (e.g. English) text detection and recognition. Significant development is observed in Asian languages like Chinese and Indic scripts. Researchers have tried various methods on different language datasets and achieved remarkable success [1, 2]. Conventionally, text detection methods are categorized into sliding window-based and connected component-based methods [3]. Considering the rapid developments and success of state of art methods, in this paper text detection methods are categorized into i) low-level feature-based, ii) high-level feature-based and iii) text region verification methods. Most of the traditional text detection methods are based on basic features like edge, colour, texture etc. These features are used very frequently and easy for the implementation. More semantically rich features like Stoke Width Transform (SWT), Maximally Stable Extremal Regions (MSER), Histogram of Gradient (HoG) etc. can be derived from these basic features and used more efficiently. Non-linear nature of these features limits the scope of intensive improvement in the performance of text detection methods. Thus, more efficient and intelligent machine learning algorithms are adapted by the researchers to handle misdetection of text.

A Robust Framework with an Aid of Analytical Modeling to Assess the Distinct Behavioural Pattern of Wormhole Adversary Node in MANET

S.B. Geetha, Dr. Venkanagouda C. Patil

Abstract

Owing to potential benefits towards disrupting the distinct pattern of MANET communication, wormhole attack is very popular among adversaries. However, unlike other forms of wireless networks, very less research effort has been laid towards strengthening the security systems to mitigate these type of attacks in MANET. Addressing this issue, the study comes up with a novel solution which introduces robust analytical modeling which assists in behavior mapping for wormhole attacker with respect to its distinct fractures and uncertain pattern of communication. The notion of the formulated concept applies statistical learning method to generalize the core strategic behavior of the malicious node and also implies that how the discrete behavior differs from the normal behavior of nodes. The analytical solution also improvises a cost-effective decision based on cognitive learning and malicious node behavioral mapping. The model validation is performed with respect to two different performance parameters such as throughput and overhead-latency. The experimental outcome shows the formulated approach accomplishes a better outcome as compared to the existing baseline.

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SECURING VANETS AGAINST WORMHOLE ATTACK USING BEHAVIOURAL ANALYSIS OF NODES IN VANET

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Abstract: *Vehicular ad hoc network has gained a lot of attraction and importance these days. VANETs are characterized as a self- organized, distributed, highly mobile, and dynamic topology due to which it is vulnerable to various kinds of security breaches such as authentication, availability, confidentiality, message integrity, data availability, access control, and various kinds of other attacks such as Sybil attack, black hole attack, wormhole attack dos, attack etc. Amongst the various kinds of attack the paper highlights the consequences of wormhole attack and proposes a novel methodology using game theory and statistical analysis to defend against worm hole attach in VANET.*

Keywords: *Wormhole attack, VANET, Security, Malicious nodes*

1. INRODUCTION

VANET is considered a special case of mobile ad hoc network and has many similar characters of it. Vehicle traffic is one of the major problem in recent days[12]. Due to traffic jams huge gallons of fuel is wasted along with time. Hence a technology which can assist and provide support in any situation during travelling is required. VANET is a technology where the traffic conditions are controlled and maintained. Hence VANET is one of the most popular technology to handle road traffics. VANETS are used in Intelligent Transportation System(ITS) that provide good support vehicles using the Wi-Fi to deliver visitors safety information, status of traffic on streets, information of fast moving vehicles, the etc.

VANETS are wireless networks which also use Satellite channel and additional mediums for transmission of data across the nodes or vehicles in the network. VANET basically consists of three components. Apart from vehicles, which act as nodes and communicate from one another either to pass or to exchange information. Other components are a) Road side Unit (RSU)'s are an infrastructure which are installed at road sides at certain distances apart from one another. It provides internet access to vehicles that are under its range b) On-Board Unit (OBU) which are basically found on the vehicles consisting of Omni directional antennas, processors, GPS unit, and sensors. This assists in wireless communication between vehicles c) Trusted Authority (TA) which is basically used to transfer data form one node to other. Also, apart from these infrastructures there are also drivers, third parties such as traffic police, attackers etc. can also be present or be a part of VANET.

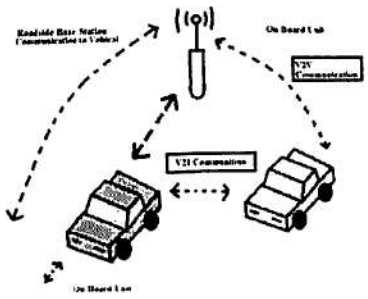

Fig 1: VANET Communications

VANET identifies three types of communication [2][10]. a) Vehicle to Vehicle(V2V) communication between vehicles in covering shorter ranges. On board unit (OBU) consisting of sensors and processor, processes the data and helps in communication with other vehicles. b) Vehicle to Infrastructure(V2I) are fixed infrastructure which assist in communication between vehicle and road side units (RSU)c) Infrastructure to Infrastructure(I2I) where RSU to RSU communication takes place Figure 1 depicts the types

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Implementation of College Recommendation System

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ABSTRACT: Currently in India college ranking is the issue that is discussed a lot. In this system, a common forum where students can get information about various engineering colleges and their ranking. There are many websites that give information about various engineering colleges but when it comes to students, for them it is important to know certain insights to parameters like faculty, academics, hostel facility, placement etc. Students from small cities and villages have less exposure to various Colleges which are funded by state and central government for studies, Research and Innovation. If these students will have sufficient exposure then the young talent will be properly channelized as per their interest. In this system consist mainly student, alumni and admin module. In this system Recommendation of colleges according to the rating based on different parameter like academic, sport etc. on the basis of rating top colleges in pune.

KEYWORDS: Alumni, College Recommendation System, Rating

I. INTRODUCTION

Now a day's number of engineering, medical and other stream colleges an in pune are rapidly increase for every year. Each college is providing the various facilities to the student as well as the employee of the college. According the providing facilities as well as teaching standard of college is deciding the
admission of colleges. If college teaching staff is good and facilities are good for student then students take admission for that college. If any student wants to take admission for any college then student first search that college and view rating of college from various websites then take the admission for the college. In this system admin can add different college info with various rating parameter like

place,academics,sport,facility,Infrastructure and marks also .Alumni of colleges can give the rating of the colleges with parameters. If this system user can search the different college from Pune then user can view all the details of college as well as view all the ratings of that particular college. According to the contain based search algorithm student can search colleges. On the basis of rating system can recommendation of the best college for take and admission.We can introducing new approach for remove the drawback of existing system as well as improve the accuracy this system.

II. PROBLEM STATEMENT

Now a days different colleges information available on internet like opinions and rating accessible to us are one of the most critical factors in formulating our views and influencing the success of a brand. Existing system is not good or enough for suggest top colleges.

III. GOAL AND OBJECTIVE

Goal

Using contain based algorithm sentiment analysis of rating of colleges and identify top colleges in pune.

Objective

- To search different colleges in pune.
- View the college details in the system.
- Give the rating to the colleges.

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Stock Chart Pattern Recognition with Neural Network

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Abstract—Finding patterns in high dimensional data can be difficult because it cannot be easily visualized. Many different machine learning methods are able to fit this high dimensional data in order to predict and classify future data but there is typically a large expense on having the machine learn the fit for a certain part of the dataset. This paper proposes a deep learning way of defining different patterns in stock market prices. Using a CNN, the pattern is found within stock market data and predictions are made from it. The stock pattern is divided in five parts Decline in value of stock (Abrupt decline, smooth decline), incline in stock value (abrupt increase, smooth increase) and stable price.

Keywords—stock pattern recognition, CNN,OHLC

INTRODUCTION

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Healthcare Consultancy System

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ABSTRACT

Under the present situation, the healthcare delivery system is prohibitively expensive, inefficient, and unsustainable. Machine Learning (ML) has revolutionized the way businesses and individuals use data to increase system performance. Strategists can work with a range of organized, non - structured, and semi-structured data using machine learning algorithms. This device provides a virtual assistant who can converse with patients in their native language to understand their symptoms, recommend doctors, and monitor health metrics. To process users' complaints and find the closest doctor who can help handle the user's case, the solution relies on natural language processing models and machine learning analytic methodology. A deep bilinear similarity model is also proposed by the framework to boost the generated SQL queries used for predictions and algorithms. BERT and SQLOVA models are used to train the device data collection.

Keywords : Machine Learning (ML), Consultancy System, Web Application Development, Machine Learning Model, Virtual Chat Application, Interactive Chatbot System.

I. INTRODUCTION

The chat bot technology is automating 2a variety of customer service functions as well as business, institution, and association websites. The user receives a short answer to the questions that are most often asked. For patients, we have proposed a chat bot system. Patients are likely to have a slew of questions about conditions, medications, and other services. Instead of asking a random human, they can use this chat bot system to get a fast answer. A chatbot is an artificial intelligence agent that can engage in communication with a person. The majority of them have a messenger-style gui with a user input and a chatbot output. The chatbot interprets the user's feedback and responds based on what they've just said. It might be a greeting, a topic of conversation, or even a picture. The majority of chatbots balance a user's feedback with a predefined collection of dialogue. For eg, if a user says "Thank you," the chatbot will respond with "You're Welcome." A predefined series of dialogues may be set up to mimic a typical two-person interaction. Problems will happen when a user says something

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Research Article

Analysis of Context Aware Computing Systems in Internet of Things

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Abstract: Internet of Things (IoT) has been developed speedily due to modern advancements in communications and sensor technologies. Similarly IoT deployments are rising with accelerating speed. Since this field develops in number and heterogeneity, intelligence has become important aspect of IoT. The data has become Big in nature so understanding, extracting knowledge and interpreting this Big Data is critical step for upcoming future of IoT. One of the major difficulties in the way to smart IoT is understanding context. Context is defined as making sense of the situation or environment using data received from the sensors and performing actions accordingly. This is referred as context-aware computing. Context aware systems are in high demand in fields/area like Smart/Intelligent Environments, Pervasive & Ubiquitous Computing etc. They collect the data and adjust the system actions accordingly with the help of context details. In this survey paper, we discuss the perception of context awareness, context lifecycle, context modeling approaches and context reasoning methods in detail. The survey shows that Ontology based modeling and Supervised learning reasoning are widely used in context-aware computing systems. Finally, applications of context-aware systems are listed along with discussion on open issues to point out challenges and upcoming development direction of context-aware systems.

Keywords: Context, Context awareness, Context Aware Computing, Context modeling, Decision Making, Pervasive & Ubiquitous Computing

1. Introduction

Real world has become complex and dynamic. Users frequently move around with portable devices. Surrounding including nearby people, atmosphere and environment changes rapidly. Ubiquitous computing helps to indentify these circumstances appropriately and provides best adequate services to users. This situational information about entities is defined as context. Hence ubiquitous computing system needs to acquire context properly and present best adequate services to users according to the context. Many researchers have described context as per their own perception. Schilit and Theimer introduced Context awareness first in 1994 [1] and explained it in term of identities, location, objects and nearby people. P.J. Brown explained [2] context as the information that is used to characterize the situation of an entity. Context is defined generically by A.K. Dey as "any information that can be used to characterize the situation of an entity", where "an entity can be a person, place, or object that is considered relevant to the interaction between a user and an application, including the user and applications themselves" [3].

Context-awareness is the critical element of the systems developed in areas like Intelligent Environments, Pervasive & Ubiquitous Computing and Ambient Intelligence. Context aware system has become well-liked research area. Context aware computing facilitates applications to have awareness about the context by making implications from the collected data and presents smart intelligent services to user. Sensed data is mainly used to mine the information about context which can be user context (profile of user, preferences, location, social situation), physical context (traffic situations, temperature, light, noise), Time context (season, year, month, day of the week, hour of day), communication context (connectivity of network, resource access, communication charges) etc.

Here, we present an overview of context, context awareness and context aware systems.

What is context? The term Context has been defined by researchers in various different ways. Commonly, context is defined as the information used to describe or relate an entity [4]. Context is information mined from raw sensory data generating from many sources. Context is the key information resource for systems to attain context awareness. The Oxford Dictionary describes a general definition for context as "the circumstances that form the setting for an event, statement, or idea and in terms of which it can be fully understood" [5].

What is context awareness? Context awareness was introduced first by Schilit and Theimer in 1994. The thought of context-awareness is originally derived from the concept of pervasive computing. It is used to explain technologies that are "able to sense, recognize, and react to contextual variables" i.e. to determine the actual context of their use and adapt the functionality accordingly or respond appropriately to features of that context [6].

What are context aware systems? Context-aware computing refers to a general class of mobile systems that can sense their physical environment, and adapt their behavior accordingly [1]. There are three most critical

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Research Article

Connecting Big Data and Context Aware Computing for Improving User Activities

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Abstract: A decade ago, global data began to climb exponentially. It is primarily aggregated through the worldwide web, including social networks, multimedia files, web search requests, text messages, devices and sensors for the Internet of Things. In extracting useful data from such a large volume of data, there are many difficulties. With the emergence of Widespread & Ubiquitous Computing, the term context awareness is becoming popular. Using context data such as physical context, computational context, and user context/tasks, the context-sensitive systems collect data and modify system actions accordingly. The key purpose of this article is to focus on how such large volumes of data are treated by context-sensitive computing systems. In a satellite navigation device, for example, the user's current position is the reference used to change the visualization automatically (for example map, arrows, direction etc.). From a Big Data perspective, this paper discusses context-aware computing systems and examines numerous big data challenges.

Keywords: Context aware computing, big data, machine learning, ubiquitous computing.

1. Introduction

Over the last decade, the expansion in the field of information and communication technology (ICT) has given rise to big data applications, primarily demonstrating the enormous amount of data generated or consumed in all areas of technology and industry[1]. It is estimated that the data volume produced by big data applications will increase rapidly over the years.

The big data can be categorized according to three aspects: (a) volume, (b) variety, and (c) velocity [2]. These categories were first introduced by Gartner to describe the elements of big data challenges. At present, immense opportunities are present for mining huge amounts of such data for modern applications in the field of smart cities, smart transportation, ambient assisted living, sensor technology and healthcare monitoring etc. Big data analytics can assist in examining trends, mining patterns, finding hidden information and making well informed business decisions. Another upcoming domain is Context aware computing (CAC) which makes an application to sense context and extract inferences from the data acquired thereby providing the user smart and intelligent insights. Data sensed is typically used to extract some information about a context, which can refer to Computation context, User context, Environmental context and Timing context. Modern applications which are based on ubiquitous and pervasive computing are becoming famous since use of context awareness.

This survey paper highlights on the following topic:

1. Context aware systems, its categorization, methodologies to handle context of data.
2. Big data, its characteristics.
3. Context aware and big data systems with respect to varied application areas.

2. Related work

There is a tremendous increase in applications based on big data due to advances in information and communication technology. The data being generated in these applications can originate new concerns like poor data quality [3]. It causes the need for effective quality control techniques. Such type of data analysis may lead to the wrong business decisions. Based on the systematic review [4] it is found that very few researchers suggested quality improvement criteria. One of the solutions for such problems is context awareness. This system uses context information to take an action based on occurrence of a predefined event and at a certain time. The actions are designed based on three forms[6]. These actions can be presentation-based, according to the execution of services per the user context and on tagging sensor data with context information to be processed at a later time. The design of Context aware systems (CAS) is based on the amount of data and the reasoning level for the given application. Some CAS can be based on the system itself, where all CAS tasks are handled locally. Secondly, the CAS design is based on the use of libraries, frameworks, and tool-kits. Finally the CAS can be designed explicitly, which uses context management systems or middleware infrastructure. Personalization is based on user preferences and expectations where CAS can be implemented. The authors in [7] have also provided CAS classification as Self-Managing Context-Aware Systems for optimization, User-Driven Context-Aware Systems

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Survey Paper on Queue Management and Restaurant Recommendation System

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ABSTRACT

This survey paper focuses on a restaurant recommendation and virtual queue management system. Here, we compare many such algorithms and techniques to manage queues and hence, reduce crowding and recommend restaurants using behavioral and statistical data. In the recent times of Covid19, crowding near restaurants is very dangerous and hence, we need a foolproof system to manage the same. The two algorithms that will be used in the proposed system are K-NN and TF-IDF. The user need to login into this system with credentials. Then, the menus and restaurants will be displayed. The user can place the order and make an online payment through the RazorPay gateway. The behavioral data of the user is captured and stored in the database to recommend the most apt restaurants and dishes.

Keywords- KNN, content-based filtering, collaborative filtering, tf-idf, virtual queuing, restaurant recommendation, behavioral analysis, predictive analysis

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I. INTRODUCTION

This project is titled "Restaurant Recommendation and Queue Management System". In the wake of the worldwide pandemic of Covid19 going on, it is very risky to have long queues in front of restaurants and food joints. This might lead to a breach of social distancing. Hence, this project aims to eliminate all real-time queuing and introduce virtual queuing. The user will be able to place orders for food. For each order, there will be an order number, queue position and QR code will be generated. This queue position number will be used to form a virtual queue. When the order is ready, the user will get notified about it. The user needs to get the QR code scanned at the restaurant and pick the order up. In addition to this virtual queuing system, there is also a payment gateway available. RazorPay gateway is reliable, secured and open-source. This API is integrated with this system and that helps the payment to get redirected to RazorPay. The user is prompted to enter his/her NetBanking details or UPI details to complete the online payment. Since this system focuses on eliminating surface contact and maintaining social distancing, the option of cash payment is eliminated.

The restaurant recommendation system of this project is a machine learning module. It is a well-known fact that machine learning algorithms are used far and wide for prediction and recommendation purposes. The algorithms generate results by learning the trends and patterns in previously available data. These results are used to predict the future behavior of the user.

In this module, there are a couple of algorithms used. first one is the KNN and the second one is TF-IDF. The KNN algorithm is basically used to predict the next move of the customer. Here, this algorithm is being implemented at two points. The map tracker system uses KNN to predict the route that the customer will be taking to reach the restaurant. Also, it is used in the search bar. When the user will start typing, the predictions based on previous searches will appear there. This will help in good quality and efficient searching.

The TF-IDF algorithm is used to recommend items to the user. The TF-IDF algorithm works by maintaining a score of the number of appearances of a specific word or term in a database. Here, it maintains a record of what the user has ordered the most number of times. Based on the trend that

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QR CODE BASED INVENTORY MANAGEMENT SYSTEM WITH PREDICTIVE MAINTENANCE

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ABSTRACT: The project Inventory Management System is a Web application and aim of the project is to develop a software in which all the information regarding the stock of the organization will be verified and presented. The application contains general stock details and there is also provision for updating and deleting the inventory as and when required .While operating on mobile users can also scan QR code for more ease of use. In order to keep maintenance of inventories within an institute the system will provide predictive maintenance alerting users from the damage of the object. After successfully verifying the stock in an organization one can easily generate the inventory report.

Key Words: **QR Code, ML, Inventory, Multiple Linear Regression**

I. INTRODUCTION

The main motivation behind this project is to design and develop a simple easy to use and functional QR code-based Inventory management system that will be useful in small business organizations and educational institutes to keep track of current inventory and identify the current location of inventory items, to achieve this each item will have a unique ID in the form of a QR code on it. This project will be helpful in educational institutes and small business organizations to keep track of departmental inventory and if an item is misplaced it can be easily identified to which department it belongs to just by scanning it is QR code. This project also aims to automate the annual inventory report by generating a report that clearly states a list of items in inventory along with their quantities and missing items along with their quantities. One other important feature of this project is to incorporate machine learning-based predictive maintenance which will alert the administrator of possible maintenance of system or components based on historical data of the given component. Thus, this project helps in a significant reduction of human effort and human resources and achieves a high level of automation which in turn reduces time and effort previously needed to perform inventory management manually. To develop an application that is capable of inventory management within an organization using web development and machine learning. The application should scan QR code using image processing to uniquely identify the objects and predictive maintenance will be provided for the inventories using machine learning algorithms.

2. LITERATURE SURVEY

Products are the business resources for an organization. This includes appropriately managing the product and reviewing any time as per the requirement. Therefore, it is essential to have an Inventory Management System,

whichis capable of generating reports and also can keep track of the stock in the inventory. Before developing this application, we studied the Inventory Management System existing in the market, which helped us gain the knowledge for the development of our project. The application software that are currently in the market are only used by the large companies and the main focus is to reduce the shelf life of the inventory to prevent the inventory to become deadstock but what about small organizations where we just have to focus on inventory management but not on deadstock so we came up with the application which can be used by small companies and organizations. Hence, we have decided to build a QR code-based Inventory management system that is more reliable and feasible for small to medium size organizations. Where the main focus is on the upkeep and tracking of current inventory. This review is based on IEEE papers and certain other papers published in leading international journals.

This paper [1] depicts a QR code based inventory management system based which can be operated using a smartphone and the camera associated with the smartphone.

Current scenario of wind power in India, government policies, initiatives, status and challenges

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Abstract

Purpose – This paper aims to review the role of government initiatives for the development of wind power industries in India, to provide better and benevolent policies in the production of wind energy density and to maximize the use of the renewable source of energy which permits to reduce carbon emission from the coal-based power plant and to curtail tackle need of society and mitigate poverty.

Design/methodology/approach – The present study is carried out on the current position of wind power generation in India. Government policies for promoting clean energy and associated problems are also analysed herein detail. However, secondary approaches are opted in terms of alertness of caring for the environment hazardous and reduced the major economies aspects by fulfilling the schema of Kyoto Protocol and Paris Agreement, United Nations Framework Convention on Climate Change.

Findings – The prospective of wind energy generation is huge, as an ancient source of energy, wind can be used both as a source of electricity and for agricultural, irrigation uses. The study of wind turbine blades and its features showed how it can be properly fabricated and used to extract the maximum power, even at variable and low wind speeds.

Research limitations/implications – Although India has achieved a remarkable advancement in wind power sectors, it needs to eradicate all the loopholes to evolve as super power in wind energy sector leaving behind its rivalry China. To do this, it is required to develop in many fields such as skilled manpower, advancement in research and development, grid and turbine installation, proper distribution, smooth land acquisition, modern infrastructure, high investment and above all industry friendly government policy.

Practical implications – The present study finds out effects of wind power energy as a source of renewable energy to mitigate energy crisis.

Social implications – As a source of renewable energy and cost effectiveness, wind power can be evolved as a potential means enhance social life.

Originality/value – The present paper caries out critical analysis for the active use of renewable energy in the present and forthcoming days. Such unique analysis must help India as a developing nation to balance its energy crisis.

Keywords CO_2 emission, Energy balance, Environmental damages, Energy sector, Renewable energies, Scenario analysis, Correlation analysis, Resource management, Wind, Renewable energy, Wind energy, Windfarm, National measures, Policies, Strategies, Tariff, Environment, Carbon emission

Paper type Research paper

One of the authors, Anand Vijay Satpute, gracefully acknowledges to Dr D.K. Rajak, who is an Assistant Professor of Department of Mechanical Engineering, SITRC in Nashik for evaluating this manuscript and give valuable comments and suggestions, which help this study to be enriched and improved.

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Influence of Rural Electrification for Development of Quality of Life:A Preliminary Investigation

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Abstract

Evaluating the importance of electricity in one's life is the key to success. The present article brings light on the role of electrification not only for meeting the mere utilities but also on the enhancement of capability of rural people of India. Electrification can play a vital role in accelerating the quality of life of the people. Two villages in Nashik district within the state of Maharashtra have been taken for the qualitative evaluation. The study uncovered the fact that, electricity may be treated as a climacteric means to enhance people's decisions and opportunities within the trailing of quality lives. In addition to this, it also uncovered that the advantages of electricity don't seem to be uniformly benefitted all the families within the villages taken for the survey. Government policies for rural electrification should be backpedalled and the conventional definition of electrification in rural areas must be integrated with the scope of usage of solar photovoltaic. This article additionally suggests that the policies are to be made to increase easy access of electricity by rural people for adding values in their quality of life and enhancing their capabilities in present socio-political environment.

Keyword: Electrification and Quality of Life, Rural India, Safety, Society, Lifestyle

1. Introduction

Electricity is one of the most important pillars of civilisation. With the advent of science and technology demand of electrification increases day by day. In every corner of society and in many household appliances blessings of electrification is highly needed. Communication, information technology, lighting, air conditioner, refrigerator, food preservation, entertainment services and many other technologies are dependent solely on the supply of electricity.However, all the advantages brought about by electrification are to fulfil people's daily needs. Utilisation of electric appliances does not provide detail understanding of the role of electrification in development of quality of life. A rigorous analysis is being demanded to establish the actual role of electrification in developing capability and quality of life of the rural people of India.

Breast Cancer Detection from Histopathology images using Machine Learning Techniques: A Bibliometric Analysis

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Abstract. Computer aided diagnosis has become upcoming area of research over past few years. With the advent of machine learning and especially deep learning techniques, the scenario of work flow management in healthcare sector is changing drastically. Artificial intelligence has shown potential in the field of breast cancer care. With datasets for machine learning frameworks getting eventually richer with time, we can definitely get newer insights in the field of breast cancer care. This will help in narrowing down the treatment range for patients and increasing patient survivability. The purpose of this study was to perform bibliometric analysis of the literature in the area of breast cancer detection using machine learning. Analysis was done for various elements like publication types, highly influential authors, most prominent journals, institutional affiliations, main keywords, etc. This analysis may direct

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Fifth Generation Antennas: A Comprehensive Review of Design and Performance Enhancement Techniques

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ABSTRACT The intensive research in the fifth generation (5G) technology is a clear indication of technological revolution to meet the ever-increasing demand and needs for high speed communication as well as Internet of Thing (IoT) based applications. The timely upgradation in 5G technology standards is released by third generation partnership project (3GPP) which enables the researchers to refine the research objectives and contribute towards the development. The 5G technology will be supported by not only smartphones but also different IoT devices to provide different services like smart building, smart city, and many more which will require a 5G antenna with low latency, low path loss, and stable radiation pattern. This paper provides a comprehensive study of different antenna designs considering various 5G antenna design aspects like compactness, efficiency, isolation, etc. This review paper elaborates the state-of-the-art research on the different types of antennas with their performance enhancement techniques for 5G technology in recent years. Also, this paper precisely covers 5G specifications and categorization of antennas followed by a comparative analysis of different antenna designs. Till now, many 5G antenna designs have been proposed by the different researchers, but an exhaustive review of different types of 5G antenna with their performance enhancement method is not yet done. So, in this paper, we have attempted to explore the different types of 5G antenna designs, their performance enhancement techniques, comparison, and future breakthroughs in a holistic way.

INDEX TERMS SISO, MIMO, wideband, multiband, 5G communication, metamaterial, corrugations, dielectric lens, defected ground structure (DGS), antipodal Vivaldi antenna (AVA), multi-element antenna, monopole, dipole, magneto-electric(ME) dipole, loop, fractal, inverted F antenna (IFA), planar inverted F antenna (PIFA).

I. INTRODUCTION AND MOTIVATION

In last few years, economic and social development is greatly influenced by the advancements in the field of mobile communication. As a result, 5G technology has emerged as a pedestal of the future 2020 generation. 5G technology is an emerging technology with evolutionary and revolutionary services. It is the next generation of technology to provide ultra high data rates, very low latency, more capacity, and good quality of service. It is worth mentioning that 5G technology will unleash new opportunities to leapfrog traditional barriers to development. As 5G technology supports IoT also, it gives leverage of a major societal transformation in the fields of education, industry, healthcare, and other social sectors. 5G technology is expected to unlock an extensive IoT ecosystem wherein many devices will be connected and by maintaining a trade-off between latency, cost, and speed a network can suffice the communication needs.

The 3GPP standards undergo continual change. The 3GPP investigates an organized release of new functionality and is responsible for new releases of standards as per the planned schedules. The 3GPP has stated three different usage scenarios of 5G communications which are as follows [1]:

- **Enhanced Mobile Broadband (eMBB):** It provides ultra high speed indoor and outdoor connection. It supports good and uniform quality of service at the edge

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ORIGINAL RESEARCH

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Wireless Sensor Network-Assisted Forest Fire Detection and Control Firefighting Robot

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Abstract

Forest fire is an uncontrolled fire that happens basically in timberland locales, indeed though it can moreover attack urban or country ranges. Among the main causes of quickly spreading fires, human variables, either deliberateness or coincidental, is the foremost typical ones. The number and impact of woodland fires are expected to create as a consequence of around the world warming. In arrange to fight against these fiascos, it is fundamental to receive a comprehensive, multifaceted approach that empowers continuous situational mindfulness and instant responsiveness. This paper portrays a hierarchical wireless sensor arrange pointed at early fire discovery in forest regions and informing fire work force approximately fire firsthand. Wireless Sensor Network (WSN) is coordinating with a semi-autonomous wirelessly controllable firefighting robot, these robots are actuated once a remote sensor organize recognizes fire and gives, to begin with, a line of defense against the spreading of wildfires and begins quenching fire until firefighters arrive.

Keywords: Fire fighting robot, Forest fire, Remote control, Semi-autonomy, Sensors, Wireless sensor network.

SAMRIDDHI : A Journal of Physical Sciences, Engineering and Technology (2020); DOI: 10.18090/samriddhi.v12iS2.11

Introduction

Annually, 200,000 rapidly spreading fires happen within the world. The yearly misfortune of the timberland makes up to 1.47 million hectares or 0.5% of it adds up to zone the yearly misfortune from fierce blazes can be surveyed as US$ 19.3 billion. Presentation to unforgiving conditions on the fire ground, such as, smoke inward breath, fire burns, overexertion/stress, or indeed being caught, is considered to be the most attributions to more than 60% of the firefighter passing and over 20% firefighter wounds. Timberland fires are a repetitive marvel, common or artificial, in numerous parts of the world. Defenseless regions are basically found in mild climates where pluviometry is tall sufficient to empower a critical level of vegetation, but summers are exceptionally hot and dry, making an unsafe fuel stack. Worldwide warming will contribute to expanding the number and significance of these calamities. Each season, not as it were our thousands of woodland hectares annihilated by wildland fires, but moreover resources, properties, and open assets and offices are devastated. Besides, firefighter and civilians are at hazard, with an awful toll on human lives.[1]

"Fires are clearly one of the major reactions to climate change, but fires are not as it were a reaction—they nourish back to warming, which nourishes more fires." As shown in Figure 1 when vegetation burns, the coming about the release of putting away carbon increments worldwide warming. The more fires, the more carbon dioxide discharged the more warming, and the more warming, the more fires. The exceptionally fine sediment, known as dark carbon, that is released into the environment by fires moreover pitch into warming.

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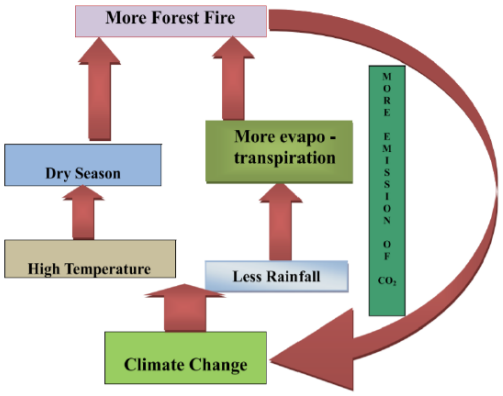

Figure 1: Effect of forest fire on climate change

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Performance analysis of game based MAC protocol for cognitive radio based wireless network

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ABSTRACT

A Cognitive Radio based Wireless Network (CRWN) is an emerging trend in wireless networks. Cognitive Radio (CR) has opened up many new opportunities to utilize the frequency spectrum to its fullest utilization. Many researchers and engineers are coming up with new protocols for CRWN. In this paper, existing MAC protocols for CRWN are studied and found that all the protocols are designed for optimized node performance but not the network performance. Moreover, individual node's optimized performance may harm network's performance. So, there is a gap of performance to be filled at an individual node and network-level. In this paper, the frame work of existing MAC protocol is modified to achieve the global optimized performance of CRWN under saturated and unsaturated traffic conditions. Also, majority of the existing work proposed their solutions assuming full information-based game theoretical models, whereas in this paper more realistic approach based on incomplete information is presented. A rigorous simulation study is carried out to compute various parameters such as channel capacity, throughput and delay to understand the limitations of the non-game theoretic approach. Later, a game theoretical framework to MAC protocol is applied for CRWN to improve the network performance in terms of these parameters. It is shown that the application of game theory to the MAC layer avoids collision and reduces the delay by 54% and energy consumption leading to enhancement of the overall throughput of a network by 57% respectively.

1. Introduction

A Cognitive Radio based Wireless Network (CRWN) is a self-configuring, multi-hop network in which there is no central authority. Thus, every aspect of the configuration and operation of a CRWN must be completely distributed. Due to CR radio capability CRWN shows improved performance in terms of throughput and QoS. The existing protocols for CRWN are designed to give the optimal performance at node level; however, this may not be true at network level. Optimizing individual node performance many a times hurt the overall network performance. This gap at individual node and network performance is important to be addressed. Game theory-based protocol helps to achieve the network level optimization i.e. global optimization.

As per new research and study, game theory could be a suitable tool to analyse a CRWN optimization. Game theory offers a range of tools to model the interaction among the nodes in CRWN using the non-cooperative game theory (Felegyhazi and Hubaux, 2006). Game theory can be applied to modelling a CRWN at the physical layer, the link layer, and the network layer. Applications at the transport layer and above also exist however; the interest of this paper is restricted to the Medium Access Control (MAC) layer only. The MAC layer gives the major impact on the performance of the network throughput and QoS. Therefore, the focus of this paper is to propose the game theory-based MAC protocol which improves the network performance with global optimization. Use of game theory leads to a number of advantages such as a natural solution to analyse distributed systems and cross layer protocol design to name a few. From the studies of (Moura and Hutchison, 2017), the application of game theory to wireless networks by means of game formulations is presented. However, there are a few impor-

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AND ENGINEERING TRENDS

SKIN DISEASE USING SVM

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Abstract: - In most developing countries, it is expensive for a large number of people. According to World Health Organization (WHO), skin diseases are the most common non-communicable diseases in India. The ubiquitous use of smartphones in developing countries like India has opened up new avenues for inexpensive diagnosis of diseases. The camera in smartphones can used to exploit the image processing capabilities of the device for diagnosis. The proposed system deals with the creation of an application that helps in diagnosis of Skin disease. It uses image processing and machine learning technology to detect diseases. The system consists of 2 parts- image processing and the machine learning. The image processing part deals with applying various filters to the images to remove noise and make them uniform. It is necessary to remove the unwanted elements from the image before processing else it will affect the output efficiency. The Machine learning part deals with the processing of data and generation of result.

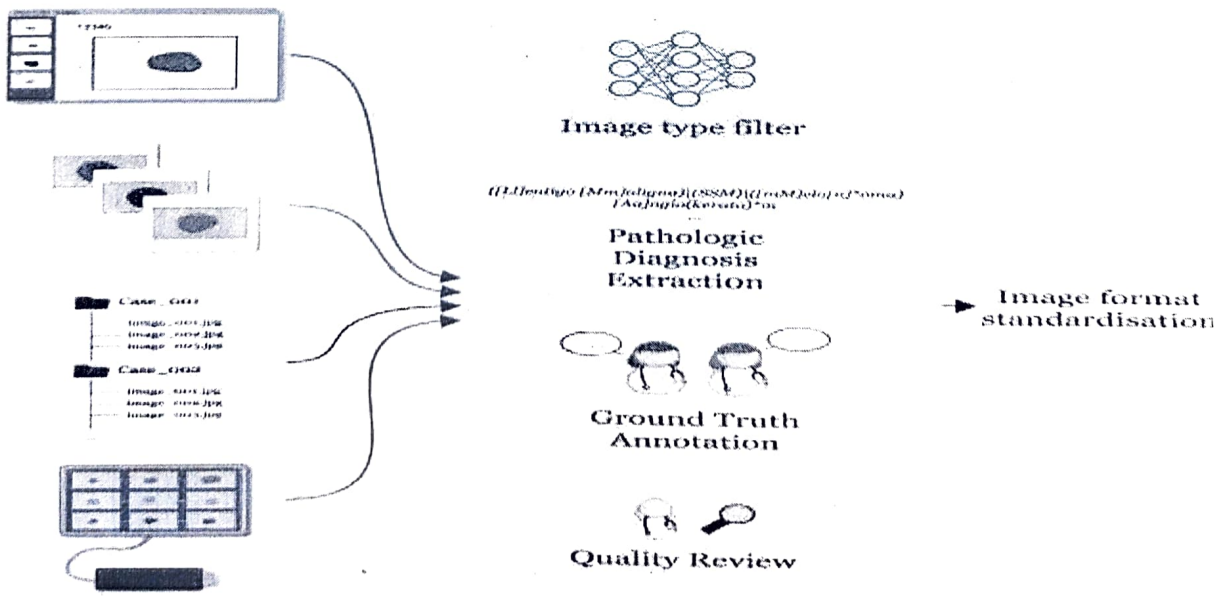
Keywords-*Machine Learning, Support Vector Machine, Artificial Neural Network*

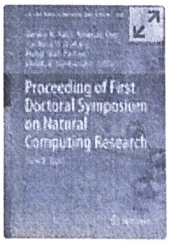
I INTRODUCTION

Skin is the outer most region of our body and it is likely to be exposed to the environment which may get in contact with dust, Pollution, micro-organisms and also to UV radiations. These may be the reasons for any kind of Skin diseases and also Skin related diseases are caused by instability in the genes this makes the skin diseases more complex.

Importance of the project

The most unpredictable and difficult terrains to diagnose due to its complexity. In most developing countries, it is expensive for a large number of people. According to World Health Organization (WHO), skin diseases are the most common non-communicable diseases in India. The ubiquitous use of smartphones in developing countries like India has opened up new avenues for inexpensive diagnosis of diseases. The camera in smartphones can used to exploit the image processing capabilities of the device for diagnosis. The proposed system deals with the creation of an application that helps in diagnosis of Skin disease.





Proceeding of First Doctoral Symposium on Natural Computing Research
pp 425–435

Traffic Zone Warning and Violation Detection Using Mobile Computing

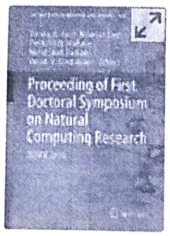
Vijaykumar S. Bidve ✉, Vinod V. Kimbhune, Shaik Naser & Yogesh B. Gurav

Conference paper | First Online: 19 March 2021

Part of the Lecture Notes in Networks and Systems book series (LNNS,volume 169)

Abstract

During the past few years, traffic accidents and congestions have increased enormously. Even in our daily life, we come across many problems caused due to traffic rule violation by some people. Also, when we go through the daily newspaper, we realize that road accidents are one of the major problems nowadays in every city. These problems cause disturbance to the whole system and also consume our precious time. So in an attempt to reduce it and improve the traffic discipline, advanced technological solutions have been proposed. In the proposed system, an Android system is implemented which alerts the driver by alert



Proceeding of First Doctoral Symposium on Natural Computing Research
pp 327–336

Crime Identification by Geofencing Enforcing Co-operative Platform

Sulakshana B. Mane, Vijaykumar S. Bidve ✉ & Pranav M. Pawar

Conference paper | First Online: 19 March 2021

Part of the Lecture Notes in Networks and Systems book series (LNNS,volume 169)

Abstract

Now a days, many people fall victims at the hands of crimes such as kidnapping, chain snatching, eve teasing and child abuse (Suyama, Inoue In: IEEE/ACIS 15th International conference computer and information science, 2016; Kumar Emergency information system architecture for disaster management: metro city perspective, pp 560–564, 2017; Council Improving disaster management: the role of IT in mitigation, preparedness, response, and recovery, National Academies Press, 2007). This research work proposes a system which will be useful for monitoring crime. The proposed solution for public safety is based on information and

Data Tamper Detection from NoSQL Database in Forensic Environment

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Abstract

The growth of service sector is increasing the usage of digital applications worldwide. These digital applications are making use of database to store the sensitive and secret information. As the database has distributed over the internet, cybercrime attackers may tamper the database to attack on such sensitive and confidential information. In such scenario, maintaining the integrity of database is a big challenge. Database tampering will change the database state by any data manipulation operation like insert, update or delete. Tamper detection techniques are useful for the detection of such data tampering which play an important role in database forensic investigation process. Use of NoSQL database has been attracted by big data requirements. Previous research work has limited to tamper detection in relational database and very less work has been found in NoSQL database. So there is a need to propose a mechanism to detect the tampering of NoSQL database systems. Whereas this article proposes an idea of tamper detection in NoSQL database such as MongoDB and Cassandra, which are widely used document-oriented and column-based NoSQL database respectively. This research work has proposed tamper detection technique which works in forensic

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Backup and Recovery Mechanisms of Cassandra Database: A Review

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Database Security Enhancement by Eliminating the Redundant and Incorrect Spelled Data Entries

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Abstract

Database is used for storing the data in an easy and efficient format. In recent days large size of data has been generated through number of applications and same has been stored in the database. Considering the importance of data in every sector of digitized world, it is foremost important to secure the data. Hence, database security has been given a prime importance in every organization. Redundant data entries may stop the functioning of the database. Redundant data entries may be inserted in the database because of the absence of primary key or due to incorrect spelled data. This article addresses the solution for database security by protecting the database from redundant data entries based on the concept of Bloom filter. This database security has been obtained by correcting the incorrect spelled data from query values with the help of edit distance algorithm followed by the data redundancy check. This article also presents the performance comparison between proposed technique and MongoDB database for document search functionality.

Keywords: Database security, redundancy, spell checker, Bloom filter, Edit distance.

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Implementation of Leveraging File Replication in Data-Intensive Clusters with Energy Adaptability

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ABSTRACT: File replication is a common strategy to improve data reliability and availability in large clusters. Reliability for each file under server failures based on the relationship between file reliability and replication factor when servers have a certain probability to fail. In the existing system more number of replica creates it require more energy consumption, time and storage space and sometime system fails and cannot send immediate response to the user request. In the proposed system energy efficient adaptive file replication system using bloom filtering to reduce latency time. In the propose system increasing number of file replica according to user request or user priority and vice versa. Propose strategies in reducing file read latency, replication time and power consumption in large cluster. If multiple user send request for one file then system create multiple replica according to priority and get immediate response to the user.

KEYWORDS: Data-Intensive Clusters, File Replication, Replica Placement, Energy-Efficient.

I. INTRODUCTION

In this framework some record make and store three copies for each document in haphazardly chosen servers crosswise over various racks. In any case, they disregard the document heterogeneity and server heterogeneity, which can be utilized to additionally improve information accessibility and record framework effectiveness. As records have heterogeneous popularities, an inflexible number of three imitations may not give prompt reaction to an extreme number of solicitations, So we propose a dynamic transmission rate change methodology to avoid potential incast blockage while duplicating a document to a server, a system mindful information hub determination procedure to decrease document read idleness, and a heap mindful reproduction support technique to rapidly make document copies under copy hub disappointments. Irregular choice of imitation goals requires keeping all servers dynamic to guarantee information accessibility, which anyway squanders control utilization. The irregular choice of copy goals does not think about goal transmission capacity and demand taking care of limit, arrange clogs may happen because of limit confinement of a few connections and server may end up over-burden by information demands.

II. RELATED WORK

In this paper, intelligent dynamic data replication algorithms are proposed based on bio-inspired algorithms with multi-objective (MO-PSO, and MO-ACO). The introduced strategies are used for both data replicas selection and placement in various datacenters. The introduced algorithms are tested using CloudSim. The performance of suggested techniques were evaluated against several replication strategies including, Adaptive Replica Dynamic Strategy (ARDS), Enhance Fast Spread (EFS), Genetic Algorithm (GA), Replica Selection and Placement (RSP), Popular File Replication First (PFRF), and Dynamic Cost-aware Re-replication and Re-balancing Strategy (DCR2S). The experimental results illustrate that MOPSO reaches improved data replication compared with other algorithms. Furthermore, MOACO realizes lower cost, less bandwidth consumption, and higher data availability compared with other techniques.[1]

"Cost Optimization for Dynamic Replication and Migration of Data in Cloud Data Centers," To minimize the cost of data placement for applications with time-varying workloads, developers must optimally exploit the price difference between storage and network services across multiple CSPs. To achieve this goal, we designed algorithms with full and partial future workload information. We first introduced an optimal offline algorithm to minimize the cost

Building Alumni Ontology to bridge Industry-Institute Gap using Protégé 5.5

Publisher: IEEE

Shital Kakad ; Sudhir Dhage All Authors

Abstract: Recently, alumni involvement play a vital role to enhance an education system. They are a stakeholder of an academic advisory board and non-academic advisory board in var... **View more**

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Abstract:

Recently, alumni involvement play a vital role to enhance an education system. They are a stakeholder of an academic advisory board and non-academic advisory board in various organizations. The past and present alumni give their time to develop an education system by conducting various technical activities like expert lectures, workshops, and conferences as per their experiences. In this paper, we present alumni ontology to bridge Industry-Institute Gap using Protégé 5.5. Further, we explain alumni ontology development phases and DL query.

Published in: 2021 2nd International Conference for Emerging Technology (INCET)

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Ontology Construction from Cross Domain Customer Reviews using Expectation Maximization and Semantic Similarity

Publisher: IEEE

Shital Kakad ; Sudhir Dhage All Authors

Abstract: Recently, researchers are focusing more attention on cross-domain customer review based ontology construction. It seems very little efforts have been taken to construct c... **View more**

▸ Metadata

Abstract:

Recently, researchers are focusing more attention on cross-domain customer review based ontology construction. It seems very little efforts have been taken to construct cross-domain application ontology. Online reviews help customers to get product information in detail. Bringing the reviews of same product from different e-commerce platform into single platform will enable customers make well informed decision. Customers may purchase online product by comparing reviews as manual comparison of reviews is too difficult. In future very large amount of cross-domain applications would be connected to make smart shopping possible. In this paper, two major e-commerce portals, Amazon and Flipkart's reviews are collected, processed and analyzed using expectation maximization (EM) algorithm and semantic similarity. Next, precision and recall, ontology construction and execution time are calculated using state of art models.

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SURVEY PAPER ON APP RECOMMENDATION SYSTEM BY LEARNING USER'S INTEREST FROM SOCIAL MEDIA

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Abstract: The popularity and development of mobile devices and mobile apps have dramatically changed human life. Due to the tremendous and still rapidly growing number of mobile apps, helping users find apps that satisfy their demands remains a difficult task. To address this problem, we propose a personalized mobile app recommender system based on the textual data of user social Media i.e., public accessible tweets, which can also reflect user's interest and make up for the sparsity of app usage data. Topic modelling techniques are applied to extract topics of user social media data, and the probability distributions of the topics are utilized to represent the features of the apps. Then, the user profile is constructed based on the user's interest to capture user preferences. Both the topic distributions of the apps and user preferences are taken into account to produce recommendation scores to generate recommendation lists for target users. We crawl real-world data sets from Twitter to evaluate the performance. The experimental results show that user social data i.e., tweet is effective for deriving the user interest, and the proposed app recommender system improves the performance of existing approaches.

Keywords - *App recommendation, social media, transfer learning, collaborative filtering.*

I INTRODUCTION

The popularity and advancement of smartphones and mobile apps have brought considerable convenience to human life. A substantial number of mobile apps have been developed to assist users in various types of tasks, such as production, entertainment, and exercise. Millions of apps are available for downloading from the Apple App Store and Google Play Store. With such a tremendous and still rapidly growing number of mobile apps, users face difficulty in finding appropriate apps, and only a few apps have the chance to be exposed to users. Hence, helping users to find apps that meet their demands is a critical issue.

Recommender systems have been widely adopted by many online websites to help customers overcome the information overload problem and make their purchase decisions. Popular recommendation techniques, such as collaborative filtering (CF) and content-based filtering, can be utilized in app stores for users to search relevant apps. CF makes recommendations based on the assumption that customers with similar ratings and interests for some items are likely to have similar preferences for other items. Content-based filtering assumes that the users' interests are able to be represented by the content of items they have shown interest in, and those items that have content descriptions similar to the target user's favourite items are recommended.

In this paper, we capitalize on user reviews to understand the functionalities of apps from the users' perspective and leverage user reviews to develop an app recommender system. The topics hidden in the review texts can be a type of representation of the app features. We collect user reviews from app stores to perform topic modelling and represent each app as the probabilities of topic distributions. Then, user preference is inferred from the topic distribution of the user's consumed apps to construct the user profile. Since there are features the user will like or dislike, we further consider the sentiments related to topics, which helps to find favourable apps and avoid disliked apps. The topic distributions of apps and user preferences are both considered when producing recommendation scores of the relevant apps for the user to make personalized recommendations.

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DETECTION OF URBAN EMERGENCY EVENTS USING SOCIAL MEDIA

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ABSTRACT

Events occurring in urban areas e.g. earthquakes, blasts, traffic jams, crimes, fires etc. pose a huge threat on the lives of people. These events are very important to be monitored to make an assessment and prevent any damage occurring to life and property. In order to do the monitoring and the detection of such events the 5W (What, Where, When, Why, and Who) model is proposed. Crowdsourcing is the process to acquire, integrate and process the enormous data generated by sensors, devices and humans. In this paper the proposed model is using the social media as a platform to detect the emergency events and aware them for the same. Through user's social media post our model would be able to gather the information required and produce the result accordingly and then necessary steps will be taken for the betterment of surrounding. First of all, users on the social media are made sensors through which crowdsourcing (WHO, WHAT) occurs. Secondly, the geo-spatial and terrestrial information are extracted from the social media for determining the real time events (WHERE, WHEN). Thirdly, an annotation of GIS (Geographic Information System) of the detected emergency event is shown. The data is collected and forwarded to higher authorities approved by system admin to take necessary action.

Keywords - Emergency events, Crowdsourcing, Social Media, Data Mining.

I. INTRODUCTION

Crowdsourcing is the process of obtaining valuable information, opinions from a massive group of users which submit their data on social media, smartphone apps through the internet. It allows the users to share valuable information acquired by them via their mobile phones e.g., to monitor pollution level or noise level, traffic condition, etc. and in this case getting the information from the post's users is uploading on the social media. The sensing data from volunteer contributors such as social network users can be further analysed, processed, and evaluated in many areas such as environment monitoring, urban planning, emergency. Social media is an astonishing technology which helps to create, share data, ideas, career opportunities, interests and other different forms of activities through virtual community and networks. A status update message is often used as a message to friends and colleagues. A user can follow other users; that user's followers can read his/her messages on a regular basis. An emergency event in urban areas is an unexpected, sudden occurrence whose detection occurs quickly but it takes time for the authorities to reach on the location of the incident and take the necessary measures to tackle the incident. For example, a resident living in urban areas may face earthquakes, blasts, storms and so on. Thus, it is crucial to detect, resistant, and analyse these real time urban emergency events to protect the security of urban residents. An important feature of our proposed model is its real time nature and it involves creation of unique social network where people will register themselves and post about any emergency event that they detect in their surroundings. They will also use hash tags to describe a particular emergency event like earthquake, storm, fire, crime etc. In this system, the user will itself be a sensor which will detect an emergency event and through crowdsourcing the in detail information of that event will be extracted. For example, if a user posts about an earthquake or a crime, then the user will be a "earthquake sensor" or a "crime sensor". In this paper, a 5W model (What, Where, When, Why and Who) is proposed which will have the detailed information of the emergency event. Through this model, the system will get the enough information as stated above, so that the necessary steps on the emergency events can be taken namely alerting the users, spreading safety measures, informing the authorities, spreading awareness by posting the details about the event. After generation of the 5W report the first job will be to informing the authorities, so that they

A Survey on Speech Emotion Recognition by Using Neural Networks

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Abstract— **Speech Processing is one of the important branches of digital signal processing and finds applications in Human computer interfaces, Customer care applications, Mental status and emotions, Audio mining, Security and Forensic and so on. Speech emotion recognition is important to have a natural interaction between human being and machine. Our perspective is to implement a Emotion Detection System for call centres where the ultimate goal is to detect the emotional state of the caller and provide feedback for the quality of the service.This paper gives the survey of techniques used by the researcher to detect actual feedback in call centre applications by judging the accent and emotion. We use MFCC (Mel Frequency Cepstral Coefficient) for feature extraction and RNN (Recurrent Neural Network) and LSTM (Long Short Term Memory) based approach for classification. Recurrent Neural Networks (RNNs) show considerable success in many sequential data processing tasks. LSTM (Long Short Term Memory) overcomes drawback of RNN. The designed system considers six basic emotions happy, sad, anger, neutral, fear, disgust and surprise emotions By applying the proposed methods to an emotional speech database, the classification result is verified to have better accuracy than that conventional classification methods.**

Keywords— SER (Speech Emotion Recognition), MFCC (Mel Frequency Cepstral Coefficient), RNN (Recurrent Neural Network), LSTM (Long Short Term Memory).

I. INTRODUCTION

Emotion recognition from a human speech is an attractive field of speech signal processing. Speech Emotion Recognition is a system which basically identifies the emotional state of human being from his or her voice. It is used to improve man machine interface and monitor psychological state of human and also identify different regions. It is hard to detect the emotion of the person accurately using any machine. Emotions are subjective experiences which play an important role in expressing mental and physical states of the humans and it is often associated with variety of feelings.For the last two decades several intelligent systems are proposed by researchers. These different systems also differs by the nature of features used for classification of speech signals. Some of the widely used spectral features are Mel-frequency cepstrum coefficients (MFCC) ,Gaussian Mixture Model (GMM), Support Vector Machine (SVM) and Hidden Markov Model (HMM) are used by researchers for classification using a supervised learning method. Emotion classification using GMM. Only pitch and MFCC features are used for recognition of emotion. Recently, LSTM-RNN has significantly advanced the performance of SER by Mel-frequency cepstrum coefficients (MFCC) ,Gaussian Mixture Model (GMM), Support Vector Machine (SVM) and Hidden Markov Model (HMM) are used by researchers for classification using a supervised learning method. Emotion classification using GMM. Only pitch and MFCC features are used for recognition of emotion. Recently, LSTM-RNN has significantly advanced the performance of SER. It could learn complex mappings from context information to acoustic features with memory cells. Several researches have shown that LSTM-RNN based emotion outcome from speech could get better performance on naturalness than traditional techniques. However, few emotional speech synthesis techniques based on LSTM-RNN speech synthesis framework have been studied. In recent years, Speech Emotion Recognition has made great progress, especially after the utilization of deep learning. The Emotion Detection from Speech consists of two modules. The first module identifies the accent of user an defines the State (Region) and Emotion of the user. Our proposed work is based on feature extraction using MFCC and decision making using standard deviation for accent identification. RNN (Recurrent Neural Network) and LSTM (Long Short Term Memory) based approach for classification for emotion detection from speech. For SER system, various approaches have been implemented for achieving the same goal, which can be used to help us focus on important feature like signal rate and frequency. We will analyze the call center data and the challenges resulting in the low accuracy. RNN-LSTM leads to better efficiency and performance than traditional methods in classification task. An entire frame is a key for detecting happy, sad, anger emotions from speech as well as extracting region information.

II. LITERATURE REVIEW

M.S. Likitha, Sri Raksha R. Gupta, et al.[1] gives SER system by MFCC. A database consist of voices of 60 people with different emotions. Speech signal of speaker's read using the function awav read in MATLAB tool. MFCC method is used

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Indian Currency Recognition and Authentication using Image Processing and Machine Learning

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ABSTRACT: The features of the paper notes differ for various countries. Currency identification is one of the important applications of pattern recognition. We have proposed a system for the automation of banknote identification as well as authentication of new Indian banknotes printed after demonetization. Only paper currency will be considered. In this method,certain predefined areas of interest are identified, and then denomination in the form of numerical value is extracted the using color and text on the note. Initially, it receives the frontside and backside image of banknotes as input and then cropped into specific predefined areas of interest. Then each picture is separated into three sections. Filtering is applied to each section. RGB image is obtained by combining Red, Green, and Blue channels and further HSV are taken from the RGB image. The proposed model is based on a feature extraction and cosine similarity classifier for recognizing test banknote. The recognition system indicates that the proposed approach is one of the most effective strategies for identifying currency patterns to read its face value and determine its authenticity for Indian currency notes.

Our system is able to accurately identify test currency.

KEYWORDS: Indian Currency Recognition, Feature Extraction, HSV,Cosine Similarity Classifier.

I. INTRODUCTION

The identification of banknotes depends on the attributes of banknotes of a country. As the banknotes have been used for a long period of time, they may be contaminated. There are many characteristics to recognize an authentic banknote. Although it may not be practically possible to accurately identify a counterfeit in a paper currency which only an intelligent machine can identify.

Modern automation systems in the real world require a system for currency recognition. It has various potential applications such as currency counting machines, money exchange machines, assisting blind persons, electronic banking, currency monitoring systems etc. The identification of currency is a very important feature for the visually impaired. They cannot differentiate between currencies correctly, so they can get cheated very easily. Therefore, there is an urgent need to design a system to recognize the value of currencies.

II.LITERATURE SURVEY

Vedasamhitha et.al. Proposed frameworkfor computerized banknote recognition using image processing. The proposed technique can be utilized for identifyingthe nationas well as the value of the given banknote. This strategy works by first distinguishing the origin nation of the banknote utilizing certain predefined parts, and then extracting the value using factors such as size, color, or text on the note [1].

The recognition of banknotes relies on the factors of banknotes of a particular nation. As the banknotes have been in use for a long period of time, they may be contaminated with noises. It is hard for a framework to identify old, torn, and noisy pictures of currency.Jesmin A. et.al. proposed a system for in which each picture was separated into three sections and filtering was applied to each sections. Finally, the red, the green, and the blue sections are recombined to get the RGB [2].

The requirement for a currency recognition framework is increasingly relevant because of the level of technology and machinery used to fake the currency. There are numerous characteristics to recognize a real banknote. Despite the fact that it may not be possible for a person to distinguish an authentic banknote to a fake. Many features

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Sketch Colorization

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ABSTRACT: Sketch Colorization is a field that has magnificent demand in the market. As compared to the photo colorization, Sketch colorization is more challenging and it may not have proper texture. This project consists of a semi-automatic learning based framework to colorize a sketch containing proper color, gradients as well as texture. This framework consists of two stages out of which first is the Drafting stage which guesses color required region and obtain a color draft by splashing various rich variety of colors over the sketch. In the second stage, it tries to fix and refine the result by detecting artifacts and unnatural colors. This model removes water-color blurring and deformity of color. Sketch colorization is performed by using gradient approach.

KEYWORDS*:* Sketch colorization, Gradient approach, Sigma factor, Entropy, Machine Learning, Image Processing, Rendering, Drafting.

I. INTRODUCTION

During the art creation coloring is considered a time-consuming process. To create a proper colored sketch, it requires proper color composition and shading. A semi-automatic colorization is beneficial to those who are professionals in this field as well as the novice. The goal of this project is to add a gray image such that colorized image is perceptually meaningful and usually appealing.

Pattern recognition is the process of recognizing patterns by using machine learning algorithm. Pattern recognition can be defined as the classification of data based on knowledge already gained or on statistical information extracted from patterns and/or their representation. One of theimportant aspects of the pattern recognition is its application potential. Face identification is one of the crucial issues, especially for law enforcement. Police department utilizes this technology to search for suspects on the run and missing people. Unfortunately, the photos of the suspects are not always available. The sketches of the suspects drawn by artists based on the information of eyewitnesses are used as substitutes of photos to recognize and identify suspects. However, the direct comparison of sketches and photos is difficult to do because of the significant difference between those images.Image colorization assigns a color to each pixel of a target gray scale image. This framework consists of two stages out of which first is the Drafting stage which guesses color required region and obtain a color draft by splashing various rich variety of colors over the sketch. In the second stage, it tries to fix and refine the result by detecting artifacts and unnatural colors. This model removes water-color blurring and deformity of color. Here, we are implementing a semi-automatic method that allows users to precisely control over colorization on real-world sketches. No extensive input is required from the users. To achieve this, we borrow the idea of drafting from the artist painting practices. Professional artists like to make drafts before the detail painting on sketches.For this we are using entropy and sigma factor concept. By finding the sigma values of any incomplete region, the region will be completed by drawing an imaginary line based on the obtained sigma values. Entropy will be used for coloring purpose. Entropy basically means a sudden change. By comparing the original and suggested colored image by the user, a new final image will be displayed to the user by coloring the whole image.

Sketch Coloring is the most important but time-consuming process. The system faces major challenges like color inconsistency and saturation. This tool will be helpful for those who are facing this problem. Achieving the task is not trivial as it requires both the sense of aesthetics and the experience in drawing. Even professionals may spend a significant amount of time and effort in producing the right color composition, fine texture and shading details. An automatic or semi-automatic colorization system can greatly benefit the community. With the system, novice artists can learn how to color

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Employee Attrition Prediction System

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Abstract

Now a day's Employee Attrition is a large issue for the organizations especially when trained, technical and key employees leave for a superior opportunity from the organization. This results in financial loss to substitute a trained employee. To overcome this problem, organizations are now taking support via machine learning techniques to predict the employee turnover. With high precision in prediction, organizations can take necessary actions at due course of time for retention or succession of employees. Therefore, we use the present and past employee data to investigate the common reasons for employee attrition. The primary objective of this research paper is to predict employee attrition i.e. whether the employee is planning to leave or continue to work within the organization. In this paper we propose XGBoost model for predicting Employee Attrition using Machine Learning which is very robust. This is helpful to companies to predict employee attrition, and also helpful to their economic growing by reducing their human resource cost.

Keywords – XGBoost

1. Introduction

In recent times, all types of organizations are becoming very curious and cautious with regard to their market reputation and to gain a competitive edge over others to gain huge profits and attain all types of organizational objectives. Organizations focus on varied HR issues and practices. Organisations consider employees as the central resource for everything, so employees must be handled with u most care. It is the primary responsibility of every organization to solve all sorts of employee issues and provide appropriate solutions and maintain co dial relations to boost strong work environment.. This lastly results into monetary harm to substitute a trained employee. Consequently, we utilize the current and past employee data to assess the familiar issues for employee attrition. The employee attrition identification supports in predicting and resolving the issues of attrition. We can use this data to break the attrition rate of the employees.

An employee would select to join or depart an organization depending on many causes i.e. effort environment, effort place, gender equity, pay equity and many other. The rest of the employees may reason about personal details for instance relocation due to family, maternity, health, issues with the managers or co-workers in a team. Employee attrition is a main problem for the organizations particularly when trained, technical and key employees consent for best opportunities from the organizations. This finally results into financial loss to substitute a trained employee.

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Traffic Sign Detection Using CNN

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Abstract- Road signs are essential to ensure creaseless traffic flow without bottle necks or accident. Road symbols are the pictorial correspond having antithetic necessary message required to be understood by driver. Road signs in front of the transport are ignored by the driving force and this can lead to catastrophic accidents. Road signs give out a number of messages regarding the road and what you as a driver should expect on the road. They keep the traffic flowing freely by helping drivers reach their destinations and letting them know entry, exit and turn points in advance. Pre-informed drivers will naturally avoid committing mistakes or take abrupt turns causing bottlenecks. This work present's traffic sign board detection and recognition and implements a procedure to extract the road sign from a natural complex image, process it and alert the driver using voice command. It will implement in such a way that it will act as a boon to drivers to make easy decisions.

Keywords- Traffic Sign, CNN Algorithm, Machine Learning, Road Safety, Image Processing.

I. INTRODUCTION

To regulate the traffic safety, variable speed limitations, informational signs, and directional signs are placed along the road according to the environmental conditions and traffic situations of the road. Therefore, rapidly updating traffic signs is essential for transportation agencies to manage and monitor the status and usability of traffic signs. Vehicles are the primary means of transportation in our day to day life.

Due to increase in the number of vehicles the drivers are experiencing several risks while driving and this may also lead to accidents. A vast amount of accidents are happening every year all over the world. These accidents are mainly because of the driver inability to process all the visual information that is available while driving. According to the 'World Road Statistics' report published by the International Road Federation (IRF), Geneva, India has recorded the second highest number of road accident deaths in the world in the year 2015.To regulate the traffic safety, variable speed limitations, informational signs, and directional signs are placed along the road according to the environmental conditions and traffic situations of the road. Therefore, rapidly updating traffic signs is essential for transportation agencies to manage and monitor the status and usability of traffic signs.

Traffic signs are placed beside the roads to warn about the dangerous road conditions ahead and to provide necessary information to the driver. Sometimes, a heavy traffic, weather conditions or miss attention of drivers causes a chance of missing a sign and it might lead to accidents. So, it is necessary to detect and recognize these traffic signs automatically and alert the driver about the situation. Current traffic sign detection and recognition systems are based mainly on digital images and videos. To warn and guide drivers, traffic signs, well defined by highly contrasting colours (e.g., red, blue, yellow, and white), can be distinguished easily from a complex environment.

Developing automated traffic sign recognition systems helps assisting the driver in different ways in order to guarantee his/her safety, which preserves as well the safety of other drivers and pedestrians. These systems have one main goal: detecting and recognizing traffic signs during the driving process. With these functionalities the system can guide and alert the drivers to prevent danger. Even though it is possible to develop a system that can recognize traffic signs, it doesn't mean that any sign can be correctly recognized by the system due to some traffic environmental challenges, for example: lightning variations, bad illumination, weather changes and signs in a ruined condition. Road signs, bespeak turns, directions and landmarks, also help to prevention time and fuel by supply message on the route to be taken to reach a special destination. Road signs are located in specific areas to guarantee the safety of drivers. These grade let drivers know how accelerated to drive. They also tell thrust when and where to turn or not to bend. In order to be an intense driver, someone needs to have a perceptive of what the sign average.

Traffic signs (TS) are generally divided into three main categories according to theirs functions: regulatory signs to give notice of traffic laws or regulation, warning signs to give notice of a situation that might cause danger and finally guide signs to

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Sarcastic Sentiment Detection with Fuzzy Logic

Vijaykumar S. Bidve, Kalyani Pathak, Kruttika Bhagwat, Karishma Suryawanshi

Abstract: *In the context of text classification of sentiment detection to great, instances are naturally fuzzy and therefore to get clear-cut outcome by extracting the opinion in a new innovative way i.e. In a fuzzy combination way and assign a relevant sentiment, usually either positive or negative. Due to this new approach it will be possible to have advancement for extracting the opinions of people more deeply even if instance in a sentences are manipulated more complexly.*

Keywords: *mixed feature rule formation algorithm, sentiment detection, twitter, machine learning, bag of words, doc2vec.*

I. INTRODUCTION

Evaluation assessment is important mining of substance which perceives and removes enthusiastic information in source material and helping a business to grasp the social assessment of their picture, thing or organization while keeping an eye on the web conversations. Estimation examination is a kind of data mining that checks the propensity of people's decisions through ordinary language taking care of Natural Language Processing (NLP). Computational phonetics and substance assessment are used to remove and separate unique information from the web. Generally web based systems administration and similar sources [1] known as appraisal mining. Feeling examination is the strategy of legitimately mining substance to perceive and characterize the passionate ends imparted by the columnists e.g. end assessment fights with mockery [2]. Notion investigation is a helpful innovation that organizations can apply in online networking, client surveys, and client care. It helps check general assessment of an occasion or item [3]. Cyberhate portrays various kinds of online correspondence by disdain bundles to pull in new people, fabricating and strengthening pack character, arranging pack movement, passing on propagandistic messages and educating, prorogue counter-reactions as a segment of propagandistic campaigns, and ambush social get-togethers and individuals with contemptuous messages [4]. The reliably creating grouping of web based life content, the proportion of online detest talk is moreover extending. Feeling investigation also called assessment mining is the procedure by which content is examined to extricate conclusion and dole out an important assumption, typically positive, negative or neutral [5]. This work proposes fluffy methodology with the normal systems utilized in opinion examination.

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Equivocalness, or misdirection of unclearness, is a word, articulation, or verbalization which contains more than one significances. Faulty words or explanations lead to irregularity and disorder, and shape the purpose behind events of incidental humors [3].

II. MOTIVATION

With regards to content grouping, cases are normally fluffy and in this manner to get obvious result by removing the assessment in another creative in a fluffy blend way and dole out a pertinent opinion, generally either positive or negative.

In this new methodology it can be hear a progression for separating the thoughts of individuals. All the more profoundly regardless of whether case in a sentence is controlled all the more intricately.

III. REVIEW OF LITERATURE

Michael R. Berthold et al. discussed numerous fluffy guideline acceptance calculations. The vast majority of these calculations will in general scale severely with enormous elements of the element space and in a tough situation managing diverse component types or uproarious information. These guidelines can be separated from include spaces with assorted sorts of traits and handle the relating various kinds of requirements in equal. The removed guidelines rely upon singular subsets of just scarcely any properties, which is particularly valuable in high dimensional component spaces [3]. Hajime Watanabe et al. talked about fast development of informal communities and micro-blogging sites, correspondence between individuals from various social and mental foundations turned out to be more straightforward, bringing about increasingly more "digital" clashes between these individuals. Thus, loathe discourse is utilized to an ever increasing extent, to where it turned into a difficult issue attacking these open spaces. Abhor discourse alludes to the utilization of forceful, savage or hostile language, focusing on a particular gathering of individuals sharing a typical property, regardless of whether this property is their sexual orientation (i.e., sexism), their ethnic gathering or race (i.e., prejudice) or their accepts and religion, and so forth [6]. Shahin Amiriparian et al. addressed the upsides of utilizing cross area information when performing content based opinion investigation have been set up. In any case, comparative discoveries still can't seem to be seen when performing multimodal supposition examination. A potential explanation behind this is frameworks dependent on include extricated from discourse and facial highlights are vulnerable to perplexing affecting brought about by various chronicle conditions related with information gathered in various areas.

AGRIGRAS: Precision Farming for Unwanted Plant Detection Control

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Abstract:

This analysis has been supported by the employment of preciseness agriculture tools for the management of weeds in crops. It has focused on the creation of an image processing formula to sight the existence of weeds in an exceedingly specific website of crops. The most objective has been to get formula so a weed detection system will be developed through binary classifications. The initial step of the image process is the detection of inexperienced plants to eliminate all the soil within the image, reducing data that are not necessary. Then, it's targeted on the vegetation by segmentation and eliminating unwanted data through medium and morphological filters. Finally, labeling objects have been created in the image so weed detection may be done employing a threshold based on the world of detection. This formula establishes correct observance of weeds and may be enforced in automated systems for the obliteration of weeds in crops, either through the employment of machine-controlled sprayers for a selected website or a woodcutting mechanism. additionally, it will increase the performance of operational processes in crop management, reducing the time spent sorting out weeds throughout a plot of land and focusing weed removal tasks on specific sites for effective management.

Keyword:

Image Processing; Artificial Intelligence; Neural Networks, weed detection, crop monitoring, agriculture.

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Rumor Detection on Social Media

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DETECTION OF URBAN EMERGENCY EVENTS USING SOCIAL MEDIA

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ABSTRACT

Events occurring in urban areas e.g. earthquakes, blasts, traffic jams, crimes, fires etc. pose a huge threat on the lives of people. These events are very important to be monitored to make an assessment and prevent any damage occurring to life and property. In order to do the monitoring and the detection of such events the 5W (What, Where, When, Why, and Who) model is proposed. Crowdsourcing is the process to acquire, integrate and process the enormous data generated by sensors, devices and humans. In this paper the proposed model is using the social media as a platform to detect the emergency events and aware them for the same. Through user's social media post our model would be able to gather the information required and produce the result accordingly and then necessary steps will be taken for the betterment of surrounding. First of all, users on the social media are made sensors through which crowdsourcing (WHO, WHAT) occurs. Secondly, the geo-spatial and terrestrial information are extracted from the social media for determining the real time events (WHERE, WHEN). Thirdly, an annotation of GIS (Geographic Information System) of the detected emergency event is shown. The data is collected and forwarded to higher authorities approved by system admin to take necessary action.

Keywords - Emergency events, Crowdsourcing, Social Media, Data Mining.

I. INTRODUCTION

Crowdsourcing is the process of obtaining valuable information, opinions from a massive group of users which submit their data on social media, smartphone apps through the internet. It allows the users to share valuable information acquired by them via their mobile phones e.g., to monitor pollution level or noise level, traffic condition, etc. and in this case getting the information from the post's users is uploading on the social media. The sensing data from volunteer contributors such as social network users can be further analysed, processed, and evaluated in many areas such as environment monitoring, urban planning, emergency. Social media is an astonishing technology which helps to create, share data, ideas, career opportunities, interests and other different forms of activities through virtual community and networks. A status update message is often used as a message to friends and colleagues. A user can follow other users; that user's followers can read his/her messages on a regular basis. An emergency event in urban areas is an unexpected, sudden occurrence whose detection occurs quickly but it takes time for the authorities to reach on the location of the incident and take the necessary measures to tackle the incident. For example, a resident living in urban areas may face earthquakes, blasts, storms and so on. Thus, it is crucial to detect, resistant, and analyse these real time urban emergency events to protect the security of urban residents. An important feature of our proposed model is its real time nature and it involves creation of unique social network where people will register themselves and post about any emergency event that they detect in their surroundings. They will also use hash tags to describe a particular emergency event like earthquake, storm, fire, crime etc. In this system, the user will itself be a sensor which will detect an emergency event and through crowdsourcing the in detail information of that event will be extracted. For example, if a user posts about an earthquake or a crime, then the user will be a "earthquake sensor" or a "crime sensor". In this paper, a 5W model (What, Where, When, Why and Who) is proposed which will have the detailed information of the emergency event. Through this model, the system will get the enough information as stated above, so that the necessary steps on the emergency events can be taken namely alerting the users, spreading safety measures, informing the authorities, spreading awareness by posting the details about the event. After generation of the 5W report the first job will be to informing the authorities, so that they

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A Survey on: Automatic Question Tagging and Student Performance Prediction System

Authors

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Abstract

In information systems, tagging is a popular way to categorize information and to search content. Therefore, almost all online newspapers, blogs, question-answer communities, and other similar sites make use of tags to categorize articles, posts, questions, answers, and so on . Automatic tagging processes content without human intervention, resulting in more standard and consistent results at lower costs. This paper gives a survey of different techniques used by the researchers for Question Tagging and Student Performance Prediction. An abstract view of the proposed system that we are going to implement helps to predict the expertise of an individual in the particular domain based on the attempted question from the question paper.

Key Words

Question-answering, Tagging, Neutral language processing, Parsing, Tokenizing, Stemming, Filtering.

Cite This Article

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Classification of Mental Disorder on Social Media

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ABSTRACT: Now a days popularity of social networking sites Leads to the problematic usage. An increasing number of psychological mental disorders in social networks, dependence on cybernetic relationships, information overload, and Net Compulsion have been reported recently. Symptoms Of these psychological disorders are usually observed passively. In this situation, author argue that online social behaviour extraction offers an opportunity to actively identify disorder at an early stage. It is difficult to identify the disorder because the psychological factors considered in standard diagnostic criteria questionnaire cannot be observed by the registers of online social activities. Our approach. New and innovative for the practice of disorder detection, it does so do not trust the self-disclosure of those psychological factors through the questionnaires. Instead, propose a machine learning approach That is detection of psychological disorders in social networks Which exploits the features extracted from social network data For identify with precision possible cases of disorder detection. We perform an analysis of the characteristics and we also apply machine learning classifier in large-scale data sets and analyse features of the three types of psychological mental disorders.

KEYWORDS: Online social networking sites (OSN), Psychological mental disorder detection, feature extraction, SNMD Classifier.

I. INTRODUCTION

"Mental psychological disorder is becoming a threat to people's health today with the rapid pace of life, more and more people are mentally disturbed. It is not easy to detect the mental disorder of the user at an early age to protect it with the fame of web-based social networks, people are used to sharing their daily activities and interacting with friends through the web-based network media phases, making it possible to use online social network data for identification of mental disorders. In our system, we have discovered that the state of user disruption is closely related to that of their friends in social networks and we use a large-scale set of real social stages to methodically examine the connection of client disturbance states. Interactions first of all we define a set of textual, visual and social attributes related to the mental disorder from various aspects. Fast pace of life, progressively and more and more people feel stressed. Although mental disorder is not clinical and is common in our lives, excessive and chronic disorder can be very detrimental to people's physical and mental health. The social interactions of users in social networks contain useful indications for detecting disorder.

Social psychological studies have made two interesting observations. The first is contagion of the mental state: a bad mood can be transferred from one person to another during social interaction. The second social interaction: people are known for the social interaction of the user. The progress of social networks like Twitter and Facebook a growing number of people will share their events and moods every day and interact with friends through social networks. We can classify using the machine learning framework because of the use of the content attributes of Facebook publications and social interactions to improve the detection of mental disorders. After getting the noise level, the system can recommend the user to a hospital for further treatment, we can show that the hospital on the map and the system also recommends taking precautions to avoid the disorder".

II. RELATED WORK

Literature survey is the most important step in any kind of research. Before start developing we need to study the previous papers of our domain which we are working and on the basis of study we can predict or generate the drawback and start working with the reference of previous papers.

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Human Fall Detection using IoT and Machine Learning

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ABSTRACT: Nowadays, remote monitoring systems have developed gradually to respond for particular needs in healthcare sector, which is an essential pillar in the modern concept of smart living, we propose a smart health monitoring system to monitor patient health conditions, as a smart healthcare system based on the widely spread and evolved technologies. Statistics show that severe Falls, hypertensive heart disease and blood pressure are risk factors for high death rate. To decrease it a preventive measure should be applied providing a real-time health monitoring system, to save patients life at acceptable time.

The objectives of this project are to provide an effective system model that will track, trace, and monitor patient's movement, location, vital readings like heartbeat pulses, body temperature in order to provide efficient medical services in time. In proposed system data will be captured using sensors and compared with a predefined threshold. After processing it will send the Message for support to Relatives/Caretakers which will contain the Location, Heartbeat Values and Body temperature.

KEYWORDS: Smart Healthcare, Health Monitoring System, Sensors, Human Fall, Embedded System

I. INTRODUCTION

The project is about identifying the accident fall of elderly people; aiding and providing support as early as possible. It also differentiates between Activities of Daily Living and accident fall and reduces false alter. Successful deployment of a fall detection system among elderly population depends on various factors: usability, battery lifetime, privacy issues, cost, and reliability.

Contemporary techniques employed for automatic detection of imminent real-life falls can be broadly classified into two categories:

i. Context Aware Systems
ii. Wearable Systems

The categories concern the deployment of sensory gadgets such as cameras, microphones, infrared, and pressure sensors to track the movement of people in limited environments. The main strength of these systems lies in usability amongst the elderly as no dedicated device is needed to be worn. Nonetheless, such systems are vulnerable to issues such as limited coverage; high installation cost, high false alarms due to other mobile entities, and privacy. Fall detection methods, based on wearable motion sensors that rely on kinematic signals, like tri-axial accelerometers and gyroscopes fall under the latter category. While these body-worn systems provide several advantages over video-based systems, the person is still required to carry at least a device which may be intrusive and increase usability concerns.

Using the available GSM services and GPS technologies to build an improved and enhanced real time monitoring, smart health monitoring system, where: for anytime global communication from anywhere GSM services are used, and for outdoor positioning GPS technology is applied.

Starting with reading the continuous movements of user, the heartbeats and body temperature by using specific sensors: pulse sensor and temperature sensor; the captured data will be compared via microcontroller i.e. Raspberry Pi with a given threshold. The Raspberry Pi has continuous monitoring on the values sensed by the sensors on wearable devices. The readings will be compared with a machine learning model which will classify and check that the measured values were out of the allowed threshold range or not; & if a fall occurs, the system will fetch the user's GPS location through a GPS module attached to a Microcontroller. The system will send an SMS sent immediately to the relative's of the user which will contain: the patient name, heart rate, body temperature, the patient's location and the corresponding UTC time-stamp.

II. RELATED WORK

Thiago de Quadros, André Eugenio Lazzaretti, and Fábio Kürt Schneider have proposed a system for Human Fall Detection using wrist wearable device. Different Sensors used by them were accelerometer, gyroscope, and

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PREDICTIVE ANALYTICS OF FOOTBALL

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Abstract - Collective analysis of viewer reach and its sources can help the world of football optimize the way in which they decide to broadcast their matches. It can allow us to create a completely different user experience to enhance football with the help of analytical techniques which would result in greater user engagement. Similar benefits have been observed in predicting the match scores, player performance and other predictable aspects. All this combined, helps in developing an excellent model of analysis and prediction using big data of football. It makes use of complex tools, technologies and a lot of detailed study in order to acquire the desired outcome of analysis and prediction. The analysis and prediction model of football matches is seemingly the most fascinating and interesting topic to be involved in for a whole project. This is so, because football is the most watched game in the world. Football has generated a lot of data over the timeline and also has many separate aspects to work on. The whole topic overall builds interest to the project developer group and has a huge scope for further development. The algorithms of machine learning that help to fetch output vary differently. Different algorithms give varied output accuracy. Depending on output we expect and better algorithms the finest execution method is being selected by us.

***Key Words*: Analysis and Prediction, Algorithms, Football, Machine learning, Match scores, Player performance.**

1. INTRODUCTION

Data analytics have come to play an important role in the football industry today. Clubs look to gain a competitive edge on and off the pitch, and big data is allowing them to extract insights to improve player performance, prevent injuries and increase their commercial efficiency. As we know football being such a diverse game it generates a huge amount of data. This data can be of various types for example: player data, team data, league data, fan engagement data, etc. This data includes historic data as well as current data. With the use of all these various types of data we can perform various analytics and predictions regarding almost every aspect of the game which includes prediction of match score, prediction of player ratings, analytics for goals scored with respect to various leagues and create comparisons amongst players, teams and leagues as well.

Football, which has always been a numbers game, is apparently driven by more and more Big Data. Clubs are now likely hiring fewer scouts and more computer analysts; TV, radio and newspapers drive more stats-based conversation about the performance of players, managers and teams than ever before. Numbers are also seeping out of real football and into the fantasy – the stats that surround players are not only used to measure their actual performance, but also to evaluate their contribution to fantasy football teams. It's fair to say that this Big Data revolution in football will only continue and change the whole experience of watching the most popular sport in the world.

2. SYSTEM DESCRIPTION

This system derives insights in the football world with the help of data analytics using machine learning techniques. This system will also be able to predict the outcome of football matches based on previous results of respective teams. It will also allow us to create a completely different user experience to enhance football with the help of analytical techniques which would result in greater user engagement. Predictive analytics makes use of many techniques from data mining, statistics, modeling, machine learning, and artificial intelligence to analyze current data to make predictions.

The goal of this system is to build analysis models in football games to study and predict the possible outcomes of matches. To make visualizations to get insights about almost every aspect in the game. The following steps are followed to obtain the outcome:

A. Gathering Data:

This first step here starts with gathering data required for prediction and visualization which is the desired task of the project. Obtaining data sets which include all the historic match data such as final score of the match, bookings in the match, fouls committed and man of the match. Data set with complete player attribute data is required.

B. Filtering and Parsing Data:

The data is filtered by removing the unwanted columns in the data set and also the factors which may lead to wrong prediction of results. Parsing is a method of breaking down the available data into parts so that it can be processed for predictive analysis.

A Review of Machine Learning Methodologies for Dental Disease Detection

Publisher: IEEE

Gautam Chitnis , Vidhi Bhanushali , Aayush Ranade , Tejasvini Khadase , Vaishnavi Pe... All Authors

Abstract: Dental diseases have become commonplace in today`s fast paced world. Currently, most medical practitioners rely on manual analysis of a patient's oral cavity for initial ... **View more**

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Abstract:

Dental diseases have become commonplace in today`s fast paced world. Currently, most medical practitioners rely on manual analysis of a patient's oral cavity for initial diagnosis. Later, they rely on manual analysis of radiographs or x-rays for advanced diagnosis. To reduce this effort, systems are proposed for disease detection techniques working with radiographs or x-rays, which are only accessible to dental practitioners. Other techniques that work on raw, visible light based images of oral cavity have been trained on miniscule datasets with a narrow list of diseases that can be detected. There have been efforts in recent times to repurpose the general use machine learning algorithms such as CNNs for the particular task of disease detection and classification in medical imaging. The field of dentistry can benefit greatly by focusing more research on visible light images, allowing practitioners to offload the initial review of a patient to machines, giving them more bandwidth to work

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Classification of Mental Disorder on Social Media

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ABSTRACT: Now a days popularity of social networking sites Leads to the problematic usage. An increasing number of psychological mental disorders in social networks, dependence on cybernetic relationships, information overload, and Net Compulsion have been reported recently. Symptoms Of these psychological disorders are usually observed passively. In this situation, author argue that online social behaviour extraction offers an opportunity to actively identify disorder at an early stage. It is difficult to identify the disorder because the psychological factors considered in standard diagnostic criteria questionnaire cannot be observed by the registers of online social activities. Our approach, New and innovative for the practice of disorder detection, it does so do not trust the self-disclosure of those psychological factors through the questionnaires. Instead, propose a machine learning approach That is detection of psychological disorders in social networks Which exploits the features extracted from social network data For identify with precision possible cases of disorder detection. We perform an analysis of the characteristics and we also apply machine learning classifier in large-scale data sets and analyse features of the three types of psychological mental disorders.

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Motion and Alert System for Raw Video Summarization Based on Camera

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ABSTRACT: Close Circuit Television Camera (CCTV) has played very important role in many surveillance and security systems. However, such system requires continuous monitoring by human and hence there is possibility of failure because of boredom or fatigue. Even today no one has that much time to watch entire video to notify the intrusion. This paper gives the survey of techniques used by the researcher to prevent crime by judging the situation and abstract view of the proposed system that we are going to implement to detect the intrusion by comparing image and to provides video summarization facility to reduce the video watching time. The proposed system can greatly reduce the monitoring efforts by presenting an abstract view of entire video within a short period of time. Again this system gives alert to the admin in case any intrusion occurs by analyzing the behavioural patterns of the objects.

KEYWORDS: Close Circuit Television Camera (CCTV), Video surveillance System, Intrusion Detection, Motion Detection, Background Subtraction, Video Summarization.

I. INTRODUCTION

Nowadays security is a most important issue arising due to an increase in criminal acts such as child-related sexual offenses or commonplace criminal acts, to protect residents in places, and places that require high security like bank lockers, ATM centers, museum, and other care facilities. Video surveillance [1] [14][15] systems have been widely used as a common activity monitoring system around the World. Video surveillance is an important application that helps in monitoring different areas which require high security, thus video surveillance is a very important concept which plays a vital role in safety and security. The video surveillance system is used in detecting, analyzing, and tracking any unusual activity also it is used for public safety and other high security needed areas. The installation of the CCTV [5] helps prevent crime and may aid in the solution of cases. Its role is also increasing in various forms.

The most important technique of this smart CCTV related research is to track and analyze objects within the images. Motion Detection and Video Surveillance System Using an IP camera is a system that helps in analyzing and tracking the objects and taking the required action accordingly. This System helps in providing security which reduces the human need and reduces labour. The System is best suited for indoor security as we are monitoring a particularly high-security area.

Motion Detection and Video Surveillance System Using an IP camera is a System that helps in keeping the record of the activities and tracking the records whenever required. The goal of our system is to provide affordable and quality surveillance system to every user. A most important feature of this System is to detect intrusion [15] within the real-time image frames and notify the user/administrator if intrusion found. In this System, we use a combination of various methods to detect objects in real-time video frames. In this surveillance system, we have improved the performance and accuracy of detecting the motion of the object as compared to the existing system.

For video summarization [1][5], various approaches have been implemented for achieving the same goal, which can be used to help us ignore unimportant information like space and time. The early technique called frame skipped or video skimming, where several frames are skipping according to a user's needs such as an object, color, motion, etc. Adaptive video fast-forwarding was developed on the intention to adjust the playback speed of the video, which results

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Design and Drag Analysis of Fixed Wing Unmanned Aerial Vehicle for High Lift

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ABSTRACT:

Present work deals with design and analysis of fixed wing aircraft model. Dimensions of aircraft are evaluated considering different factors as weight to be lifted, velocity of aircraft and cruising altitude. Using AIAA rulebook the dimensions of aircraft are fixed. Further the theoretical analysis has been carried out using classical equations for evaluating drag co-efficient with respect to angle of attack and lift co-efficient. The airfoil selection has been carried out by comparing the characteristics of co-efficient of lift, drag and their behaviour against angle of attack for a range of 1° to 10°. Using the theoretical outcomes the behaviour of entire aircraft was observed. Simulation of the aircraft has been carried out using XFLR5 software. The theoretical and simulation outcomes are observed to follow similar pattern for co-efficient of drag against both angle of attack and lift co-efficient. Close correlation has been observed between theoretical and simulation results. Present paper presents a design and analysis validation process for aircrafts used in surveillance applications.

KEYWORDS:

Unmanned Aerial Vehicles; Co-efficient of Drag; Angle of attack; Airfoil; Co-efficient of lift

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1. Introduction

Transportation has been inseparable element of human growth. With the advent of wheel, land transport evolved from simple hand pulled carts to cars, buses, trucks etc. Three fundamental modes of transport are land, water and air. These evolved due to factors such as distance travelled, time needed for travel, geographical location and cost of travel. With growing urbanization, transport needs also have grown to satisfy these factors. All modes of transport have been put into prominent use [5]. With the advances in technologies, these vehicles which were earlier driven by humans are now becoming driverless or unmanned vehicles. Aerial mode of transport has major advantage over other two modes in terms of time needed for travel. Time needed to travel has been reduced to considerable levels with the advent of airplanes [1]. With development of unmanned aerial vehicles (or drones) human life has been benefited in many sectors right from on road traffic monitoring, mapping applications to border surveillance and surveillance in areas inaccessible to humans.

SAE and AIAA foundation play a vital role in growth and development of unmanned aerial vehicles by organizing competitions as Aerodesign Challenge. Unmanned aerial vehicles have major distinguishing factors such as fixed wing and rotary wing and each configuration comes with its associated pros and cons [11]. The goal of present work is to design and analyse an aircraft for high lift. Factors affecting design of fixed wing aircraft such as wing type, wing planform, types of tails, landing gear are considered in our present work [13]. In present work, a regular class aircraft design and analysis is presented. The design is carried in various phases as classical design calculations for aircraft components, selection of standard profiles, standard dimensions, computer aided modeling and performance analysis of aircraft components. Flow analysis of aircraft structure has been carried using XLR5 software [12]. Overall limiting dimensions (addition of length, width and height) of the aircraft designed in total is 3219mm.

2. Design of model aircraft

Design of model aircraft includes selection of wing types, wing planform, tailplane types, fuselage, landing gear and motor placement. Factors affecting wing selection are self-weight of wings, lift, drag, manufacturability and aerodynamic performance. Wing configuration selected must satisfy these factors at an optimum level as all these factors are interdependent. Of the five types of wing configurations monoplane, biplane, triplane, quadraplane and multiplane are available. Monoplane wing was selected for our work. It is further classified into five sub types such as low, high, shoulder, mid and parasol. A monoplane wing with shoulder type was selected considering its ease of fabrication and suitability for proposed design. Wing planform was nothing but the wing silhouette when observed from top or bottom. Wing planforms are classified on the basis of aspect ratio, chord variation, bird wing, bat wing, circular and delta. Each planform

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Crash Analysis of Bus Body Structure using Finite Element Analysis

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ABSTRACT:

Crash analysis of non-air-conditioned sleeper bus has been carried in present work. Using relevant automotive industry standards (052 and 119) bus dimensions are considered for design. Surface modeling technique is used to prepare computer aided model. Further the bus design is freeze using finite element analysis for different crash conditions as front impact, side impact and rear impact. Crash analysis of the proposed bus design is carried using Ansys Workbench. Using the outcomes from finite element analysis as stresses, deflections, internal and kinetic energies during various crash conditions are estimated. Mesh generator is used to mesh the complex bus model. The stress and deflection magnitudes of proposed bus model are in good agreement with the experimental results available in literature. Design improvements are made using the finite element analysis outcomes, observing the deformation patterns additional pillar members of suitable length are added to increase the dynamic crush and further enhance occupant safety during collisions.

KEYWORDS:

Crash analysis; Finite element analysis; Front impact analysis; Side impact analysis

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1. Introduction

Use of public transport has become a mandate due to rise of pollution levels as number of vehicles increase. The state transport buses are common mode of public transport for every state. With the advancements in vehicle technologies the limiting as well as locking speed of public transport vehicles has been raised to substantial levels. With this speed increase though journey time has decreased to substantial levels, number of accidents has also increased causing loss of lives. Some of the original equipment manufacturers with substantial revenue carry out the crash tests for various situations. Physical crash tests are limited due to costs involved, however much of the crash analysis work is simulated before carrying out the crash test [10]. Crash analysis includes a destructive test of the vehicle under consideration for various types of collisions including but not limited to roll-over, front impact, side impact, rear impact etc. Crash analysis determines crashworthiness and passenger safety in case of accidents [6]

Crashworthiness is the structural capacity of vehicle to absorb the kinetic energy resulting during collision or accident and further to maintain passenger safety. Various regulations for crash analysis are into practice in respective countries as Automotive Industry standards (AIS), Federal Motor Vehicle Safety Standards (FMVSS), ECE regulations etc. [2]. For frontal impact FMVSS 203, 204, 205, 208, 209 ECE-R 12, 14, 16, 33, 94 and AIS 098 are few standards in common use. Field data analysis reveal that side impact can create much loss of human life, however occurrence of same is seldom or less frequent. Design differences which are inherent between utility vehicles and pickups on one side and passenger cars on the other increase the casualty risk for passengers and this is commonly attributed to geometry differences, relative masses and consequent stiffness's between the two colliding vehicles [14]. Geometric compatibility is always a dominant factor that influences the injuries during frontal vehicle-to vehicle collisions.

Frontal impact can be during low and high speeds. For high speeds FMVSS 208 and consumer metric tests are followed. While designing a bus for crash conditions the physics of crash must be clearly understood by the designer. Kinetic energy during crash must be dissipated into vehicle deformation subsequently the deformation must be away from the occupants or passengers including driver and co-driver. During crash phase the energy dissipation rate is in direct proportion with the injury to occupants so designer as to attribute this feature during designing phase itself. Ideally, constant axial

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Analysis of Auxiliary Structure Mounted on 8 × 8 Military Vehicle Chassis for Off-Road Logistics

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ABSTRACT:

Present work deals with the design, development of auxiliary structure mounted on high mobility off-road 8×8 wheeled military logistic vehicles or troop trucks. Such auxiliary structures offer a levelled base to the shelters carrying cargo ranging from sophisticated electronic equipment, tracking system, troops, weapons, arms and ammunition which require special environment to function. Design traits as clearance between the shelter and skids, intense load pattern, approach, departure & ramp angles and their effects on auxiliary structure design are presented. Design factors such as load distribution on front and rear axles, shelter height, ground clearance and their effects on the structure design are discussed. Finite element analysis (FEA) technique is utilized to simulate the behaviour of the auxiliary structure. Formulated auxiliary structure configuration possess exceptional resistance against twisting and bending due to introduction of the intense load pattern. Different configurations and variant load response of this structure is figured out using FEA simulation procedure. Application of statistical and experimental strain measurement techniques for design validation of the formulated structure is presented. Wilcoxon signed rank test is employed for evaluation of experimental and finite element outcomes.

KEYWORDS:

Auxiliary structures; Chassis mounted structures; Military logistic vehicles; Stress analysis; Statistical analysis

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1. Introduction

Off-road transportation of sophisticated electronic tracking devices, arms ammunition, computer systems and even soldiers or troops using high mobility wheeled vehicles is of concern during war-head situations. Auxiliary structures mounted on chassis provides a levelled base to the shelters which carry and provide housing to the cargo [15]. Enhanced stability of the military 8×8 wheeled vehicles on off-road tracks against bending and twisting moments generated due to increased shelter height, high rise antennas and masts is achieved due to application of these structures. Though there are other factors as type of suspension system, attachment of unsprung masses that has significant contribution to the stability of such military vehicles on rough terrains, this auxiliary structure due to its unique combination of longitudinal and cross members is expected to reduce the levels of stress and further contributing to the reduction in vertical acceleration by effective load distribution and load transfer from front and rear load locations to mid load locations [17].

FEA technique aids in simulating the behaviour of such auxiliary structure under different load and speed environments. The levelling of auxiliary structure on the chassis is taken care by the hydraulic or pneumatic cylinder attachments that comprise of hydraulic or pneumatic actuators [3]. The design development process of such auxiliary structure commences with the selection of type of cross-sections for the members, their dimensions, deflection level, nature and pattern of load on the structure, wheel base, shelter height and other design details of the base vehicle [4]. Different design constraints and their effects on development of auxiliary structure are mentioned in Table 1.

Table 1: Design restrictions and their effects

Design parameter / constriction	Effect on auxiliary structure design
Shelter height, chassis height from ground and over-all height of the vehicle	Are responsible to necessitate the restriction on height and the space essential for auxiliary structure
Wheel base and overall length	To accommodate extended length of loading container, extended chassis length increases the rear overhang of the platform
Approach, departure and ramp angles	Positions of mountings for auxiliary structure, accessories between front wheel to front overhang, rear wheel to rear overhang and in between the wheel base reiterates the original approach, departure and ramp angles of the vehicle
Payload in shelters, type of load (intense), and mounting locations on the auxiliary structure	These aspects limit dimensions of longitudinal and cross members, orientation of cross member flanges, magnitude of stress and deflection

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Self-weight and Durability Analysis of Bus Body Structure using Finite Element Analysis

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ABSTRACT:

Self-weight and durability analysis of non-airconditioned sleeper bus has been carried in present work. Automotive industry standards (052 & 119) are used to freeze bus dimensions. Generative surface design is used in preparation to compute model. The bus superstructure behaviour is simulated for load on cant and waist rails for self-weight analysis. Bump analysis is carried out considering total failure of suspension system. Behaviour of bus during bump is simulated for two situations i.e. bump focre applied to front left wheel suspension location and all other suspension locations are fixed and force applied to front two wheel suspension locations and rear two wheel suspension locations are fixed. Behaviour of bus under torsional load for two cases viz first, force is applied to left of front suspension location in upward direction and other on to right suspension location in downward direction while the rear wheel suspension points are fixed and in second case, force is applied to left of front suspension in upward direction while the second one is applied to right in rear suspension location. Braking and double lane change load conditions are simulated with a braking efficiency of 80% and a lateral load of magnitude 0.4g is evaluated. Durability of the bus based on outcomes from braking, bump, torsional and double-lane change road-load situations is evaluated. The stress and deflection magnitudes are in good agreement with the results available in literature.

KEYWORDS:

Self weight analysis; Durability analysis; Bump analysis; Braking analysis; Double lane change; Torsional loads

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1. Introduction

Design of transport utility vehicles or buses, since their inception has evolved in so many aspects such as passenger safety, vehicle efficiency, ride comfort, fuel efficiency etc. During travel, major loads acting on the bus are superimposed loads and dead loads. Superimposed loads include passengers, luggage, standees etc. All these components excluding the self-weight of the bus is evaluated. Buses used by passengers are sleeper, semi-sleeper and seater for short or long-distance travel. Superimposed loads are controllable to some extent, however self-weight can be addressed during design phase. The self-weight property of bus is influenced by material density. Over last thirty years, steel is used in manufacturing of buses. Nowadays it has been competing with alternative materials such as aluminum, carbon fibers and composites. However, the use of such alternative materials is limited due to the costs involved. [10]. Occupant safety is always a priority; however, designer also needs to address the vehicle and fuel efficiency.

Self-weight is one of the major factors that can be addressed during the design phase itself. Though it is possible to reduce the self-weight of the bus to certain extent, however when the weight is reduced the stability of bus is affected. Hence analysis of self-weight becomes an important aspect for bus design [6]. The bus superstructure and its strength play a significant role during normal and accidental situations. Normal operating situations includes inertial loads induced during maneuvering i.e. braking and cornering and external loads arising from tire road interaction i.e. crossing over a speed bump, un-noticed pits or other hurdles meant for on-road speed control. The intensity, magnitude and direction of these loads are continuously varying, which makes the super-structure joints (welded, bolted) substantially weak and further it may result in failure [2]. Hence self-weight analysis of super-structures is of paramount importance. In a situation if the super-structure is overdesigned, it will result in a heavy bus leading to high fuel consumption and short life span.

When the bus is under designed, it will be easily damaged and will need frequent repairs [15]. The goal of

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Short communication

Failure analysis of diesel engine piston in transport utility vehicles

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ABSTRACT

Present work deals with the failure analysis of heavy-duty diesel engine piston used in transport utility vehicles. The piston under consideration has failed at 302763 km. Failure mode and effect analysis (FMEA) method is used to identify the engine component having significant contribution in failure. Identification of piston failure has been carried out using FMEA and risk priority number (RPN) for engine components. Experimental analysis of failed piston has been carried out using Scanning Electron Microscopy (SEM), Energy Dispersive Spectrometry (EDS) and X-Ray Diffraction (XRD) techniques. SEM was employed to speculate the type of failure of piston. Carbon deposition on the piston surface has been observed. EDS of failed piston has also been carried out to identify levels of unnormalized constituent elements contributing to piston failure. From EDS, presence of unnormalized carbon and oxygen is identified and reveal conformability with the failure analysis. Significant percentage of carbon and oxygen at different locations on the piston surface is observed, leading to conclusion of temperature variations inside the cylinder during working. Inferences drawn from piston failure analysis reveal the causes and consequences of failure reasons. The presence of excess carbon on the piston surface indicates the knocking and overheating phenomenon. Remedial measures in addition to periodic maintenance of engine and replacement of worn out gasket to avoid piston failures are presented in this research.

1. Introduction

Engine, since its inception has underwent many technological advances right from external combustion to internal combustion types. Major components of engine include crankshaft, piston, connecting rod, cylinder, cylinder-head etc. Due to functional requirements, these components are given complex shapes which further involves relatively complex manufacturing processes and procedures [12]. Failure of engine components comprised cylinder block breakage, crankpin or crankshaft failure, noise from engine, mixing of oil and water, overheating of engine, blow by and scoring. Each failure possessed one or more causes. Material properties play a significant role in balancing the temperature and force variations that arise due to reasons including but not limited to incomplete fuel combustions, foreign inclusions, burrs, play in joints, manufacturing defects etc. A detailed discussion on materials of different engine components has been presented in succeeding literature review. The synthesis and characterization of nickel (II) complexes were reported by Masoud-Salavati Niasari [8]. Oxidation of cyclohexene using the haacac complexes of Mn(II), Co(II), Ni (II), Cu(II) supported on alumina are investigated, the results of which show that the alumna supported complexes did not undergo

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TECHNICAL ARTICLE—PEER-REVIEWED

Failure Analysis of Timing Device Piston and Supply Pump Vanes in Fuel Injection System for Transport Utility Vehicles

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Abstract The present work deals with the failure analysis of timing device piston and vanes in supply pump of a fuel pump system used in transport utility vehicles. Investigations for evaluating the failure of timing device piston and supply pump in transport utility vehicles are carried out. Failure data of eighty fuel injection pumps used for diesel engines are collected and analysed in the present work. The fuel injection pumps considered in present work are distributer type. Cracks are observed on the surface of failed timing device piston, and this crack occurrence is accounted to insufficient fuel supply that leads to dry running and elevates the friction. The presence of fuel impurities also contributes to the failure of timing device piston. Elevated friction between vane and rotor (i.e. vane housing) has been identified as the root cause of vane and subsequently supply pump failure. Effects of vane failures are incomplete fuel combustion due to reduced pressure and efficiency of the engine. Reasons for the vane failure are dry running of pump, and rusts on the surface due water presence are identified. The failure effects of timing device piston and vanes of supply pump are discussed. Scanning electron microscopy and energy-dispersive spectroscopy of the failed components have been carried out. Remedial actions to avoid the failure of timing device piston and vanes of supply pump have been suggested in the present work.

Keywords Supply pump · Fuel pump · Timing device piston · Black smoke and white smoke

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Introduction

The popularity of high-speed diesel engines in the transport utility vehicles would have been impossible without fuel injection pumps. The transport utility vehicle, i.e. bus, falls into different categories, viz. single deck, double deck, transit bus, tour bus, school bus, mini, midi buses, etc. and is significantly used for public transportation. Transport utility vehicle considered in the present work has a capacity of carrying 45 passengers (additional driver and co-driver) and is intended for intercity travel roughly around average of 650 km daily. Due to high level of precision of the distributor pump, it is possible to precisely dosate the injection quantities to the engine. The distributor fuel injection pump is driven by the diesel engine through a special drive unit that is running at exactly half the engine crankshaft speed through a suitable gearing train. The typical distributer fuel injection contains high-pressure pump with distributor, mechanical (flyweight) governor, hydraulic timing device, vane type fuel supply pump and shutoff device [1]. Fuel injection system includes several components possessing by interrelated motions. Fuel itself acts as a lubricant in the fuel pump action as there is no separate lubrication system and it would be not possible to mix lubricant with fuel for drastic environmental issues. In the present paper, a total of 80 distributer fuel injection pump were analysed and data collected for different types of failures. The present work is conducted in one of the state central workshops utilized for regular maintenance and bus body building. The fuel supply pump draws fuel form the fuel tank and generates pressure inside the pump body, and the timing device piston that advances the fuel injection for complete fuel combustion and suffices the power/torque requirement of engine is identified as the components contributing to the fuel pump failure after

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Modal Analysis of Bus Body Structure using Finite Element Analysis Technique

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ABSTRACT:

Present work deals with evaluation of dynamic characteristics of a bus body structure. The bus under consideration is a sleeper non-air conditioned vehicle for a passenger capacity of thirty and it is designed adhering to automotive industry standards. Modal analysis of the proposed bus design is carried using Ansys Workbench. With the aid of modal analysis ten mode shapes of the bus are postulated, corresponding frequencies and deflections are estimated. Mesh generator is used to mesh the complex bus model. The deflection and frequency magnitudes of proposed bus model is found with the help of Finite Element Analysis (FEA) technique and they are in good agreement with experimental results available in literature. Engine being the prime source of excitation, it's frequency is compared with the frequencies determined by FEA of the proposed bus body and it is observed that the frequencies of the bus body for ten different modes are far less than the minimum resonant engine frequency.

KEYWORDS:

Dynamic analysis; Finite Element Analysis (FEA); Modal analysis

CITATION:

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1. Introduction

Modal analysisprimarily determines the natural frequencies and mode shapes for respective vibration modes of any component or structure. It is the measurement of dynamic response of structures when subjected to acceleration or when put into operation. Mode shapes can be determined using analytical and computer methods [11]. Usage of analytical method for determination of mode shape in case of huge strucutres e.g. buses, buildings etc, is a complex engineering problem. With the determination of mode shapes, it can be predicted whether the structure is well designed dynamically or not. If not, then design imporvements can also be suggested and verified. An automotive bus as considered in present work needs to be considered for many situations before it is put into use. Passenger comfort is the prime or sole objective for a bus design. However the conept of design for misuse is also significant for bus design, as it may not always be the ideal or laboratory situation during its service.

Use of mild-steel or steel for buses has become prominent considering its yield strength and passenger safety in case of accidents [6]. Bus (vehicle or ladder) frame act as support to power train (engine), body assembly and passenger weight. Use of steel for bus bodies results into very stiff and lightweight structures. With the advances in technology the manufacturing of complex bus body shapes has been easily possible. When the bus along with passengers travels on road with pot holes it is subjected to different levels of vibration. Vibration characteristicts of the bus frame and supporting structure play a vital role in fatigue life of parts, passenger comfort and vehicle ride and handeling [2]. Current practice to determine bus ride or dynamic characteristics is used for experimental and numerical (finite element) methods. Experimental method of modal analysis determines the low order modes accurately but this is limited to the costs involved. Numerical method (modal analysis) i.e FEA can be used to predict the dynamic characteristics of the bus frame [15].

Different bus configurations can be studied and further optimized with the use of numerical modal analysis, before actually making the physical bus model. This would save lot of time involved in design phase and shorten the design cycle. Slight variation results in numerical modal analysis and experimental one is due to fundamental assumptions made during analysis [13]. Use of bus for transport is one of the prominent modes in on-road transportation. Passenger transport or travel using buses contribute nearly 37% or even more but it is not limited to state government buses, private buses, intercity, intracity etc. travel [21]. A new configuration of bus is designed in present work. The new configuration of the bus is designed using Automotive Industry Standards (052 & 119) and Central Motor Vehicle Rules. Present

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Effect of Quenching Media on Laser butt Welded Joint on Transformed -Induced Plasticity (TRIP) Steel

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ABSTRACT

The characteristics of laser welding joint were investigated by bearing in mind the effect of normal materials. Post-heated materials and cooled with different media i.e. water and air on microstructure, microhardness distribution and tensile strength on Transformation-Induced Plasticity (TRIP) Steel. In our, experiments The Normal – Air (N- A) specimen gives ultimate tensile strength is very improved as 575.05 MPa with the elongation as 14.8% as compare to 524.37 MPa ultimate tensile strength and 22.8% elongation in case of N-N specimen which gives 9.66% change in ultimate tensile strength. As its ultimate tensile strength and percentage elongations decrease, the outcome of N-W Prepared samples also follows the inverse pattern. The tensile strength affects reversal with respect to lower cooling rate of the welded specimen during air quenching and the faster cooling rate leads to more distortion in water quenching. Finally, microstructure, microhardness behavior of Base Metal (BM), Heat Affected Zone (HAZ) and Fusion Zone (FZ) was investigated and discussed.

Key words : Butt weld joints, Heat Treatment, Laser beam welding, Transformed Induced Plasticity (TRIP) Steel

1. INTRODUCTION

The automobile manufacturing sector is changing significantly as they are interested in improving the performance of vehicles. One of the ways to achieve this is by reducing the weight of the vehicle so the fuel consumption is improved. In order to do this large amount of research is going on in the field of materials [1–3].Compared to arc welding, gas welding or any other modern welding methods, the energy required to create welded joints with Laser welding is comparatively low. In addition, the cooling of the as-Post pared welded joint was reasonably quick and thus affects the characteristics of the joint while it is still in operating condition. In the recent decades the use of Advance High Strength Steel (AHSS) plays a vital role in body manufacturing of Automotive. One of the excellent materials falls under this head is Transformed Induced Plasticity (TRIP) Steel is high strength and low alloy steel having multiphase structure containing Retained Austenite (RA) and Bainite in association withwithimproved elongation properties and ultimate strength just because of ferrite which satisfying intensified automobile industry requirement for good formable high strength steel [4]. The Retained Austenite is going to convert into martensite with ample amount of activation energy is induced during transformation which improves work hardening property of materials significantly [5]. TRIP effect was first investigated by Wassermann [6].

The most common techniques used to join the metals are Arc welding, TIG, MIG, etc which is renowned from other forms of mechanical connections, such as riveting or bolting. Laser welding is prominent process used for cutting, joining and contact less method for achieving good result. Because of extensive characteristics of process widely applied in diversified sectors like medical industries probably in instrument joining, dental application, space work, energy sector, automotive and many more [7]. science 25 Years ago Laser is used for different Industrial applications for material cutting, joining, Sintering with different types of laser like CO2 followed by the Nd: YAG-laser. [8-9].The laser welding technology has distinct advantage which provides high scanning velocity, due to quick heat removal and instant process narrow heat affected zone created and distortion in relative region. As the process is quite simple and controlling is excellent with power, velocity, incident angle, diameter of laser beam, types of laser, focal length, high intensity source which will reflect into output of the joint in the form of mechanical properties like strength, ductility, hardness, metallurgical properties, thermal distortion, good penetration depth etc.[10]. One of the major advantages of Laser welding is that, without use of filler materials, can produce a joint.The responsiveness of different materials is also affecte d by broad variations in thermal properties and low metal co mpatibility[11-15]. Laser welding has a distinct advantage like
Capability to regulate welding, repeatability and quick autom atic profiling which will control the weld profile with an extremely narrow heat affected area [16-18]. Very few

Parameter Forecasting of Laser Welding on Strength, Deformation and Failure Load of Transformed Induced Plasticity (TRIP) Steel using Experimental and Machine Learning Approach

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Abstract: *The aim of the current research work is to study the effect of different mechanical parameters like laser power, laser velocity, and laser incident light over the mechanical strength of the laser welded steel material by artificial intelligence approach. The Knime software were used to establish algorithm model to predict the machining input parameters. The results very well matches with practical results ca. the strength of up to 95.14%, which is much more than the accepted results at the early stage of the experiments. Besides, our results also showed good strength with minimum deformation which is clearly seen in the mathematical presentation.*

Keywords: **Laser welding, Mechanical strength, Artificial intelligent, TRIP steel**

1. INTRODUCTION

Weight optimization is one of the most vital thing in the automobile industry to increase the fuel efficiency. The modern industries are attempting to increase the strength to weight ration of material which in response creates immense scope for utilizing optimum materials for applications. The best substitute for conventional steel is Transformed Induced Plasticity (TRIP) Steel joined by welding process predominantly by laser welding. Compared with other conventional welding processes the laser welding process offers many advantages like, it does not required clamping and holding, it can transfer high energy to a small area and thus minimize heat affected zone (HAZ) with minor distortion. Besides, the filler materials could be minimized and high-speed cooling and heating cycles of steel could be achieved. Accordingly, as discussed above the optical, thermal and metallurgical parameters substantially affect the metallurgical properties and strength of the steel joining parts [1-3]. In addition, to the above parameters the clamping condition, the part geometry, as well as environmental conditions (shielding gas) decide the welding quality [4-6]. Thus, the quality of the welding joints could be determined on the basis of mechanical and geometrical parameters of the weld. The laser power, welding speed, focal position and gap have high relevance for the mechanical and geometrical parameters of the weld [7,8]. Though there are manuals which recommend specific parameters combination for the desired laser welding quality it is difficult to cover all possible combinations because of the process nonlinearity, so to establish an algorithm for optimal parameters forecasting of the laser welding process [9].

In a different perspective, there are some advanced artificial intelligence algorithm approaches to categorize the effect of input parameters on output parameters [10-13].

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An Investigation on Laser Welding Parameters on the Strength of TRIP Steel

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The energy required for joining steel segments by using laser welding is relatively very low compared with arc welding, gas welding, or any other conventional welding techniques. Moreover, the rapid cooling may create a significant effect on different regions, such as the fusion zone (FZ), heat affected zone (HAZ), and base metal (BM), and in turn affect different parameters. In this study, the characteristics of the laser-welded joint were investigated by varying laser power, welding velocity and incident angle, and tensile strength. In our, experiments. the microhardness was increased by varying the power of laser welding. The strength of the joint was increased to 549 MPa with 2200 W high power, 30 mm/s velocity, and 80° laser incident angle. By increasing the power and velocity of the laser, the welding gun strength was improved; conversely, the angle of laser incident on the welding location decreased while its strength was increased.

Keywords: TRIP steel, laser welding, Nd:YAG laser, mechanical strength, microhardness

Highlights

- *The effect of laser power, laser welding velocity, and incident angle were examined, which revealed enhanced mechanical properties.*
- *Microhardness was increased to 549 MPa by increasing the power of laser welding.*
- *Welding strength is improved by varying the power and velocity.*
- *Varying the laser incident angle 9.62 % tensile strength and 67 % deformation was achieved.*

0 INTRODUCTION

Throughout the world fuel consumption is significantly increasing day by day, so to meet the increasing demand, energy costs have been considerably increasing [1] to [3]. In this regard, to reduce fuel consumption, automobile industries are considering cutting down the weight of vehicles to improve their overall performance and fuel economy [4] to [6]. The continuous development in new grades of steel from global steel industries, with the required features and ever-increasing strength, has remarkably improved the demand for advanced high-strength steels (AHSS) in the market [7]. The AHSS are complicated materials with precise chemical content and different phase, resulting from accurately restrained heating and cooling mechanisms [8] and [9]. Recently, a variety of strengthening methods have been developed to enhance the strength, flexibility, persistence, and lethargy properties in steel [10]. However, at present, tensile strengths as short of 440 MPa, are observed in several AHSS phases and hence, there is a need to utilize force as a threshold to enhance the AHSS steel. At present, it is recommended that an additional constituent of the family of AHSS-termed dual-phase (DP) steel is delicate at the sub-critical heat-damaged zone due to restraining of the martensite [11] to [18].

Furthermore, the transformation induced plasticity (TRIP) steels with enormous strength and ductility properties has emerged as a new generation material to replace AHSS and thus to meet the requirements of automobile industries [19]. The base metal microstructure of TRIP steel is mainly constituted with a ferrite matrix along with trace amounts of martensite, bainite, and confined austenite alloys [20]. In plastic bucklings, austenite is converted into martensite to achieve superior extension steels with their excellent combination of strength and ductility [21] and [22].

Henceforth, all the engineering applications which had been used earlier consist of straight lined joint over the levelled surface. The motivation for such variation is that the exceptional characteristics of the laser joint with the close connection between the depth and width of the joint are slightly distorted on the constituent, which can only be achieved

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Determination of water loss for an adiabatic cooling of a fin fan water cooler

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ABSTRACT

Evaporative coolers are suitable where summer is hot and dry. The evaporative pad made from cellulose material reduces the condensation temperature and improve the specific cooling power of an air cooled condenser. Water is needed in the adiabatic cooler to cool the fresh hot outside air and to reduce the condensing temperature. The cooler manufacturing companies as well as the customers should be aware about the water loss throughout the year for a particular cooler. In this paper, the main intention is to determine the water loss for the specific fin fan cooler. When the pads are wetted, temperature of air decreases which results into cooling and humidified air. The water losses are estimated with the weather data for different pad materials. Due to the scale formation in evaporative condenser, pressure drop increases and pad saturation efficiency decreases. It is estimated that 5.2 L per hour water consumption is needed for the fin fan cooler studied at dry bulb temperature of air at 38 °C in summer condition.

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1. Introduction

In the peak summer when the atmospheric temperature is very high, energy efficiency ratio reduces for an air conditioner and consumption of electricity increases when there is a severe shortage of electricity due to limited resources of coal, water and oil [1]. Evaporative condensers needed less water over water cooled condenser and provide higher specific cooling power. Evaporative condensers are used mostly where the summer is hot and dry as people cannot afford the air conditioners [2]. In evaporative condensers, electricity can be saved as the condenser temperate drops due to chilled water and heat rejection factor can be increased [3]. Performance parameters of refrigeration system such as coefficient of performance, energy conserved, refrigeration capacity and compressor on–off are studied. Cooling effect improved from 5 to 7.5% for every temperature degree drop [4,5]. Watt introduced the analysis for direct and indirect evaporative coolers in air conditioning handbook [5]. Cooler capacity can be increased with pre-cooling of intake air. The main intention is to analyze the drift test methods for cooling towers and drift measurements for dry and adiabatic cooler [6]. It is found that as the condensation temperature increases, energy efficiency ratio decreases. Power reduction of around 14.3% is observed with the use of evaporative condenser [7]. The performance of split air conditioners with the evaporative cooler shows reduction around 17% energy consumption and energy efficiency ratio improved from 29 to 53% [8]. Energy saving is observed with split air conditioning with evaporative cooler for different weather conditions for 50 to 60 °C temperature. The rise in atmospheric temperature increases power input to the compressor due to increase in condenser temperature [9]. The comparative performance of air cooled, water cooled and evaporative condenser is studied and found that water cooled condenser increases the cooling effect from 2.9% to 14.4% and the COP by 1.5 to 10.2% with respect to water cooled condenser. Evaporative condenser cooling is 31% more and the COP of the refrigeration system is increased by 14.3% as compared to the air cooled condenser [10]. Porous material like cellulose is suitable for passing water and air for evaporation of water [11]. The water changes the phase from liquid to vapour at saturation pressure. The surrounding air temperature decreases due to the absorption of water vapour. When the air is completely saturated, relative humidity is 100% [12]. The exit temperature from the cooling pad is decreased due to conversion of sensible thermal energy into phase change energy [13]. For low relative humidity of incoming air, large quantity of water is evaporated and drastic temperature reduces. The cooling capacity of evaporator increases with the increased mass flow rate of air lead-

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Estimation of heat transfer coefficient for intermediate fluid stream in triple concentric tube heat exchanger

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ABSTRACT

The design of triple concentric tube heat exchanger (TCTHE) requires heat transfer coefficient (HTC) values for all three fluid streams as input parameters. The fluid through intermediate tube transfers heat to other fluids simultaneously. The present study applies a concept of thermal resistance network and quadratic equation is developed for computing HTC of intermediate fluid for TCTHE under adiabatic condition. 'Oil ISO VG 22' is taken as intermediate fluid and is cooled by using water as inner and outer cooling fluid in the present work. The HTCs of inner and outer cooling fluids are calculated from the well-established empirical correlations available in the literature. CAD modelling is done using Catia V5 and simulation is carried out using STAR CCM+ CFD software. The results of the method are compared with those obtained from mathematical models in the literature as well as results from CFD analysis are validated.

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KEYWORDS
Triple concentric tube heat exchanger; intermediate fluid; heat transfer coefficient

Nomenclature

Q_1	rate of heat gain from inner cold fluid (fluid 1) *W*
Q_2	rate of heat loss from hot fluid (fluid 2) *W*
Q_3	rate of heat gain from outer cold fluid (fluid 3) *W*
$r_{1,i}$	inner radius of inner tube, *m*
$r_{1,o}$	outer radius of inner tube, *m*
$r_{2,i}$	inner radius of intermediate tube, *m*
$r_{2,o}$	outer radius of inner tube, *m*
L	length, *m*
A	area, m^2
w_1	water flowing through inner tube (inner cooling fluid) lpm
w_3	water flowing through outer annulus (outer cooling fluid) lpm
f	friction factor
h	heat transfer coefficient, W/m^2K
k	thermal conductivity, W/mK
lpm	litres per minute
$\dot{m}$	mass flow rate, Kg/s
NTU	number of heat transfer units
Nu	Nusselt number
Pr	Prandtl number
Re	Reynolds number
T	temperature, °C
C_p	specific heat at constant pressure, J/kgK
TCTHE	triple concentric tube heat exchanger
HTC	heat transfer coefficient
CFD	computational fluid dynamics

Greek letters

Δ	difference
ε	effectiveness of heat exchanger
M	dynamic viscosity
P	density

Subscripts

i	inner radius
o	outer radius
in	inlet
out	outlet
ln	logarithmic mean
w	water
$w_{1,in}$	water inlet through inner tube
$w_{1,o}$	water outlet through inner tube
$w_{3,in}$	water inlet through outer annulus
$w_{3,out}$	water outlet through outer annulus

1. Introduction

The modern applications involve multi-functional unit where heat is exchanged between two, three or more fluids. The applications of thermal energy transfer between three or more fluid streams simultaneously are observed in food industry, petrochemical industries and in the production of cryogenic temperatures, low-temperature refrigeration processes. The heat transfer from one fluid to another fluid is termed as 'thermal communication'. The heat transfer for TCTHE with adiabatic condition has outermost surface insulated and heat is transferred from a hot fluid stream to two cold fluid streams which involves two thermal communications. The major difficulty is in computing the HTC of fluid through intermediate tube because of simultaneous heat transfer to other fluids. Furthermore, when the

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