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Analysis of Implementing An Attendance Management System Based on Real Time Face Recognition Using Artificial Intelligence

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Abstract- This assignment gives a complete knowledge of the attendance system of real time face recognition using artificial intelligence. The attendance maintaining system is difficult process if it is done manually. The smart and automated attendance system for managing the attendance can be implemented using the various ways of biometrics techniques. Face recognition is one of them. By using this system, the issue of fake attendance and proxies can be solved. In the previous face recognition-based attendance system, there were some disadvantages like face spoofing, the intensity of light problem, and the head pose problem. Therefore, to overcome these issues, various techniques like linear binary pattern histogram, linear discriminant analysis, and Principal component analysis are used. The major steps in this system are detecting the real faces and recognising them. LBPH face recognizer is to identify the face of the person in real time. LBPH face recognizer to overcome this problem. This system compares the image of the test and the training image and determines who is and is not present. The attendance data is stored in an excel sheet that is automatically updated in the system. This smart system will be an effective way to maintain the attendance and records of students.

Keywords- face spoofing, LBPH algorithm, face detection, face recognition.

I. INTRODUCTION

The traditional method of marking attendance is a tedious task in many schools and colleges. It is also an extra burden on the faculties, who should mark attendance by manually calling the names of students, which might take 5 minutes of the entire session. To verify the student attendance record, the personnel staff ought to have an appropriate system for approving and maintaining the attendance record consistently. By and large, there are two kinds of student attendance frameworks, i.e., Manual Attendance System (MAS) and Automated Attendance System (AAS). Practically in MAS, the staff may have experience difficulty both approving and keeping up with every student's record in a

classroom all the time. In a classroom with a high teacher-to-student ratio, it turns into an extremely dreary and tedious process to mark the attendance physically and cumulative attendance of each student. Consequently, we can implement a viable framework that will mark the attendance of students automatically via face recognition. AAS may decrease the managerial work of its staff. Especially, for an attendance system which embraces Human Face Recognition (HFR), it normally includes the students' facial images captured at the time he/she is entering the classroom, or when everyone is seated in the classroom to mark the attendance. Generally, there are two known methodologies to deal with HFR: the feature-based methodology and the brightness-based methodology. The feature-based methodology utilizes key point features present on the face, called landmarks, such as eyes, nose, mouth, edges, or some other unique attributes. In this way, out of the picture that has been extracted beforehand, just some parts is covered during the calculation process. Then again, the brightness-based methodology consolidates and computes all parts of the given picture. It is also called holistic-based or image-based methodology. Since the overall picture must be considered, the brightness-based methodology requires more handling time and is likewise more complicated. There are different advances that are made during the process of this face recognition framework, yet the essential steps of these are face detection and face recognition. Firstly, to mark attendance, images of students' faces will be required. This image can be captured by the camera and stored in the database. This image will be considered an input to the system. For efficient face identification, the picture should be upgraded by utilizing some image processing methods like grayscale conversion and histogram equalization. After an image quality upgrade, the image will be passed on to perform face detection. The face identification process is followed by the face recognition process. With the assistance of the element extractor, different face highlights are extracted. Utilizing these faces as Eigen features, the student is recognized, and by coordinating with the face database, their attendance is marked. Developing the face database is required for the end goal of comparison.



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Web Scraping To Collect Data From Etl With Pipeline

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Abstract- Web Scraping is the process of extracting data from web pages, mainly targeting this task are about automated web data extraction.. and finally storing that data into a Csv file. Python language is implemented for carrying out the data from Web pages using requests and BeautifulSoup libraries ETL (Extract, Transform, Load) is a data integration process that combines data from multiple data sources into a single, also responsible for cleaning, their customization and transformation, consistent data store that is loaded into a data warehouse or other target system. It is responsible for the extraction of data, their cleaning, conforming and loading.

Keywords- Web Scraping; python; data analysis; extraction

I. INTRODUCTION

Data is essentially the plain facts and statistics collected during the operations of a business. It is the raw facts and statistics, specific and organized for a purpose presented within a context that gives relevance and can lead to an increase in understanding and decrease in uncertainty. Web scraping is the method of extracting content and data from the website...it extracts historical data more effectively, of which you can feed such data into some machine learning database. It is an automatic method to obtain large amounts of data from websites. Most of this data is unstructured data in an HTML format which is then converted into structured data in a spreadsheet or a database so that it can be used in various applications. An ETL pipeline is a set of processes Where raw data is ingested from various data sources and then ported to data store, like a data lake or data warehouse, for analysis. Mechanism in which processes Data pipelines from moving of data from one system with method of data storage processing to another system be stored managed differently.

II. WEB SCRAPING USING PYTHON LIBRARIES

Beautifulsoup

Python library for fetch data out of HTML and XML files. It creates a parse tree for parsed pages that can be used to extract data from HTML, which is useful for web scraping.

Requests

Page | 188



It is one of the integral part of Python for making HTTP requests to a specified URL . It makes a request to a URI, it returns a response and also provides inbuilt functionalities for managing both the request and response.

Pandas

It is used for working with data sets. It has functions for analyzing, cleaning, exploring, and manipulating data. It represents the data in a form that is suited for data analysis through its Data Frame.

III. PREVIOUS WORK

Web scraping is the method of extracting content and data from the website...it extracts historical data more effectively, of which you can feed such data into some machine learning database. It is an automatic method to obtain large amounts of data from websites. Most of this data is unstructured data in an HTML format which is then converted into structured data in a spreadsheet or a database so that it can be used in various applications.



1. Scraping the data from the webpage:

Scrape match results from the English Premier League for this project. Download the data using a python library called requests, then parse it using beautiful soup to extract what we need, and finally load everything into a pandas data frame so we can clean it up and prepare it for analysis.

python requests BeautifulSoup pandas

The first thing, going to do is figure out how to get the html of a page that shows the EPL standings, and utilize

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Face Recognition Open Cv Based ATM Security System

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Abstract- The purpose of this paper is to improve security of the ATM model. We improve Features like face recognition and One-Time Password that used for the enhancement of security of accounts and privacy of users. Face recognition technology helps the machine to identify each and every user uniquely thus making face as a key. This completely eliminates the chances of fraud Due to theft and duplicity of the ATM cards. Moreover, the randomly generated OTP frees the user from remembering PIN as it Itself acts as a PIN . CNN algorithm and Deep learning techniques are used to identify the personals using the machine. This system uses open CV to process the image being obtained .This is making easy and protected transaction and also Maintaining user-friendly environment with the user.The growth in The field of electronic transactions has resulted in a greater demand for fast and accurate user Identification and authentication.

Keywords- ATM ,Camera, OpenCV, CNN Algorithm, PIN.

I. INTRODUCTION

The ATM was invented in 20th century from then a lot of changes have been made in it. We tried to improve the security using face recognition into the system with the help of Deep Learning. There are many unauthorized access attempted in the ATM by knowing the password of card holder and Withdrawing money without the knowledge of the card holder, this leads to a serious crime in the society . To rectify this type of problem we introduce this project to provide a safety mechanism for ATM's . The unauthorized access found only after the transaction is done or when the amount gets debited from the account of the authorized user .The method to prevent the ATM security threat related to unauthorized users by allowing access to the user only after the confirmation of the user identity by using camera that is mounted on the ATM Machine . When the people try to take money in the ATM. ATM's will use face detection and face recognition to check it with the account holder image . If the image matches the user, the system will permit to continue the transaction else a system will send OTP to the account holder. If the account holder clicks "ITS ME", then holder will click

the "DECLINE", means the transactions are declined. transactions will be allowed.

II. ATM SECURITY USING FACIAL RECOGNITION

The ATM using Face Recognition is indicate the way to a lot of forgery attempt and abuse through card theft and pin theft of customer account details.This process based on the face matched with the image of Account holder and the current image of the user. In this Process there are used many components like Face Detector, Face Recognizer,3 - D Technique and Neural Networks.

A. WORKING

When a customer enters into the ATM they should insert card in the ATM card reader. After inserting a card in ATM the camera captured the image of the user using face detector and it identify the facial region of the user and using recognizer it will check with the database to find a match with the account holder . The 2D and 3D techniques for identify the image of the user ATM Security using Machine Learning techniques in IOT. User account through which the original information stored in the database is detected using this component.The face recognition is identified by converted the images into gray scale image for reducing the errors occur and image of the user is split up into many pieces and each pieces is assigned by a value and get stored .The information hold on within the card of the user the given values of the approaching user's image is compared with the revered values of the image of the user that was method and hold on whereas the cardboard process.

B.ATM SECURITY USING MACHINE LEARNING TECHNIQUE

Machine learning is a rapidly growing field and has been used for a variety of tasks, including facial recognition. The main idea of this system is to secure the ATM Transaction by using face recognition and prevent unauthorized access. After inserting a card the transaction will be permitted only



Detection Of Android Malwares Using Recurrent Neural Networks

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Abstract- With Android's dominant position within the current smartphone OS, increasing number of malware applications pose a great threat to user privacy and security. Classification algorithms that use a single feature usually have weak detection performance. Although the use of multiple features can improve the detection effect, increasing the number of features increases the requirements of the operating environment and consumes more time. In existing system, a fast Android malware detection framework are preprocessed with the N-Gram technique and the FCBF (Fast Correlation-Based Filter) algorithm based on symmetrical uncertainty is employed to reduce feature dimensionality. Finally, the dimensionality reduced features are input into the CatBoost classifier for malware detection and family classification. In proposed system, the project is expected to show better results by implementing Recurrent Neural Networks (RNN)

Store has less rigid security measures in place. In addition, Android users can download apps from various sources on the internet. This creates an environment in which cyberattacks are possible. Android malware spreads in a variety of ways, including:

Downloading malicious apps

The most common method hackers use to spread malware is through apps and downloads. The apps you download via official stores tend to be safe – although not always – but those which are pirated or downloaded from less legitimate sources are more likely to contain malware. Occasionally an app with malware will make it through to an official app store. These apps are usually discovered and removed quickly, but they underline the need to remain vigilant. If developers use untrusted SDKs – software development kits – then the apps they develop have an increased risk of malware.

I. INTRODUCTION

1.1 MALWARE

Malware is any software intentionally designed to cause disruption to a computer, server, client, or computer network, leak private information, gain unauthorized access to information or systems, deprive access to information, or which unknowingly interferes with the user's computer security and privacy. Many types of malware exist, including computer viruses, worms, Trojan horses, ransomware, spyware, adware, rogue software, wiper, and scareware. The defense strategies against malware differ according to the type of malware but most can be thwarted by installing antivirus software, firewalls, applying regular patches to reduce zero-day attacks, securing networks from intrusion, having regular backups and isolating infected systems. Malware is now being designed to evade antivirus software detection algorithms [1].

1.2 ANDROID MALWARE

Android malware is malicious software that specifically targets Android devices. As with any type of malware, the intention is to harm the user's device and steal their data. Compared to Apple's App Store, Google's Play

Using a device with operating system vulnerabilities

Hackers can exploit any vulnerabilities within your device. Usually, security vulnerabilities are discovered fairly quickly and patched up, but if you don't regularly update software, then your device may be vulnerable. As with your computer, it's essential to keep your mobile device up to date, because hackers can exploit newly discovered vulnerabilities.

Opening clicking on suspicious links in emails or texts

Compromised emails are another way in which hackers install malware on your phone. For example, you may receive an email that says you have won something (a tablet, a vacation, etc). Or you may open an email which appears to be from your bank or another trusted company, asking you to update your details or log in to your account. In both scenarios, if you click on the link, you may be taken to a malicious website which downloads and installs malware on your phone. The data on your phone may then be exposed to the hacker. The same applies to links contained with text messages which appear to come from a legitimate source or



An Fully Automated Ai Based Trading System

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Abstract- Generating reliable and meaningful product demand predictions is an open challenge in the industrial environment.. Demand forecasting is still an active avenue of research since it significantly affects business profitability because of uncertainties related to demand predictability, high product variety, and supply fluctuation. This paper deals with a practical real-life case study of a leading international company. Particularly, we investigate the demand forecasting for the industrial products .The proposed implementation was how the historical demand data could be utilized to forecast future demand and how the automatic buy and selling of the stocks performed and it also able to do portfolio management. The historical demand information was used to develop several autoregressive integrated moving average (ARIMA) models by using Box–Jenkins time series procedure and the adequate model was selected according to four performance criteria: Akaike criterion, Schwarz Bayesian criterion, maximum likelihood, and standard error. The selected model corresponded to the ARIMA (1, 0, 1) and it was validated by another historical demand information under the same conditions. The results obtained prove that the model could be utilized to model and forecast the future demand in this food manufacturing. These results will provide to managers of this manufacturing reliable guidelines in making decisions.

Keywords- Algorithmic trading, Demand forecasting, Automated buy and sell stocks, Portfolio management.

I. INTRODUCTION

In today's competitive manufacturing environment, and to respond quickly to shifting demand, organizations are moving toward a more effective demand-driven supply chain. The market has evolved into a "pull" environment with customers more demanding and discriminating, dictating to the supplier what products they desire and when they need them delivered.

Demand forecasting is crucial to inventory management. Inventory stock levels depend on demand's forecasts. In fact, inaccurate estimation of demand can cause significant costs to pay, which proves that the process is not improved. Consequently, many systems incur large investments in inventories to avoid "stock outs." A further complicating issue is that some demands can be intermittent

demands, which means that there is a time when we have no demand and other time when we have successive demands. Intermittent demands present many difficulties for traditional statistical demand forecasting methods.

For most organizations, managing demand is challenging because of the difficulty in forecasting future consumer needs accurately.1 More than 74 % of the responds in a research survey, shows the poor forecasting accuracy and demand volatility as the increasing major challenges to supply chain flexibility.2 Best performing companies tend to improve supply chain flexibility, agility, and responsiveness through improving forecasting accuracy throughout the long supply chain.2 The managers in these companies must link forecasting to improvement goals and use past performance to avoid past errors and then reach a high level of efficiency.3

Researchers came out with much work in the forecasting domain and suggested many methods among which we find two principal approaches much utilized: time series approaches and artificial neural network (ANN) techniques.

ANN models have been successfully involved in forecasting demand. These models are characterized by intervals with considerable variation of demand. ANN approach is considered as an alternative when it comes to the ability to capture the nonlinearity in data set.

ANN is applied in different fields. Gaafar and Choueiki4 applied a neural network model to a lot-sizing problem as a part of material requirements planning for the case of deterministic time-varying demand.5

To compare ANN and ARIMA method and to assess the performance of the two methods, a study related to electricity demand has been done by Prybutok et al.6 to forecast a time series. ANN seems to be outperformed. Another study was done by Ho et al.7 using simulated failure time of a compressor to determine the more accurate forecasting model. The two methods are used to forecast the failure of the system.8

Aburto and Weber9 combined the two forecasting methods which are ARIMA and neural networks. The



Secure File Sharing On Cloud Using Cellular Automata Based Encryption

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Abstract- Data Lake was architected from the ground up for cloud scale and performance. With Azure Data Lake Store any organization can analyse all of its data in a single place with no artificial constraints. The Data Lake Store can store trillions of files where a single file can be greater than a petabyte in size which is 200x larger than other cloud stores. This means there is no need to rewrite code as there is increase or decrease of the size of the data stored or the amount of compute being spun up. Data Lake also takes away the complexities normally associated with big data in the cloud, ensuring that it can meet your current and future business needs.

In this project we are creating the azure account to use the data lake and were, we are storing the data in the data lake. Data Lake can store data of any type. And we are using the Cellular Automaton encryption algorithm and PSEUDO-RANDOM NUMBER GENERATOR (PRN) to solve the problem in the existing system and this algorithm verifiable file search problem and develop protocols to enable verifiable file search for enterprise-scale cloud storage applications. And, alsowe are propose a multiple key based-secure key encryption scheme with low overhead cipher texts and aggregate keys. which can flexibly extend the number of participants in associate degree passing cloud surroundings the structure of the Group style.

This protocol is applied in cloud computing to support secure and economical information sharing. The data can also be deleted if the user don't need the data or in case of change is systems.

Keywords- PSEUDO-RANDOM NUMBER GENERATOR (PRN) ,Data outsourcing, searchable encryption, SSE, verification,

I. INTRODUCTION

Nowadays, millions of websites are hosted on the web in the Internet era. A stack of servers is needed to maintain the hosted site, which is very costly. The servers' traffic rates must be steady and must be regularly checked and maintained. Need to hire more people to organize and

maintain the servers. All of the data will be stored in data centres. As a result, continual attempts to maintain the server issue and the workers may detract from our ability to meet our business objectives using "Cloud Computing" to prevent time-consuming upkeep.

"Cloud computing is a practice of employing a network of remote servers to store, manage, and process data from anywhere within the world." it's utilized in place of a local server or a personal computer. The service like storing data and applications is delivered to the organization's devices through the internet. Cloud computing provides many benefits through the services combining the data centers, resources, and servers through the internet. Cloud Services are based on pay-per-use regulations. The services are accessible from anywhere in the world at a greatly reduced cost, allowing employees to collaborate more effectively.

II. EXISTING METHODS

We aim to develop an Efficient, Secure, Verifiable Symmetric Searchable Encryption scheme (ESVSSE). The data owner uploads the encrypted documents, authenticator and the security index using the B+-Tree to the cloud server. This scheme allows the user to verify the integrity and freshness of the search results. Our ESVSSE scheme is defined as follows: ESVSSE is a three-party model where data owners store secure indexes, authenticators, and encrypted documents on the cloud server. The data owner can authorize users to query the cloud servers. The authorization procedure is similar to. The cloud server provide storage and search capabilities. Authorized users can initiate query and verification operations.

Cellular Automation Algorithm:

A discrete parallel computation model built of a finite array of n cells is known as one dimensional cellular automation. In a discrete amount of time (t), each cell communicates with its neighbors. Each center cell x updates its state $s_t(x)$ $\{0, 1\}$ by applying a local rule and a radius(r). For radius r , the neighborhood consists of a total of $2*r+1$ numbers of:



Extended Identity Based Aggregation Scheme (Idbas) For Banking Application For Detecting And Preventing Using Mitigate Attacks

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Abstract- The paper presents the online banking application process, it secure analysis of online banking systems. Several models are evolving and being applied to many banking applications systems to preventing and detecting online banking fraudsters. It is a financial sector and it is a part of the companies that consists of institutions that provides financial services to commercial and retailed customers. It includes a wide range of industries, including banks, investments or insurance companied. This financial institutions are they exposed to cyber-security attacks. Many banks places where money available and cyber criminals attacking banks offer a variety of ways to profit through national governments and financial support for hackers.

A.KYC PRIVACY AND SECURITY COMPLIANCE

Based on the thorough review of a survey of KYC regulations done by Price Waterhouse and Coopers [28], Technical Standard for Digital Identification Systems published by World Bank Group [29], and the report on existing remote on-boarding solutions in the banking sector by EU commissions [30], the security and privacy-related compliance regulated by financial institutions around the globe take customer due diligence as the core consideration and emphasize the following four common requirements for digital identification including KYC compliance.

I. INTRODUCTION

Nowadays, millions of websites are hosted on the web in the Internet era. A stack of servers is needed to maintain the hosted site, which is very costly. The servers' traffic rates must be steady and must be regularly checked and maintained. Need to hire more people to organize and maintain the servers. All of the data will be stored in data centers. As a result, continual attempts to maintain the server issue and the workers may detract from our ability to meet our business objectives using "Cloud Computing" to prevent time-consuming upkeep. "Cloud computing is a practice of employing a network of remote servers to store, manage, and process data from anywhere within the world." it's utilized in place of a local server or a personal computer. The service like storing data and applications is delivered to the organization's devices through the internet. Cloud computing provides many benefits through the services combining the data centers, resources, and servers through the internet. Cloud Services are based on pay-per-use regulations. The services are accessible from

The image cannot be displayed. Your computer may not have enough memory to open the image, or the image may have been corrupted. Restart your computer, and then open the file again. If the red x still appears, you may have to delete the image and then insert it again.

B.BLOCKCHAIN IN IDENTITY MANAGEMENT SYSTEM

Blockchain technology delivers a decentralized database where multiple nodes are linked to one another by the communication network. Blockchains are constructed from cryptographic mechanism, data storage, networking, and incentive schemes to support decentralized transaction

II. BANKING APPLICATION USING MITIGATE ATTACKS



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Innovate a Model of Phishing Website And detection With Features Tools

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Abstract- The phishing email is one of the significant threats in the world today and has caused tremendous financial losses. Although the methods of confrontation are continually being updated, the results of those methods are not very satisfactory at present. Moreover, phishing emails are growing at an alarming rate in recent years. Therefore, more effective phishing detection technology is needed to limit the threat of phishing emails. In this article, we first analysed the structure of the email. Then, based on an improved Recurrent Convolution Neural Network (RCNN) model with multilevel vectors and attention mechanisms, we proposed a new named phishing email detection model, to be used to model emails at the subject level, email body level, character level, and word level at the same time. To evaluate its effectiveness, we use an unbalanced dataset that presents the actual ratio of phishing emails to legitimate emails. Experimental results show. Meanwhile, the ensure that the filter can identify phishing emails with high probability and filter out legitimate emails as little as possible. This promising result is superior to the existing detection methods and verifies the effectiveness of in detecting phish.

Keywords- phishing website detection R-CNN algorithm, website analyses, splitting clone and original website.

I. INTRODUCTION

Nowadays Phishing becomes a main area of concern for security researchers because it is not difficult to create the fake website which looks so close to legitimate website. Experts can identify fake websites but not all the users can identify the fake website and such users become the victim of phishing attack. Main aim of the attacker is to steal banks account credentials. In United States businesses, there is a loss of US\$2 billion per year because their clients become victim to phishing. In the 3rd Microsoft Computer Safer Index report published in February 2014, it was estimated that the annual global impact of fraud could be as high as \$5 billion. Phishing attacks succeed due to a lack of user awareness. Because phishing attacks exploit user weaknesses, mitigating them is difficult but improving phishing detection techniques is important. The general method of detecting phishing websites

by updating the blacklisted Internet Protocol (IP) URLs in the anti-virus database, is also known as the "blacklisting" method. and many other simple techniques including: fast-fluxion which a proxies are automatically generated to host the web-page; algorithmic generation of new URLs; etc. Major drawback of this method is that, it cannot detect zero-hour phishing attack. Heuristic based detection which includes characteristics that are found to exist in phishing attacks in reality and can detect zero-hour phishing attack, but the characteristics are not guaranteed to always exist in such attacks and false positive rate in detection is very high. To overcome the drawbacks of blacklist and heuristics based method, many security researchers now focused on machine learning techniques. Machine learning technology consists of a many algorithms which requires past data to make decision or prediction on future data. Using this technique, algorithm will analysed various blacklisted and legitimate URLs and their features to accurately detect the phishing websites including zero- hour phishing websites.

Planning

This initial step is used to collect confidential data of users in the form of e-mail lists, templates of scam pages as well as retrieving information from consumers of phishing identifications. Through various techniques and Trojan malwares the computers can easily be compromised (also known as Roots). Through various platforms the scammers get access to proof of notion exploits which enable the scammers to gain admittance to vulnerable computes.

Setup

The further steps involves ensuring the proper scam pages infrastructure on the compromised hosts used in the phishing attack.

Attack

There are millions of programs which have been written to handle mass mails, which enable a scammer to send out e-mails en masse using readily available right tools. The



Doctors Assistive System Using Augmented Reality to Enhance Medical Operations

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ABSTRACT

Surgeons are regularly on the lookout for technologies that will enhance their operating environment. They are often the early adopters of technologies that allow their field to offer a better surgical and patient experience. The continuing enhancement of the surgical environment in the digital age has led to a number of innovations being highlighted as potential disruptive technologies in the surgical workplace. Augmented reality (AR) is rapidly becoming increasingly available, Augmented reality (AR) is a promising tool to conveniently provide needed information and may thus overcome the limitations of existing approaches. To this end, a prototypical AR application was developed to guide the insertion of needles to spinal targets using the mixed-reality glasses Microsoft HoloLens. The system's registration accuracy was attempted to measure and three guidance visualization concepts were evaluated concerning achievable in-plane and out-of-plane needle orientation errors in a comparison study. Results suggested high registration accuracy and showed that the AR prototype is suitable for reducing out-of-plane orientation errors. AR is the addition of artificial information to one or more of the senses that allow the user to perform tasks more efficiently. We propose a system in which important information for the doctors is displayed on semi-transparent glasses included in an AR headset and therefore are mixed with the real-world view

Keywords—Augmented Reality (AR), PIC Microcontroller, heartbeat sensor, temperature sensor, respiratory sensor, Lora transmitter

I. INTRODUCTION

You pull a helmet over your head, and suddenly, you're inside an Augmented world that seems completely lifelike. You can run around, fight, race, and fly, doing

things gamers have never done before. What was once the

stuff of Hollywood fantasy is now becoming a reality.

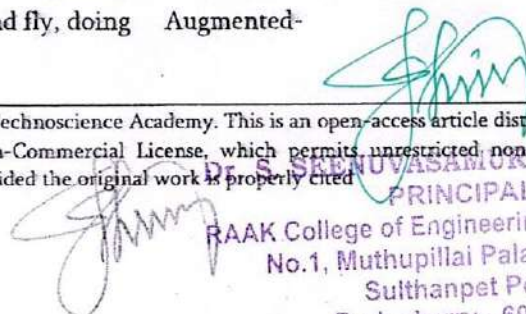
A startup called Oculus VR is creating personal

Augmented-

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660




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Design and Implementation of Wireless Charging System Using Sandwich Coil and LCC Converter for Smart Electric Vehicle

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ABSTRACT

Wireless power transfer (WPT) is emerging as the preeminent way to charge electric vehicles, but there appears to be no fair way to measure the power transfer. In this article, Faraday coil transfer-power measurement (FC-TPM) is presented. FC-TPM employs non-contact, open-circuited sense coils to measure the electromagnetic field from WPT and calculates the real power propagating through the air gap between the transmitter and receiver coils. What is measured is the real electromagnetic power, representing the pure dispensation of energy that unambiguously demarcates the losses on either side. FC-TPM was demonstrated to be 0.1% accurate in hardware over an Rx coil sandwich of up to 10 cm using a 1-kW WPT system. Fair metering incentivizes businesses and individuals to make choices that conserve energy and advance technology by providing more information and by properly assigning the financial loss. This article is accompanied by a video highlighting the essential contributions of this article.

Keywords : Sandwich coil, LCC Converter

I. INTRODUCTION

The Indian government announced plans to ban the sale of internal combustion propelled vehicles by 2040 in an attempt to decarbonize the transport sector. Countries including France have already announced plans to remove petrol and diesel vehicles from the road with the intention of reducing fumes released and improving air quality. The air quality issue is one of the

largest environmental health risks currently facing the UK. It is anticipated that Railway Applications (RA) will provide the main alternative to these vehicles. One of the potential charging infrastructures for this uptake of RA is wireless charging. Wireless charging will aid in mitigating issues faced by existing EV users. These issues include the users need to plug the vehicle in, the vast array of adapters required for the number of different chargers across GB, the number of

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703



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Design And Implementation of Electric Vehicle Charger Using Hybrid Converter

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ABSTRACT

Over the recent years, the growing need for the integration of electric vehicles into the grid has been seen. Electric vehicles can be easily integrated into the conventional grid through the advancement of various topologies of power semiconductor devices and the development of power electronic converters. The interface provides the maximum power point for the electric vehicles to operate. The Hybrid LUO converter (HLC) implemented in this project is one of the most popular topology for integration renewable energy resources and electric vehicle. This configuration of bidirectional DC-DC converter provides galvanic isolation through a high frequency transformer and also provides bidirectional power flow. The HLC converter control is based on the modulation of phase shift control where the leading bridge supplies power to the lagging bridge. The closed loop control of the converter is implemented in this project.

Keywords—Hybrid Converter, LUO Converter

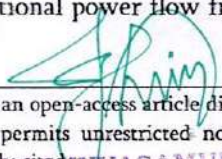
I. INTRODUCTION

Other than the integration of more renewable energy resources and the electric vehicles into the grid system for more energy production, the reduction in the usage of fossil fuels and non-renewable energy resources is an important factor to consider for the efficient usage of power and reducing the environmental damage. The growing need for the integration of electric vehicles is also gaining importance today. The plug-in hybrid electric vehicles are capable of supplying power to the grid as they have bulk energy storage batteries. They can charge from the grid and also can produce energy

From the conventional fuels and store it in their bulk batteries. The stored energy from the batteries of the vehicles can be supplied back to the grid during the off peak hours. This method of supplying to the grid system can be helpful in supporting the grid by giving the additional power when the grid is in need. This bidirectional power flow can be made possible only with help of power electronic converters. There are various converter topologies available. The most common topology that can be used for the integration of the electric vehicles is the Hybrid LUO topology of bidirectional DC-DC converter. This topology offers the bidirectional power flow from the grid to vehicle

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652


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Neural Network-Based Hammerstein Model Identification of a Lab-Scale Batch Reactor

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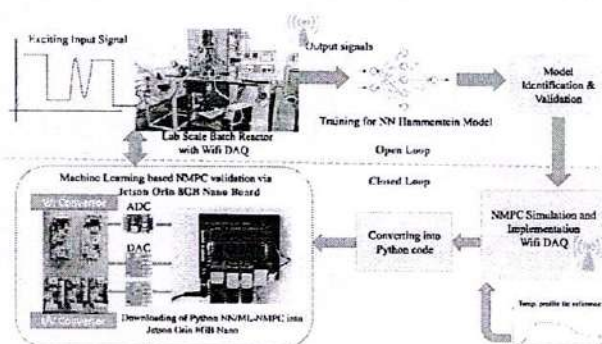
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ABSTRACT: This paper focuses on two types of neural network-based Hammerstein model identification methods for the acrylamide polymerization reaction of a batch reactor process. The first neural-based identification type formulates the weights of the multilayer network directly as parameters of the nonlinear static and linear dynamic blocks of the Hammerstein model and trains the weights using a gradient-based backpropagation algorithm. In the second identification type, the nonlinear static block of the Hammerstein model is framed as a single hidden-layer feedforward network and both nonlinear and linear block parameters are trained using an extreme learning machine, where the training procedure is exempted from gradient calculation. The primary focus of the paper is neural-based model identification of a complex nonlinear system, which facilitates ease of linear/nonlinear controller design with good learning speed and less computations. A future work toward the machine learning-based nonlinear model predictive controller implementation using the Jetson Orin Nano board is also described.



1. INTRODUCTION

Due to exothermic reactions, reaction constants with exponential terms, and the sort of polymerization reaction that takes place in the reactor, batch reactors are essentially considered as a highly nonlinear process.^{1,2} In a batch process, the feed is only charged once and held at the same quantity until the batch process is finished. There is neither a continuous feed inflow nor a continuous feed outflow. Only after the batch process terminal time is reached, the product is removed for analysis. There are a few minor external disturbances that can affect how a batch reactor operates. These include environmental changes, variations in the temperature of coolant flow rate over time, and jacket and reactor temperature variations (T_j and T_r). By examining the batch reactor's and continuous stirred tank reactor nonlinear differential equations^{1–3} as addressed by Shettigar et al.^{1,2} and Peng et al.,⁶ which are provided under system dynamics, the aforementioned can be realized. The batch reactor issue can be split into two categories: (i) model identification and (ii) closed-loop control operation of a batch reactor with the formation of an ideal temperature trajectory.

This work addresses the first issue of a batch reactor. Nonlinear model identification is a challenging task for researchers. Compared to the black-box model of a nonlinear system, Wiener and Hammerstein models, which are defined as combination of static nonlinear block and linear dynamic block, find a physical relation with the original nonlinear

system. Neural network models are capable of approximating highly nonlinear system dynamics but have no physical relation with actual nonlinear systems, if done by black-box modeling. However, neural-based Wiener⁶ or Hammerstein⁵ models have clear model structure and model parameters, hence well related with actual nonlinear systems. As a result, the first issue of batch reactor model identification is approached by two different neural-based Hammerstein structures in the proposed work.

The nonlinear structure identification in the Hammerstein model is approached by either parametric or nonparametric identification procedures. In parametric identification, the nonlinear function is formulated as a finite order polynomial and unknown coefficients to be extracted.⁷ In nonparametric identification, the nonlinear static function is found to be continuous function series like orthogonal function,⁸ polynomial function,⁹ block pulse function,¹⁰ etc. Neural and fuzzy systems are used in the identification of nonlinear static blocks as they have the universal approximation ability of nonlinear

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Bone Tumor Detection and Classification Using Fast Mask Region-Based Convolutional Neural Network

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ABSTRACT

Accurate and timely diagnosis of bone tumors is paramount for effective treatment and patient well-being. Leveraging medical imaging modalities such as radiographs and magnetic resonance imaging (MRI), we introduce a novel methodology for automated bone tumor detection and classification. Our approach centers on the utilization of the Fast Mask R-CNN (Region-based Convolutional Neural Network) architecture, renowned for its efficiency in object detection and segmentation tasks. The workflow begins with image preprocessing steps aimed at enhancing contrast and eliminating noise, crucial for optimal performance in subsequent stages. Subsequently, the Fast Mask R-CNN framework is deployed to detect and precisely delineate bone tumor regions within the images, effectively isolating them from surrounding anatomical structures. This segmentation facilitates accurate localization, a crucial step in the diagnostic process. Following tumor localization, a classification model is employed to categorize the identified regions into benign or malignant types, leveraging the distinctive radiological features characteristic of each. This classification task is accomplished using a convolutional neural network (CNN) trained on a curated dataset of annotated bone tumor images. By combining the strengths of Fast Mask R-CNN for precise localization and CNN for accurate classification, our methodology achieves enhanced accuracy and reliability in bone tumor detection and classification. This innovative approach holds significant promise in streamlining diagnostic workflows and improving patient outcomes in bone tumor management.

Keywords: Bone Tumor, Detection, Classification, Fast Mask Region-Based Convolutional Neural Network, Deep Learning.



MEDICAL CYBER - PHYSICAL SYSTEM; A DIGITAL HEALTHCARE SOLUTION

Under the guidance of

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Abstract- Several advanced countries are working to develop an efficient architecture and mechanism for Electronic Health Record (EHR) which is gradually eliminating the use of paper and becoming more popular in healthcare organizations. Online accessing of patient record and transaction related to diagnosis have many benefits for patients as well as healthcare organization and professionals. But it also raises serious privacy issues related to private data of patient e.g. any patient would not like to expose some health information which may defame her/him or may create problem for her/his professional career as well as personal life. Internet based EHR systems allow patients remote access to their entire medical history anytime. Hence security and privacy comes in the picture. For adaptation of the EHR, the key factors are financial incentives and barriers, laws and regulations, the state of technology, and organizational influences. EHR systems are highly desired for efficient integration of all relevant medical information of a person and to represent a lifelong documentation of medical history. Several threats to confidentiality of healthcare information from inside the healthcare institution, outsider intrusion into medical information systems is crucial. This proposed EHRCHAIN system can provide a convenient, simple, privacy preserving, secure mechanism. It can ensure availability of patient's health information to any healthcare entity at any time with consent of patient. In this proposed work and prototype implementation, we have simulated some basic healthcare activities. There are still more activities related with the security of EHR and the privacy of patients, which are needed to be known how these activities can be compatible with existing functions in the implementation. Data management becomes difficult because of the growing numbers of patients' data and information hence concept of Big Data and Cloud

computing is required. In future, Blockchain technology and smart contracts seems to be more appealing in the field of healthcare. This proposed solution provides a huge possibility for medical research on particular disease. It can provide anonymous health data which will not have any identifiable information of patient, to researchers.

Index Terms—EHR, Security, Sub Carrier, Data Leak Reduction.

INTRODUCTION

Electronic Health Record (EHR) is gradually eliminating the use of paper and becoming more popular in healthcare organizations. Online accessing of patient record and transaction related to diagnosis have many benefits for patients as well as healthcare organization and professionals. But it also raises serious privacy issues related to private data of patient e.g. any patient would not like to expose some health information which may defame her/him or may create problem for her/his professional career [1]. Internet based EHR systems allow patient to remote access their entire medical history anytime. Hence security and privacy comes in the picture. For adaptation of the EHR, the key factors are financial incentives and barriers, laws and regulations, the state of technology, and organizational influences [2].

There are three correlated records in healthcare information system:

Personal Health Record (PHR) is typically a record that is maintained by patient. It includes complete summary of medical history by gathering information from many sources including EMR and



Hybrid User Acceptance Test Procedure to Improve the Software Quality

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Abstract: *Fast-growing software needs result in the rise of quality software in technical and time challenges in software development and the impact the cost and scarcity of resources addressed by the companies. Thus, this research focuses on optimal implementation of the User Acceptance Testing (UAT) and the process generation integration. The Software Development Life Cycle (SDLC) was adapted to develop software and introduce the UAT process right from the initial phase of the software development. Additionally, it is devised to maximise time reduction by implementing the client testing in all the three processes. A High Capability to Detect (HCD) procedure has been incorporated in the problem formulation that has optimally identified sensitive bugs. A Modified Reuse of Code (MRC) is proposed for a feasible time-saving solution. The proposed UAT will provide an optimal solution in the software testing phases implemented earlier than black-box testing. The proposed UAT has significantly better production time, development cost, and software quality in comparison to other traditional UATs. The study's findings were corroborated by the output data from the UAT cases. The UAT ensures the quality of the product in the early phase of the development and implementation of the projects. This will minimise the risk during and post-implementation of bugs and achieve the target audience's needs.*

Keywords: *Black box testing, high capability to detect, modified reuse of code, user acceptance test.*

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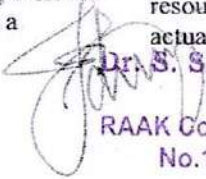
1. Introduction

Software Testing is made up of several stages or phases. Software testing and its precursor, software development, is made up of multiple phases. All the phases mentioned above make up the two main basic lifecycles, namely Software Development Life Cycle and Software Testing Life Cycle. The stages involved in the Software Development Life Cycle (SDLC) are Business Analysis, Requirement Gathering, Requirement Analysis, Design, Development, Testing, Implementation, and Maintenance. The testing process in SDLC is done using the stages of the Software Testing Life Cycle (STLC). Unit testing, functional verification testing, system integration testing, system verification testing, and User/Client Acceptance Testing are the steps of the STLC (CAT).

Testing is a vital part of the software development process. The quality of the software testing is used to determine the quality of the software. Due to the crucial nature of testing, a lot of human effort and resources are being spent on planning and executing testing. The classic waterfall SDLC model is being considered throughout the length of this work since this model is widely accepted among major software companies which develop software. Irrespective of the SDLC model being followed, there is an emphasis on testing. Since the quality of the software plays a

major role, keen care is being taken by all the companies to test for the quality. The last and end part in providing quality of developed software is the company's system verification testing. However, the customer or client or user is the actual person to use the software after implementation. On this consideration, CAT is being carried out at every firm. At this juncture, software quality is a requirement of the client or customer [5]. However, the client or the customer has not been involved throughout the software development and testing processes. The only phase where the customer gets involved is at the client or customer acceptance testing. The software passes numerous phases in the development life cycle and the testing life cycle.

Hence, one has to be very ardent on quality at the beginning than at the end. A quality product is a product that ensures quality right from its base. So, to ensure quality from its base, one has to test it from the base. This is a primary requirement for any user, developer, or other person involved in developing the software. The reason for this research is the query if the quality is being required from the base by the client or customer, why is the testing being carried out by the customer or client at the end of the testing. This kind of testing at the end leads to enormous usage of human resources, huge costs, and a lot more on time. The actual proposal of the research is to ensure user or


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Design and Hardware Implementation of Electric Bike with Active Cell Balancing Technique

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ABSTRACT

In this paper, we are concerning about the growing demand of energy all over the world. In today's modernized world travelling is very essential for human beings in order to protract in this world. Our main focus is on automobile sector where we are converting old petroleum bike to electric bike. The electric bike which works on the battery that is powered by the motor is the general mode of transport for a local trip. In addition of lithium-ion battery was protected in this bike. The active cell balancing made of multiple cells connected in series and with battery management system (BMS) tend to be magnified with each cell are equally charging and discharging process in the cycle. The life of a rechargeable battery can be extended through the use of an intelligent charging system. The charging system must incorporate the proper charging method for appropriate battery and overcharge production to prevent battery damage. The main purpose of using e-bike is that it is user friendly, economical, relatively cheap and high efficiency.

I. INTRODUCTION

India is one of the top ten automotive markets in the world today and having highly increasing middle-class population with buying potential and the steady economic growth. But petrol price has increased more than 50% in 13 different steps in last two years. Here comes the potential need for alternative technologies in automobiles such as electric vehicles (EV) in India. Although the initial investment is around 1.5 times than conventional IC engine, but time has come when the cost of environment is now more concern than the cost of vehicle the purpose of this report is to describe the technology used to produce an electric vehicle and explain why the electric engine is better than the internal combustion engine. It includes reason why the electric vehicle grew rapidly and the reason it is a necessity to better the world today. The report describes the most important parts in an electric vehicle and hybrid vehicle. It compares the electric to the hybrid and internal combustion engine vehicle. The overall impacts of the electric vehicle ultimately benefit the people. Compared to gasoline powered vehicles, electric vehicles are considered to be ninety-seven percent cleaner, producing no tailpipe matter, carcinogens released into the atmosphere by gas -powered vehicles, "can increase asthma conditions, as well as irritate respiratory systems" [1]. The paper begins with a history of the electric vehicle, specifically the





Energy Efficient Optimization of SDN using MAC Protocol

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ABSTRACT

In this paper, MAC protocol designed for Wireless Sensor Networks. Wireless Sensor Networks use battery operated computing and sensing devices. Despite extensive research efforts, Underwater Sensor Networks (UWSNs) still suffer from serious performance issues due to their inefficient and uncoordinated channel access and resource management. A centralized energy-aware routing scheme in an SDN-enabled UWSN is evaluated Existing results identified that the protocol overhead due to the simultaneous transmission over interference-prone links and the hidden and exposed terminal problems are the main cause of worse performance for existing decentralized routing protocols. Using the adaptation of the SDN technology, can avoid such detrimental phenomenon, which results in remarkable performance improvement for the entire network.

Keywords: Software Defined Network (SDN), Underwater Sensor Network (UWSN), Reliability, Energy efficiency, latency.

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I. INTRODUCTION

Software-Defined Networking (SDN) is a network architecture approach that enables the network to be intelligently and centrally controlled or 'programmed,' using software applications. This helps operators manage the entire network consistently and holistically, regardless of the underlying network technology. The rapid increase of mobile data growth and the use of smart phones are creating unprecedented challenges for wireless service providers to overcome a global bandwidth shortage.

A WSN is a network of many small computing nodes. These nodes are equipped with sensors and communicate wirelessly, using radio frequency transmission. The aim of this network is to measure and record the physical environment and to communicate together. Using a multihop communication, it allows the measured data to be forwarded over a long distance to the main location which is known as a sink. To reduce the energy consumption in WSN requires optimization across all layers.

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199

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Fatigue Driving Detection Method Based on EEG Analysis

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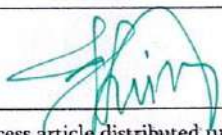
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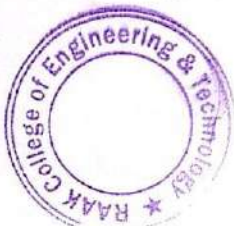
Driving an automobile under high stress level reduces driver's control on vehicle and risk-assessment capabilities, often resulting in road accidents. Driver's anxiety therefore is a key factor to consider in accident prevention and road safety. This emphasizes the modern computing techniques to assist drivers by continuous stress level monitoring. Development of such a system requires designing a project, which can recognize the drivers' affective state and take preventive measures to account for escalating stress level. The Electroencephalography (EEG) Signal is used to detect the distraction when it occurs. The system uses the one channel EEG sensor device which can provide a Nerosky Mindwave signal such as Alpha, Beta, Gamma. On the other hand, attention and distraction value can be generated as well. This prototype system tested by the car driver achieved its purpose of detecting a distraction event and the signal is send to buzzer. In this we also used ultrasonic sensor to detect the near object and when the driver receives the call from the person, then the call automatically cut and sends the message to the person to not disturb while driving through GSM. In case of emergency the person calls again then the speed of the vehicle slows down automatically by using driver circuit and relay. This study tried to resolve those problem by implemented peripheral interaction concept for mobile phone user interface. Peripheral interaction is an activity where human interact with an object using periphery of attention. The purpose of implementing peripheral interaction for application user interface is to reduce the amount of attention, therefore the user can finish their main activity without being distracted.

Keywords: Microcontroller (AT89S52), EEG Sensor, Ultrasonic Sensor, GSM, Buzzer.

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109


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A low noise low power 45 nm technology based simultaneous switching noise (SSN) reduction model for mixed signal VLSI circuits

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ABSTRACT

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Keywords:

ALU, gate diffusion input (GDI), simultaneous switching noise (SSN)

Low noise, low power, minimum delay and smaller area are the prime factors in the current VLSI system design. There are many sources for noises that exhibit various types of noise. Noise in digital ICs can be credited to various sources such as PSN due to circuit switching transition, deviations in device parameters due to process changes, crosstalk noise caused by capacitive coupling among neighbouring circuit interconnects, noise due to charge sharing and charge leakage. Reducing noise is an important factor in VLSI design. This work involves the analysis and reduction of switching noise in the inverter based equivalent circuit model in 45 nm technology. Also, aims to minimize the power utilization, area and delay. Further the noise analysis is extended to half adder circuit and ALU. The noise value observed for the proposed circuit is 140 μ V whereas it is 33 mV for the existing circuit. The same circuit is implemented in GDI based half adder and 4 bit ALU. The simulation result show that the proposed model has reported low noise compared with the existing methods.

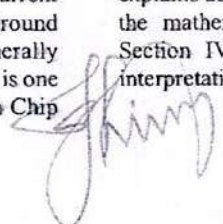
1. INTRODUCTION

In recent years, the number of devices on a chip has spectacularly increased because of technological scaling in size of the devices [1-2]. Today's VLSI technology allows complex circuits to be fabricated in a single semiconductor silicon die with high speed digital logic fitted along with high performance circuits. Though the clock signal frequencies continue to increase but the MOS device sizes will continue to shrivel to Very Deep Sub Micrometer (VDSM) dimensions [3-5]. Reducing the device size not only implies shorter channel length but also decreasing device threshold voltages and decreasing inter connects. Due to this scaling, the devices have become more sensitive to the noise. Noise is an important issue in both analog and digital circuits which determines the characteristics of the system. The problem of noise has increased the significance of on-chip noise and thus becomes the major research area for continuing the development in ICs performance, power, speed, density etc., [6-8].

The works in [9-10] focused on power supply noise and switching noise consideration, especially to enhance the performance of the mixed signal. In the mixed signal circuits, the switching noise is one of the limiting factors [11]. Digital section in the mixed signal circuits are performed with the same substrate for the overall performance [12]. Switching of the digital circuits leads the substrate noise to the other circuits. Analog devices are slowly degrading when the substrate noise is presented in the mixed signal circuits. Switching noise from the digital circuits started from the current peaks. That current peak generates the voltage fluctuations in the V_{DD} and Ground lines of the circuit. These voltage deviations are generally termed as "Switching Noise". Switching noise reduction is one of the challenging processes for the efficient System on Chip (SoC) [13].

Unless the area and power requirements are significantly minimized, the resulting heat dissipation and deviation of a signal from its nominal value in those sub-intervals of time will affect the packing density and performance of ICs. Thus the necessity of effective area and low power design becomes very important. Expansion of mobile technology and wireless network communication applications has large demands on signal processing. The aim of such approaches is to improve the performance of Arithmetic and Logic Unit (ALU) in terms of low power consumption, minimum area utilization and less propagation delay. Hence, high performance of adder and multiplier structure is necessary to improve the efficiency of ALU unit [14]. To handle this problem, various techniques have been proposed and the most commonly used techniques are modulation of the clock system [15], decoupling capacitors [16], separate power supplies for analog and digital circuits, use of guard rings, noise cancellation through sensing the noise [17], use of in-built self noise detection circuits [18], improving the mutual coupling between the paths by varying width and length [19]. Other techniques utilize the use of logic families which do not generate noise but they guzzle higher power than the regular MOS devices [20].

This work involves the analysis and reduction of switching noise in the inverter based equivalent circuit model and aims to minimize the power utilization, area and delay. Further the noise analysis is extended to half adder circuit and ALU. The rest of the paper is described as follows: The section II discusses about the previous works in this domain. Section III explains about the proposed circuit construction, working and the mathematical model for the small signal equivalent. Section IV discusses on the simulation results and their interpretation. Section V concludes the paper.


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Design and Hardware Implementation of Electric Bike with Active Cell Balancing Technique

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ABSTRACT

In this paper, we are concerning about the growing demand of energy all over the world. In today's modernized world travelling is very essential for human beings in order to protract in this world. Our main focus is on automobile sector where we are converting old petroleum bike to electric bike. The electric bike which works on the battery that is powered by the motor is the general mode of transport for a local trip. In addition of lithium-ion battery was protected in this bike. The active cell balancing made of multiple cells connected in series and with battery management system (BMS) tend to be magnified with each cell are equally charging and discharging process in the cycle. The life of a rechargeable battery can be extended through the use of an intelligent charging system. The charging system must incorporate the proper charging method for appropriate battery and overcharge production to prevent battery damage. The main purpose of using e-bike is that it is user friendly, economical, relatively cheap and high efficiency.

I. INTRODUCTION

India is one of the top ten automotive markets in the world today and having highly increasing middle-class population with buying potential and the steady economic growth. But petrol price has increased more than 50% in 13 different steps in last two years. Here comes the potential need for alternative technologies in automobiles such as electric vehicles (EV) in India. Although the initial investment is around 1.5 times than conventional IC engine, but time has come when the cost of environment is now more concern than the cost of vehicle the purpose of this report is to describe the technology used to produce an electric vehicle and explain why the electric engine is better than the internal combustion engine. It includes reason why the electric vehicle grew rapidly and the reason it is a necessity to better the world today. The report describes the most important parts in an electric vehicle and hybrid vehicle. It compares the electric to the hybrid and internal combustion engine vehicle. The overall impacts of the electric vehicle ultimately benefit the people. Compared to gasoline powered vehicles, electric vehicles are considered to be ninety-seven percent cleaner, producing no tailpipe matter, carcinogens released into the atmosphere by gas-powered vehicles, "can increase asthma conditions, as well as irritate respiratory systems" [1]. The paper begins with a history of the electric vehicle, specifically the

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620



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Classification Of Network Intrusion Detection System Using Recurrent Neural Networks

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Abstract- A Network Intrusion Detection System (NIDS) is a key technology in network security that detects packets of malicious or unwanted abnormal activity occurring in the network. These network intrusion detection systems have been studied together with machine learning and deep learning, but performance is not guaranteed in the actual environment, or the class balance problem has not been solved. In existing system, the performance of a discretization pre-processing method with a CNN-based classifier on the class imbalance problem of network traffic data has been investigated. The pre-processing method adds a discretization algorithm for continuous variables is the commonly used conventional pre-processing method. In proposed system, the project is expected to show better results by implementing Recurrent Neural Networks (RNN)

Keywords- intrusion detection, deep learning, CNN techniques, RNN techniques.

I. INTRODUCTION

An intrusion detection system (IDS) is a system that monitors network traffic for suspicious activity and alerts when such activity is discovered. While anomaly detection and reporting are the primary functions of IDS, some intrusion detection systems are capable of taking actions when malicious activity or anomalous traffic is detected, including blocking traffic sent from suspicious Internet Protocol (IP) addresses [1]. It is a software application that scans a network or a system for the harmful activity or policy breaching. Any malicious venture or violation is normally reported either to an administrator or collected centrally using a security information and event management (SIEM) system. A SIEM system integrates outputs from multiple sources and uses alarm filtering techniques to differentiate malicious activity from false alarms [2]. IDS's can be detected suspicious activities using different methods, including the following

II. EXISTING WORK

Discrete Pre-processing Method and NIDS using Convolution Neural Network were proposed in existing system to solve the problems occurring in the learning-based

NIDS. A Convolutional Neural Network (CNN) is a transformed neural network that uses convolution and aims to learn the feature representation of data. The basic layer structure of a CNN consists of a convolutional layer and a pooling layer, and various outputs such as classification and distance calculations between features can be used with a fully connected layer.

Discrete pre-processing

The discretization algorithm proceeds in two directions. First, it is the direction of discretization pre-processing only for the discrete features. Unlike pre-processing without discretization, instead of using a Min-Max scale for discrete features, the KBinDiscretise algorithm is used to change 22 properties to 80 properties by performing binning at regular intervals. Second, it is the direction of discretization pre-processing in continuous and discrete features. In the same way as 2), binning is performed at regular intervals through the KB InDiscretise algorithm. 32 features of NSL-KDD data are changed to 100 features, and in the case of CSE-CIC-IDS 2018 data, 60 features are changed to 350 features. Binary and categorical functions proceed the same as in the previous pre-processing method [8]

Convolutional neural network

A Convolutional Neural Network (CNN) is a transformed neural network that uses convolution and aims to learn the feature representation of data, it has the following differences compared to a DNN, which is the most basic neural network used for deep learning. The basic layer structure of a CNN consists of a convolutional layer and a pooling layer, and various outputs such as classification and distance calculations between features can be used with a fully connected layer depending on the purpose of the learning. The pooling layer reduces the parameters connected between the convolutional layers, thereby reducing the amount of computation and improving the acceptance field of the subsequent convolutional layers [8]

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Expressive And Deployable Upi Seamless Transaction Using RNN Algorithm

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Abstract- This In today's world, banking plays an indispensable role among all people. If the banking is user friendly then it would benefit all users. So this situation has forced us to move towards mobile banking system. Emerging technologies have supported people with mobile devices and data connections. Mobile banking applications provide an easy door-step solution for customers. In the current trend of digital and cashless economy, mobile based app solutions are comprehensible and omnipresent, expediting a wide range of banking financial services and non-financial services. UPI is one of the mobile based applications which facilitates online transaction. It is simple and reliable application. Besides positives, there are also some hidden security issues to be resolved. UPI uses PIN to complete the transaction. The PIN entry can be noticed by nearby adversaries. Hence, a direct observation attack based on shoulder surfing becomes a great concern. To cope up with this issue, we come up with the solution of providing high level security after acknowledging that there was a pitfall with the assumption of the previous methods. In our proposed method, we strongly focus on security by proposing a novel approach called Covert Attentional Shoulder Surfing (CASS). In our proposal, we also implement the RNN Classifiers to analyse the behavior characteristics of the user to detect or to resist access by unauthorized people. Our solution or model is also supported by all platforms. It is designed to be used in all platforms (platform Independent) like Android, IOS and other mobile platforms..

I. INTRODUCTION

UPI Seamless Transaction is an innovative digital payment system . It is a payment system that allows users to send and receive money instantly and securely using their smart phones or computers. The system is powered by Unified Payments Interface (UPI), a real-time payments platform. UPI Seamless Transaction enables users to transfer funds to any bank account, pay bills, and make purchases in a few simple steps. With its simple and secure process, users can instantly make payments and transactions without the need for a card, PIN, or any other physical document. This makes it a great payment solution for both businesses and individuals. Nowadays, the use of mobile devices by people has increased

Page | 467

tremendously. A considerable number of people use mobile phones to perform day-to-day tasks .These devices can be used for many tasks, such as making phone calls, web surfing, emailing, gaming, and many other tasks. The current research in this area is focused on the usage of mobile phones to perform payment securely. However, mobile systems face several limitations such as low storage and computation power, due to which they cannot perform heavy encryption operations. Different attacks are reported on mobile devices due to lack of security patches such as spoofing, phishing, malware, and sniffing. In order to effectively design the Mobile payment System, these attack scenarios must be considered for safety and security. Information and communication technology (ICT) is being extensively used all around the world. The traditional face-to-face interaction requirement for payment transactions is avoided, and remote communication is adopted. There is no need for direct contact between a payer and the payee that changes the business environment and leads towards using the Internet to do different transactions. This situation requires electronic money or digital bits; the system resembles traditional payment but uses internet infrastructure and digital data for money transfer. There are many advantages of using e-money, like the client's anonymity or the client's presence is not required during transactions. At the same time, it also has some disadvantages, like compromising of confidentiality, integrity, and availability (CIA).

II. EXISITING WORK

EXISTING SYSTEM :

INTRODUCTION:

Nowadays, security password is the most well-known way to verify a customer to sign in to Computer Systems. However, we all know that conventional text-based security password techniques are susceptible to the shoulder-surfing strike. Through this document we use the phrase "shoulder-surfing" in the following sense: A shoulder-surfing strike includes a customer being shot during his/her sign in.-----

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