

Agricultural Portal for Better Crop Production

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Abstract—

The Agricultural Portal is an innovative platform designed to improve crop production by providing farmers with easy access to agricultural information, resources, and tools. The portal offers a wide range of features including weather forecasts, pest and disease management tips, soil health assessment, crop planning tools, and market prices. This technical paper outlines the development and implementation of the Agricultural Portal, highlighting its features and functionalities. The paper also explores the benefits of the portal for farmers, including increased productivity, improved decision-making, and enhanced profitability. The portal is built on a robust technology platform that is

scalable and adaptable to the needs of farmers of different sizes and geographies. It is designed to be user-friendly and accessible on multiple devices, including mobile phones and tablets. The Agricultural Portal represents a significant step forward in the use of technology in agriculture. By providing farmers with easy access to information and resources, it has the potential to transform the way they farm and improve crop production across the globe.

Keywords-Agricultural portal, crop production, farmers, userfriendly.

I. INTRODUCTION

As it is the foundation of every nation, agriculture has merged as the industry with the highest growth potential globally. About 60% of the people in our nation are employed in agriculture, which boosts both employment and our GDP. The significance of agriculture and its sustainable practices cannot be overstated given the rising global population. This research attempts to investigate different facets of agriculture, such as crop selection, weather forecasting, and farming. Through this project, we want to highlight the value of sustainable agricultural methods and their effects on the economy and environment. By using sustainable practices, we can boost production while also lowering our carbon footprint, protecting the environment, and ensuring food security.

II. OVERVIEW

A. Basic Concept

An agricultural portal is an online platform that provides access to a variety of resources and services to farmers and other stakeholders in the agriculture industry. The main objective of such a portal is to help

farmers improve their crop production and profitability by providing them with information, tools, and services that can help them make informed decisions and adopt best practices. Some of the basic concepts that are central to an agricultural portal for better crop production include:

Market Intelligence: This refers to the information that farmers need to make informed decisions about when to sell their crops and at what price. Agricultural portals provide farmers with access to real-time market information that can help them get the best possible.

Weather data: Farmers must be able to plan their planting and harvesting schedules in accordance with the weather as it is so important to agriculture. Agricultural portals give farmers access to weather alerts and forecasts, which can aid them in making decisions regarding pest control, irrigation, and other tasks, exemplary practices.

Best Practices: Farmers must stay current on the most recent best practices and procedures because agriculture is a complicated and ever-evolving industry. It gives farmers access to a variety of tools and materials that can assist them in advancing their agricultural methods and practices.

B. Proposed System

The suggested system is a web application built using HTML and Bootstrap4 that allows farmers to sell their products directly to consumers without the use of a middleman. The process aids in product development and testing. When working on the front end, we are concerned with how it appears. After creating it, we test it and discuss what to do next and how it can be made better. In order to give farmers and customers quick access to important data and tools that can aid in better decision-making, increased production, and improved livelihoods, we have developed an online platform. Here are some essential components and materials that might be present in a suggested system for an agriculture portal.

C. Basic Theoretical Framework

The design and operation of the Agricultural Portal for Better Crop Production are informed by a number of theoretical frameworks. The main theoretical foundations for the portal include the following:

Classification of News Based on Location Using ML Algorithms

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Abstract—This paper highlights the importance of comprehensible information. Nowadays on the Internet, there are a lot of sources that generate immense amounts of daily news. News information was not easily and quickly available until the beginning of last decade. But now news is easily accessible via content providers such as online news services. However, recognising news relevant to the consumer has always been an issue, as preferences vary and there comes the necessity to divide information into types. This study is to categorize information as per requirement. A few concepts deployed in Natural Language Processing were used such as Cosine Similarity algorithm, Textrank algorithm and similarity matrices.

Keywords: NLP, Text Summarisation, Cosine Similarity, Location, News, Categorization.

I. INTRODUCTION

In today's digital age, huge amounts of data are stored in electronic form. This data comes from various sources, including social media, online transactions, sensor networks, and other digital systems. As the amounts of data grow, tools and techniques that can interpret and analyze that data to generate meaningful insights are essential. The process of analyzing data to identify patterns and trends is called data analysis. This involves extracting insights from large data sets using advanced analytical tools and techniques such as data mining, machine learning, and statistical analysis. Data analytics are used in various fields such as business, healthcare, finance, and marketing to improve decision-making processes. Data classification is another important aspect of data management. Data are categorized according to certain criteria such as relevance, importance, and topic. By categorizing data, users can access information

The paper "Summary of Research on News Text Classification", by Lin Deping and Wang Hongjuan provides an overview of research on news text classification, the task of classifying news articles into pre-set categories such as politics, sports, and entertainment. The importance of message text classification in applications such as news recommendation was introduced. Naive Bayes, Decision Trees, and Support Vector Machines (SVMs) are commonly used for message body classification. These algorithms are based on feature engineering, where relevant features are

relevant to their needs quickly and efficiently. Text analysis involves making use of natural language processing (NLP) techniques to extract insights from text data. NLP algorithms can identify patterns and trends in text, perform sentiment analysis, and classify text into categories. By analyzing text data, organizations can gain important insights into customer behavior, market trends, and public opinion, among other things. With the increase in the volumes of news being published everyday, it is now increasingly tedious for users to access news that is of interest to them. News classification is the process of categorizing news articles based on specific criteria, such as topic, location, or relevance. By classifying news, users can quickly and easily access the information they need.

II. LITERATURE REVIEW

The process of categorizing news articles is an important step in retrieving information as it helps users find interesting news. However, because news reports can be complex and cover multiple topics, it can be difficult for him to label news articles with one label. This can lead to items being misclassified and misleading users. To address this issue, many news organizations have started using a finer-grained approach to news classification by adding classes. For example, a news article that covers both politics and sports might be classified as both "politics" and "sports." By using multiple classification methods, news organizations can improve the accuracy of news classification while minimizing the time and resources required. This approach also aids to ensure that news articles are categorized in a way which correctly reflects the content, benefiting both readers and news organizations. This was discovered in research on NLP for fake news detection by Ray Oshikawa, Jing Qian, and William Yang Wang [1].

various categories such as technology, sports, and politics. TF-IDF calculates the importance of each keyword based on its frequency in news articles and all news articles. In this paper, we evaluate the proposed method using a dataset of news articles and compare it with existing keyword extraction methods. The results show that the proposed method outperforms already existing methods in terms of precision and recall, which are commonly used performance metrics in text classification. [4]

The paper "Cosine Similarity for Title and Abstract of

Public Bus Information and Tracking using IoT

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Abstract—Internet of Things (IoT) can be used to integrate communication, control and information processing across various transformation systems. Currently the tracking systems used in private bus or cab work based on the Global Positioning System (GPS) embedded in the smart phones of the driver which are specific to drivers, not the vehicle. An Intelligent Transport System (ITS) is proposed to reduce the barriers for public transport usage and create a positive impact on the bus journey. It uses ARDUINO UNO, IR Sensor and GPS Module to provide prior information about current location, next location of bus and crowd level inside the bus. The existing system uses smart phone for fetching the GPS location and sending it to server but our system uses dedicated microcontroller and GPS module which will be attached to the vehicle and our system will provide addition data to the users about the bus system and its usage.

Keywords—Global Positioning System, Intelligent transport system, Internet of Things, real-time

I. INTRODUCTION

In the current public bus transport system, the users do not have any way to know the details of a bus where or which bus to catch to go to certain place. This project's primary goal is to give people trustworthy information about the public transportation system by using a real-time bus monitoring system. Additionally, it shows the time the bus will arrive at each bus stop, lists all buses that travel to a specific location, estimates the travel time, and locates the bus stop that is closest to the user's present position by incorporating GPS technology into the mechanism. GPS module is used to monitor real-time bus positions by constantly getting the positional data which are latitude and longitude values from GPS, then transmit the position back to the server and server transforms

the raw position data into real-time locations for the users.

II. LITERATURE REVIEW

[1] Remote users need a smart system to provide real time information. Technologies such as GPS, Google Maps, GPRS, and GPRS are used, but there are drawbacks such as uncomfortable user interface, no proper time management, delay of information, and low transmission speed.

[2] This project aims to design and develop a vehicle tracking system using GPRS which can be easily controlled using Arduino Uno. The main components used are GPS and GPRS module (SIM908), GPS shield, antennas, and user interface. The goal is to track the bus location by giving longitude and latitude values only. The project showed good performance in difficult terrains, but requires a GSM module and SIM-card, making it difficult to understand.

[3] Thing-Speak software is used to visualize sensor data in real-time, configure devices to send data to Thing-Speak using popular IoT protocols, and get output information in the form of latitude and longitude. Proposed system is more user friendly than existing system and gives greater performance than RFID, GSM systems. However, it has low performance in difficult situations and lacks other necessary features.

[4] Raspberry Pi module is used as an embedded computer attached to the tracked vehicle to receive signals from cellular mobile tower and send it to web-server to represent the location by using Google Maps. However, this project requires a Raspberry Pi module which is hard to operate and configure, is costly, and requires high network connectivity and


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Fake Product Detection using Blockchain

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Abstract—Supply chain control often faced troubles along with service redundancy, negative coordination among numerous departments, and shortage of standardization because of the shortage of transparency. Nowadays, counterfeiting is a fairly widespread occurrence, and it is very hard to spot a fake item simply by seeing at it. Duplications reason considerable challenges for valid corporations, yet a way too many human beings haven't any concept of how counterfeit gadgets have an impact on manufacturers. Various methods put forward beyond to escape with this hassle of product counterfeiting. The maximum popular techniques are using, synthetic Intelligence, QR code-based structures, and so forth. However, each of them has disadvantages along with the QR code may copied from a real product and positioned on a fake product, artificial intelligence makes use of CNN and gadget getting to know which needs weighty computational electricity and more. The idea of this undertaking is to better finding of faux products by entering the customer code and viewing of Manufacture and seller and consumer can identify whether the product is genuine or not, which is achieved by Blockchain generation which guarantees the identity and traceability of actual merchandise in the supply chain. Blockchain based system, makes the whole decentralized that can be retrieved by means of numerous parties on the equal time. One of the fundamental benefits is the recorded facts is difficult to alter without the permission of all events concerned which makes the information extremely comfy and shield from all flaws. This study offers a tool for detecting fake goods that is created utilizing blockchain technology.

Keywords— *blockchain; manufacturing supply chain; smart contracts; counterfeiting*

VI. INTRODUCTION

When a product is sold under false pretences, it is called product counterfeiting. Consumer fraud is described as using dishonest business methods to cause customers to suffer monetary or other losses. The annual cost to the Indian economy is estimated at INR one trillion, according to the Authentication solution providers' Association. 2018-20 saw a 20% increase in counterfeit instances. Products like counterfeit handbags, clothes, makeup, and gadgets are all too common. It has disastrous impacts on the economy and on people's lives. Fake electrical components may lead to malfunctioning devices, which can lead to adverse circumstances and accidents, while bad cosmetics can cause skin illnesses and rashes. Wearing low-quality clothing or shoes may be painful and might cause discomfort. As a result, it's important to figure out how to stop the spread of fake goods in the market.

Customers who are unaware that the product they are purchasing is a fake are more likely to blame the original manufacturer when the fake doesn't work as advertised, breaks down quickly, or falls short of their high standards. Customers are entitled to compensation from the legitimate business, either in the form of a refund or a replacement product, and they expect to get it as soon as possible. It's possible that many of the impacted firms may have to deal with a disgruntled client at some point.

Customer support representative hears a complaint about the product's low quality but has no idea the item in issue is counterfeit. Companies will be caught between trying to avoid unnecessary waste of time and resources while also dealing with the problem of customers buying cheap knockoffs of their products. Fake goods may damage more than just customer trust. The behaviours of counterfeiters routinely cause vendors, retailers, and other business partners to lose faith in legitimate businesses.

Community openness, cost control and pre-supply assessment procedures, and provider dating management are the most effective strategies to reduce deceptive counterfeit risk in global supply chains. This study aims to develop a system for detecting and preventing counterfeit products by means of a Blockchain-based generation and to provide consumers and service providers with a means of monitoring the product's delivery chain. The suggested system's overarching goal is to eliminate product counterfeiting while also posing no threat to the product's authenticity during testing by the customer, the carrier, or the supplier

VII. INTRODUCTION TO BLOCKCHAIN

Blockchain is a network of interconnected blocks that may be used to store data. Since each block includes a transaction record, timestamp and a hash of its own and the hash of the block before it, it is very impossible to alter the ledger. Blockchain technology is a distributed system. It guarantees that every new block added to the blockchain is the only correct version that is accepted by all nodes inside the Blockchain. Decentralization enabled communal updating of a technological solution that keeps a continual record report as a trustworthy database.

A. How Blockchain works

Blockchain is a distributed ledger that facilitates the secure and transparent recording of transactions across multiple computers or nodes. It operates on a decentralized network in which each participant keeps a copy of the entire blockchain. A consensus mechanism, such as proof-of-work or proof-of-stake, is used to add blocks containing

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Driver Drowsiness Detection System

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Abstract— The driving behavior of individuals varies due to their unique traits and characteristics, which can affect their concentration and attentiveness while driving. Accidents caused by fatigue and drowsiness are a major concern, and early detection of such signs can prevent severe scenarios from arising. However, traditional methods of detecting drowsiness rely on behavioural factors, which can be distracting or require expensive sensors. This paper presents a novel approach to detect driver drowsiness using Python and Dlib modules. The proposed method can help reduce road accidents and is easy to implement without any physical contact with the driver. The system uses facial landmarks to calculate the Eye Aspect Ratio (EAR) as well as employs machine learning algorithms like shape predictor to evaluate its effectiveness.

Keywords:- Dlib, EAR, face detector, facial landmarks, HOG, OpenCV.

I. INTRODUCTION

Road accidents caused by driver drowsiness are a significant problem worldwide. The National Highway Traffic Safety Administration (NHTSA) in the US estimates that fatigue-related accidents result in more than 150,000 crashes, 1,650 deaths, and 72,000 injuries each year. Similarly, in Europe, fatigue is considered a contributing factor in approximately 20% of accidents on highways. These figures underscore the need to develop and implement effective driver drowsiness detection systems to prevent such accidents and decrease the number of fatalities and injuries on the roads.

Driver drowsiness detection systems are intended to recognize the signs of driver tiredness and warn them to stop driving and rest to prevent accidents. These systems use a combination of sensors, cameras, and algorithms to monitor the driver's behavior, such as eye movements, head position, and steering patterns, to detect signs of drowsiness. Once the system detects drowsiness, it can alert the driver through visual, audible, or tactile signals, or even take control of the vehicle, such as slowing it down or bringing it to a stop.

The use of driver drowsiness detection systems has gained significant attention in recent years, with several automotive companies developing and implementing such systems in their vehicles. For instance, many luxury car manufacturers, including Mercedes-Benz, BMW, and Audi, have introduced driver drowsiness detection systems in their vehicles, while others like Tesla, have implemented similar systems using artificial intelligence technology.

The research on driver drowsiness detection systems has evolved over the years, with several studies examining the effectiveness and reliability of different sensor combinations, algorithms, and signal types used in these systems. Researchers have also investigated the impact of various factors, such as driving time, age, gender, and caffeine

consumption, on driver drowsiness, to improve the accuracy and effectiveness of these systems.

In this research paper, we aim to review the literature on driver drowsiness detection systems and provide an in-depth analysis of the most recent techniques and technologies used in these systems. We will examine the various sensor types, including video cameras, electroencephalography (EEG) sensors, and steering wheel sensors, used to detect drowsiness, as well as the algorithms and signal types used to alert the driver.

We will also review the factors affecting driver drowsiness, such as sleep deprivation, circadian rhythm, and alcohol consumption, and their impact on the effectiveness of driver drowsiness detection systems. Additionally, we will explore the challenges and limitations of current driver drowsiness detection systems and suggest possible solutions and future directions for research in this area.

Overall, this research paper aims to provide a comprehensive review of driver drowsiness detection systems, highlighting their potential in preventing road accidents caused by drowsy driving. This paper will contribute to the development of more reliable and effective driver sleepiness detection systems, which could save thousands of deaths every year, by examining the present state of the art and identifying areas for further research.

II. OBJECTIVES

Some of the main objectives of this paper are:

1. To investigate the existing driver drowsiness detection techniques and their limitations.
2. To propose a new or improved driver drowsiness detection system based on a specific technology or method.
3. To evaluate the performance of the proposed driver drowsiness detection system and compare it with existing systems.
4. To assess the usability and practicality of the proposed driver drowsiness detection system in real-world scenarios.
5. To identify the factors that affect driver drowsiness and their correlation with the detection accuracy of the proposed system.
6. To explore the potential applications and benefits of the proposed driver drowsiness detection system in improving road safety and reducing accidents.

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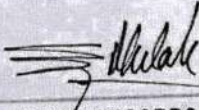


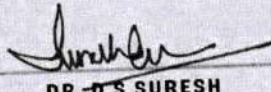
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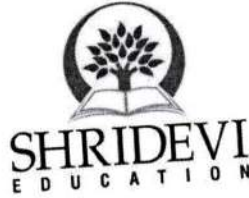
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