

A New Automated Medicine Prescription System for Plant Diseases



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Abstract In the current situation, agriculture is facing a wide number of problems to address the increasing global population. Also, the plant diseases affect the production and quality of crops. Specifically, plant disease severity identification is the most important problem in the agricultural field which can avoid the excess use of pesticides and minimize the yield loss. In the existing systems, no methodology exists to identify the disease severity and to prescribe the required quantity of medicines to be sprayed. In order to solve this problem, an automated medicine prescription system is proposed in this paper, which takes the images from the uncontrolled environment, enhances, and preprocesses the images received for the identification of disease. Precisely, in the proposed framework, k-means and SVM algorithms are used for clustering and disease identification tasks, respectively. Experimental setup and snapshots of results demonstrate the performance of the proposed system, by means of indicating the severity of the identified disease.

1 Introduction

India is an agricultural country, wherein a large portion of the population relies upon farming. Indian economy mainly stands on agriculture, since over 58% of income comes through agricultural segment [1]. In the current situation, agriculture faces wide number of problems due to the increasing global population and the plant diseases affecting the production and quality of the crops. However, agriculture is influenced by various other climatic factors such as drought, inordinate rainfall, and


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© Springer Nature Switzerland AG 2019
D. Pandian et al. (eds.), *Proceedings of the International Conference on ISMAC in Computational Vision and Bio-Engineering 2018 (ISMAC-CVB)*, Lecture Notes in Computational Vision and Biomechanics 30,
https://doi.org/10.1007/978-3-030-00665-5_18

171


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IoT-Based Framework for Automobile Theft Detection and Driver Identification



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Abstract Recently, almost everyone in the world owns a vehicle. On the other hand, there is an effective increase in the automobile theft, which is becoming a major problem in the present traffic scenario. However, in the current scenario, there is a lack of integrated systems which can effectively track and monitor the driver using Global Positioning System (GPS), GSM and camera. To overcome these issues, an effective anti-theft tracking system is introduced in this paper, which makes use of GPS to collect the latitude and longitude location of the vehicle and also the camera to take the picture of the intruder for further analysis. The resultant information is sent to the server, and the server sends message about intruder of the vehicle to the owner using GSM module. The evaluated results of the experimental setup illustrate the better performance of the proposed framework in terms of accurate identification of intruder and the location of the vehicle, and thereby, this framework can be employed in real time to prevent automobiles thefts.

Keywords Intelligent transportation systems · RFID technology · Anti-theft tracking · GPS

1 Introduction

Nowadays though most of the drivers and passengers use smartphones, they are unaware of new technologies; hence, they are not making use of their smartphones for effective communication. On the other hand, there is an effective increase in the

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© Springer Nature Singapore Pte Ltd. 2019
S. Smys et al. (eds.), *International Conference on Computer Networks and Communication Technologies*, Lecture Notes on Data Engineering and Communications Technologies 15, https://doi.org/10.1007/978-981-10-8681-6_56

615


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RFID-Based Smart Traffic Control Framework for Emergency Vehicles

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Abstract—In developing countries like India population is significantly growing. As the population grows, the number of vehicles on the roads are also exponentially increasing, which results in increase in road accidents and traffic jams. Specifically, when an emergency vehicle such as Ambulance or Fire engine gets stuck in traffic jam, saving the human life becomes difficult. Under such circumstances, a promising system which can clear the traffic congestions especially in peak hours and thereby providing a safe path for emergency vehicles is very much essential. In the existing literature, less focus is given towards the problem of providing a clear path for emergency vehicles during traffic congestions. To solve these issues, a RFID-based system is proposed, which manages and regulates the traffic signals at junctions when the emergency vehicle approaches, by allowing the easy passage out of the traffic congestions. The proposed framework is modelled by means of an experimental setup using Arduino and LED displays which simulates a real time traffic scenario. The simulation results illustrate the better performance of the proposed framework in terms of detection as well as management of emergency vehicle by providing passage out of traffic congestions during peak hours.

Keywords—RFID-technology; traffic signal management; congestion clearance.

I. INTRODUCTION

In developing countries like India population is significantly growing. With the increase in the population the number of vehicles also increases. This results in a number of problems such as heavy traffic jams, violation of the traffic rules and sometimes even accidents. For instance, as per the Indian Government report, the number of road accidents increased to 16 deaths per hour in major cities such as Chennai, Hyderabad, and Delhi [1]. Further, traffic congestions lead to long waiting times, fuel loss and also the wastage of money. Specifically, traffic congestions result in high pollution levels which affect the health of the local people, commuters and animals.

In general, traffic congestions are also associated with few more traffic problems such as emergency vehicles get blocked. Precisely, the traffic congestion often blocks the path of the emergency vehicles which may prove fatal at times. Also, the number of deaths due to delay in arrival of emergency vehicles have increased to a greater extent in recent times. Therefore, emergency vehicles like Ambulance

and Fire-engines needs to be on time to prevent loss of human life. Thus, helping an emergency vehicle to move out of traffic congestion is very much essential in the current traffic scenario. In order to solve the above given problems, RFID technology can be used. RFID technology helps in calculating the density of vehicles to control the traffic signals. In general, Emergency vehicles are detected using RFIDs of different range. When emergency vehicles are detected the particular lane is cleared of to help the easy passage of the emergency vehicles.

II. RELATED WORK

Very Recently, in 2017 [2], Younis and Moayeri proposed a system in which a dynamic traffic light control (DTLC) is placed at the road intersections to collect traffic data. It includes few protocols to handle congestion and facilitate efficient traffic flow by proposing low-overhead algorithms. Though this system efficiently manages traffic flow; yet, it is not focusing towards the emergency vehicles. In 2017 [3], Jin and Ma introduced a group-based traffic control system capable of decision making based on its understanding of traffic conditions. The control problem is formulated using a stochastic optimal control for multi-agent system where each signal group is considered as an intelligent agent. The disadvantage in this system was the problems of emergency vehicles were not addressed. In 2016 [4], Vilarinho et al. proposed a system which was based on multi-agent system in which each isolated intersection includes a multi-agent. These agents are designed for intersections for creating, managing, and evolving its own plans for traffic signal. Again, the agents were designed to solve the traffic problem no help for the emergency vehicles was provided.

In [5], Ghazal et al. presented a PIC microcontroller-based traffic control system that uses IR sensors to evaluate the traffic density. It provides dynamic time slots for different levels of traffic and also portable controller device is used to track the emergency vehicles. The disadvantage of this system is that each time the portable device is to be carried along with the emergency vehicle. Recently in 2016, M. Kumaar et al. [6] used a barrier gate and a GSM technology to design a density based traffic light control system. In their system the density of the traffic is used to change the signal timing automatically and microcontroller is used to provide the delay. However, this system fails to address the problem of emergency vehicle. In [7], Sk Riyazhussain et al. introduced a raspberry pi-controlled traffic system which computes the density of the vehicles. P Maheshwari et al. [8], proposed a system in which

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Detection of Chemically Ripened Fruits Based on Visual Features and Non-destructive Sensor Techniques



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Abstract Nowadays great concern for everyone is health; hence primary requirement for sound health is eating good quality fruits. However, most of the available fruits in the market are ripened using hazardous chemicals such as calcium carbide, which is highly hazardous to human health. In the existing literature, less focus is given towards addressing the problem of identification of artificially as well as naturally ripened fruits, due to the complex nature of problem. In order to solve this problem, a new framework is proposed in this paper, which utilizes both the image features- and sensor-based techniques to identify whether the fruit is ripened by chemicals or not. By employing pH-sensor based techniques and visual features, it is possible to detect artificially ripened fruits and save the human beings from serious health hazards. The experiments were conducted and the results indicate that the proposed technique is performing better for the identification of artificially ripened banana fruits.

1 Introduction


The primary requirement for everyone is having good health condition, so eating good quality fruits provides sound health. The fruits are sweet-tasting plant product which contains fiber, water, vitamin C, and sugars. It also contains minerals, protein, cellulose, and various phytochemicals which protect human body against various disorders. Regular consumption of fruit is associated with anti-cancer, cardiovascular disease reduction, and declines aging factor. During the natural ripening process fruits attain desirable color, quality, flavor, palatable nature, and other textural changes during natural ripening process [1]. However it is quite impossible to get naturally ripened fruits, because most of available fruits in the market are ripened

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© Springer Nature Switzerland AG 2019
D. Pandian et al. (eds.), *Proceedings of the International Conference on ISMAC in Computational Vision and Bio-Engineering 2018 (ISMAC-CVB)*, Lecture Notes in Computational Vision and Biomechanics 30,
https://doi.org/10.1007/978-3-030-00665-5_84

865


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Driver Drowsiness Detection System Based on Visual Features

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Abstract— Nowadays, Driver drowsiness is one of the major cause for most of the accidents in the world. Detecting the driver eye tiredness is the easiest way for measuring the drowsiness of driver. The existing systems in the literature, are providing slightly less accurate results due to low clarity in images and videos, which may result due to variations in the camera positions. In order to solve this problem, a driver drowsiness detection system is proposed in this paper, which makes use of eye blink counts for detecting the drowsiness. Specifically, the proposed framework, continuously analyzes the eye movement of the driver and alerts the driver by activating the vibrator when he/she is drowsy. When the eyes are detected closed for too long time, a vibrator signal is generated to warn the driver. The experimental results of the proposed system, which is implemented on Open CV and Raspberry Pi environment with a single camera view, illustrate the good performance of the system in terms of accurate drowsiness detection results and thereby reduces the road accidents.

Keywords— Raspberry pi, Eye Detection, Blink Count, Image processing

I. INTRODUCTION

The number of motor vehicles in developing countries has been gradually increased over the decade. Official investigation reports of traffic accidents point out that dangerous driving behavior, such as drunk and drowsy driving, account for a high proportion of accidents. Several further overview [1], many sleep-related vehicle accidents occur during the periods of around 2:00-6:00 A.M. and 14:00-16:00 P.M. and it is often pointed out that night shifts make drivers particularly vulnerable [1]. On average traffic, road accidents in the world claim 1.3 million lives and cause 50 million disabilities annually [2].

Driver drowsiness is a serious hazard and major concern, which is identified as a direct or contributing cause in most of the road accidents. Since drowsiness can seriously slow down the reaction time and subsequently decreases drivers awareness and judgment. The development of a driver monitoring system capable of producing warning to the driver upon detecting signs of drowsiness can prevent road accidents and thus save lives. From another perspective, image processing gained popularity in computer science engineering, selected fields which has impacted in multi dimensional way. If image processing technique are used for drowsiness detection, it can simultaneously reduce road accidents promise scheme which detect driver drowsiness with help of image processing such as eye blink count.

II. RELATED WORK

In 2007, Arimitsu et al. [3], developed the driving simulator with the seat belt motor retractor, which was used in a commercial vehicle, to provide the vibration stimulus to the drivers. The limitation of this paper was variation of the portions, which was stimulated by the seat belt. In 2008, Liang et al. [4], proposed a novel braincomputer interface (BCI) system that can acquire and analyze electroencephalogram (EEG) signals in real-time to monitor human physiological as well as cognitive states, and in turn, provide warning signals to the users when needed. The accuracy of the BCI system is slightly less when compared to the existing systems to detect the drowsiness. In 2010 Lin et al. [5], proposed system consists of a wireless physiological signal-acquisition module and an embedded signal-processing module. In case if defects in the EEG monitor then the detection of drowsiness may decrease. In 2011, Kohji Murata et al. [6], developed a non-invasively system to detect individuals driving under the influence of alcohol by measuring biological signals. The algorithm for the time series of the frequency fluctuations generated in this study has this potential. In 2012, Picot et al. [7], the features used by the EOG-based detector are voluntarily restricted to the features that can be automatically extracted from a video analysis of the same accuracy. Despite its good performance, the method is slightly less accurate than some of the systems. In 2013, OyiniMbouna et al. [8], proposed scheme uses visual features such as eye index (EI), pupil activity (PA), and HP to extract critical information on no alertness of a vehicle driver. If the pupil is red then it fails to detect the eye of the driver. In 2014, IsseyTakashashiet al. [9], induced CRPS by paced breathing (PB) using pulse sound, which synchronized with heartbeats. For greater safety, methods need to be developed to physiologically overcome drowsiness. In 2016, J. Pilataxi et al. [10], presented a driving assistance system which detects drowsiness in the driver. If the robot fails the working will not be performed. Very recently in 2017, Qian et al. [11], proposed a method of Bayesian-copula discriminate classifier (BCDC) to detect individual drowsiness based on the physiological features extracted from electroencephalogram (EEG) signals. This study can be further generalized to other experimental environment to detect vigilance level or driver drowsiness. In 2017, CemBila et al. [12], presented on an overview of research on ICT-based support and assistance services for the safety of future connected vehicles. It is hard to provide a systematic overview of open research challenges at a granular level.

IoT-Based Patient Remote Health Monitoring in Ambulance Services



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Abstract Ambulatory health care is a type of remote patient monitoring that allows a medical caretaker to use the medical device in the ambulance to perform a routine test and send the test data to a healthcare professional in real time. Even though there are various methods to observe the health condition of the patient at home or in the hospital, the necessity of the quick measures to treat the person in case of emergencies are not yet fulfilled. If the person suddenly falls ill and is being carried to the hospital, the doctor will get to know the condition or the cause of the illness only after diagnosing the patient which will consume more time. There is a need for monitoring technology in ambulances since in case of emergency lots of time is wasted in carrying patient to the hospital and diagnosing. To overcome this problem, online system for remoting health parameters of a patient in the ambulance is proposed in this paper. The experiment is conducted to compare the system values with the values obtained by the standard devices and the results are in a good format and the system is efficient.

Keywords Health care · Ambulatory services · Patient monitoring

1 Introduction

The act of taking preventative or necessary medical procedures to improve a person's well-being is health care. Health care is one of the major challenges for the mankind. Presently, various wearable devices are available to remotely monitor the health


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© Springer Nature Singapore Pte Ltd. 2019
S. Smys et al. (eds.), *International Conference on Computer Networks and Communication Technologies*, Lecture Notes on Data Engineering and Communications Technologies 15, https://doi.org/10.1007/978-981-10-8681-6_38

421


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Spam Reviews Detection Framework Based on Heterogeneous Information Network (HIN)

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Abstract— Nowadays social media plays an important role in our day-to-day activities. Specifically, in the past few years, online social websites such as Facebook, Twitter and WhatsApp are evolving as one of the major sources of communication for internet users, in order to keep in touch with their friends. However, Spam reviews generated on a website results in huge financial gain only for competitors, whereas it is a major loss for both customers and organization. In the literature, the existing techniques for Spam reviews detection suffer due to issues such as limited datasets and lack of proper classification methods, which results in inefficiency of the systems. In order to solve these problems, this paper proposes a new framework, which models the given review dataset, using Heterogeneous Information Network (HIN) concept and solves the spam detection problem by means of clearly identifying the spam reviews present in a website. The performance of the proposed framework, which is evaluated using real-world labeled datasets of Amazon website, illustrate its better performance, in terms of weight calculations based on meta-path concepts.

Keywords—component; formatting; style; styling; insert;

INTRODUCTION

In day to day life social media plays an important role. Within the past few years, online social networks, such as Facebook, Twitter and WhatsApp have become one of the major source for internet users to keep in communication with their friends. For instance, according to latest survey, the number of social network users is 1.61 billion in 2013, whereas in 2017 it is increased to 2.33 billion across the globe [1], which is a result of great technical and commercial success. However, social network platforms also provide a large amount of opportunities for broadcasting spammers, who spread malicious messages and behavior through the Internet. Specifically, According to Nexgate's report [2], during the first half of 2013, the growth of social spam has been 355%, much faster than the growth rate of accounts and messages on most branded social networks. Also, in 2017, the largest share of spam was recorded in September as 59.56% and the average share of spam in global email traffic is 58.02%. However, in the current Internet era, most of people rely on online content in social media while taking important decisions. For example, while buying a mobile through e-commerce website, to get more knowledge about the product, customer refers the reviews written on that website. But, in e-commerce websites everyone is allowed to write reviews, which makes spammers to write spam reviews about products and services for different interests. Spam reviews written on the website results in huge

financial gain only for competitors whereas it is a major loss for both customers and organization. The increase in the number of spammers will exponentially increase the spam reviews, which may mislead the people about the product and services. Thus the task of detecting and verifying authentic reviews or opinions is becoming critical in the social e-commerce domains. Due these factors, reviews must be distinguished from spam reviews. So, promising frameworks need to be introduced to overcome spam reviews problem, which can significantly increase the efficiency of e-commerce websites.

II RELATED WORK

In 2010, Wang [3], proposed a solution to identify suspicious users in Twitter. To facilitate spam detection, content based features and user-based features are used with Bayesian classification algorithm. In [4], the authors deployed social honeypots consisting of genuine user profiles to detect suspicious users. Its honeypots collected evidence of the spam by crawling the profile of the user, who was sending the unwanted friend requests and hyperlinks in Twitter. In [5], the authors introduced spammer detection on the basis of tweet content and user based features. In this work, a dataset of 54 million users on Twitter has been crawled with 1065 users manually labeled as spammers and non-spammers. However, this approach fails to describe different classification methods.

In 2011, McCord et al. [6] introduced Naive Bayesian technique, in which user metadata and content based features are used to detect spam profiles. The limitation of proposed solution is less dataset is used. In 2014, Li et al. [7] introduced Dampings algorithm to detect spam reviews, which achieves very high precision, yet slightly lesser recall values. In 2015, X.Zheng et al. [8] used SVM methodology and content based features are used to detect spam reviews. Feature extracted is based on statistical analysis and manual selection. However, In the era of big data with huge data volume and convenient access, feature extraction mechanism in this solution might be low adaptive and costive. In 2016, Shigang et al. [9] proposed a fuzzy-based oversampling method, which generates synthetic data samples from limited observed samples based on the idea of fuzzy-based information decomposition. The disadvantage of this approach is that synthetic data generation scheme to incorporate correlations among features is not implemented. Recently, Rathore et al.[10] proposed an efficient spammer detection framework that distinguishes spammers from legitimate users on Facebook. Based on Facebook recent

IoT-Based Automated Remote Water Metering System

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Abstract— Water is one of the most precious resources of the nature, and an essential component for the development of human life; hence, it must be consumed responsibly. The traditional way of manual water meter reading is inconvenient and time consuming, since it requires a lot of resources including human beings for its implementation. To solve the problems of manual meter reading, a remote automatic Water Metering System is introduced in this paper, which is based on the concept of post-paid water billing system. Precisely, a smart water metering approach is proposed in this paper, which differs from existing commercial methodologies, in terms of utilization of IoT, low cost hardware and web portal-based User Interface. The experimental setup and results indicate the good performance of the proposed automated framework, by means of automated water bill generations. The proposed system is very economical; hence, the user can access and analyze their water consumption history from anywhere through their smart devices.

Keywords—IoT, Water sensor, Postpaid Billing, Remote Water Metering.

I. INTRODUCTION

Water is essential component for human beings, health and agricultural development. Water meters are used to measure the volume of consumed water with public water supply system [1]. Specifically in the conventional billing system for water, an authorized person visits each flat in apartment and manually computes meter readings, which is later used for bill calculation and generation. This manual process is time consuming and tedious, which causes human errors and opens opportunities for corruptions by illegal users. More specifically, sometimes users disconnect the water supply line from the water meter and collect water illegally from the supply line. In this way, due to the absence of automatic water usage monitoring system, in the present scenario the water supply authority is unable to detect the illegal users as well as illegal water usage to the greater extent. For example, according to Karnataka Housing Board Colony (KHBC) corporation report, recently 700 illegal water usages are detected in Northern regions of Karnataka. Because of illegal water usages, current billing system becomes inaccurate and inefficient, which is yet to be solved. Recently, Automatic Remote Water Metering is a widely popular technology for post-paid billing of water usage, which automatically monitors water meter readings in an apartment without any human intervention. This kind of water metering system can provide fast and accurate billing of water by preventing any misuses of

it. Also, this can provide benefits such as, reduce peak demand for energy, supporting the time-of-use concept for billing, enabling customers to make informed decisions and reduced cost. Due to these advantages, a new Automatic Water Metering, based on water sensors is introduced in this paper.

II. RELATED WORK

In 2011, Benzi et al. [1] proposed electricity smart meters, which consist of gas, heat, and water meters interconnected in a large network. This system offers a potential value to implement energy savings and efficient interface with the final user. Authors also defined a local interface for smart meters, by looking at the actual European Union and international regulations based on technological solutions available on the market. However, the proposed electricity smart meter saves energy but it fails to provide billing details. In 2012, Taiwan [2] introduced the low-cost, non-contact arrow sensor based on capacitive signaling and water-flow monitoring system. The proposed metering device is not capable of recognizing the arrow position in water meters. In 2013, Hsia et al. [3] proposed the arrow-pointer meter which uses low-cost arrow sensor for reading a water meter. This system involves embedding an electrical circuit into the body of a conventional mechanical water meter. However, low power meter is only used for calculating reading meter but it is fails to calculate water usage on daily basis. In 2014, Gautam et al. [4] proposed a water meter system using simple image processing algorithms, DSP processor and also capable of executing MIPS, which provides the whole system to respond faster. However, real time implementation of image processing technique is bit difficult. In [5], the authors introduced resource conservation decisions, which require detailed consumption information for billing purposes. In this system, sensors and signal processing techniques using pipe vibration signatures are utilized to non-intrusively identify water consumption at the appliance level. Though the water meter detects water leakage, but fails to send notices to administration and management people for further action. Recently, Cherukutota et al. [6] proposed smart meter application, which provides information about reduction of water usage and water wastage. Precisely, the water flow and heat measurements are taken in this system by water meter, which is based on ultrasonic flow measurement technology. However, this system fails to calculate water usage on day-to-day basis. In [7], Automatic Meter Reading is introduced.

A Novel Framework for Automated Energy Meter Reading and Theft Detection



S. M. Adikeshavamurthy, R. Roopalakshmi, K. Swapnalaxmi, P. Apurva and M. S. Sandhya

Abstract Energy crisis is one of the most important issues that the entire world is facing today. The feasible solution for the energy crisis problem needs optimal utilization of available energy. However, the state-of-the-art energy metering systems suffer due to issues such as low battery backup, poor network connectivity, and excessive memory consumption. To overcome these drawbacks, a novel automated energy metering framework is proposed in this paper, which makes use of Microcontroller-based implementation for its operation. Specifically, consumer can get the energy consumption statistics instantly on a LCD screen. Further, whenever any consumer attempts to tamper the energy meter, magnetic sensors get actuated and sends appropriate signals to the microcontroller, which in turn sends theft event messages to the administration side for further processing. Experimental setup and results indicates the good performance of the proposed framework in terms of energy consumption display on LCD screen, which significantly help the customer to monitor their energy consumptions.

Keywords Programmable interface controller (PIC) microcontroller
GSM modem · Electricity theft · Automated meter reading

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© Springer Nature Singapore Pte Ltd. 2019
S. Bhattacharyya et al. (eds.), *International Conference on Innovative Computing and Communications*, Lecture Notes in Networks and Systems 56,
https://doi.org/10.1007/978-981-13-2354-6_53

527


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New Automated Vehicle Crash Avoidance System Based on Dipping and RF Techniques

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Abstract. In Indian population, 30% out of 48% of people use their own vehicles and rest 18% use public vehicles for travelling [1]. Most of the accidents occur at night due to the dazzling of headlights and high beams of upfront vehicles. High-beam lights blind drivers for a couple of seconds, which is the main cause for accidents nowadays. The concave mirror present at the side windows also misguides about the speed of the succeeding vehicles, since the image position is not directly proportional to the position of the object with respect to the mirror. If vehicle to vehicle communication is used in a wide-spread manner, and used by law enforcement officials, it can reduce the number of accidents. The existing literature fails to achieve higher accuracy despite of using large number of hardware. To overcome these drawbacks, this paper proposes a new automated headlight dipping system and vehicle to vehicle communication using RF module, which attempts to achieve better accuracy than the existing systems.

1 Introduction

In Indian population 30% out of 48% of people use their own vehicles and rest 18% use public vehicles for traveling purposes [1]. On the other hand number of road accidents is increasing day by day, which is indeed a problem yet to be solved. For example in India in the year 2013, more than 1, 37,000 people succumbed to injuries from road accidents [2]. This death rate is four times more than the annual death toll from terrorism in India. Specifically, one person dies in a road accident in every 4 min in India. Further, as per the survey of Transport Research wing of India, at least 4, 80,652 accidents are reported during 2016, which resulted in 1, 50, 785 deaths [2]. In general, most of the accidents occur at night due to the dazzling of headlights and high beams of upfront vehicles. High-beam lights blind drivers for a couple of seconds. According to Indian government traffic rules, high intensity lights should be used only when other vehicles are at least 500 feet away so that no other traffic gets affected. Sometimes the concave mirror present at the side windows also misguides about the speed of the following vehicles, since the image position is not directly proportional to the position of the object with respect to the mirror. The highest probability for the accident

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J. Hemanth et al. (Eds.): ICICI 2018, LNDECT 26, pp. 1565–1572, 2019.
https://doi.org/10.1007/978-3-030-03146-6_183


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Chapter 8

A Survey on Deep Learning Techniques Used for Quality Process

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ABSTRACT

In the current era, software development and software quality has become extensively important for implementing the real-world software application, and it will enhance the software functionality. Moreover, early prediction of expected error and fault level in the quality process is critical to the software development process. Deep learning techniques are the most appropriate methods for this problem, and this chapter carries out an extensive systematic survey on a variety of deep learning. These techniques are used in the software quality process along with a hypothesis justification for each of the proposed solutions. The deep learning and machine learning techniques are considered to be the most suitable systems for software quality prediction. Deep learning is a computational model made up of various hidden layers of investigation used to portray of information with the goal that researchers can better understand complex information issues.

INTRODUCTION

Software quality is the amount of a system or the standard that measures the system performance. There are two types of software quality measurement. First, the internal quality is measured during the process of software development life cycle (SDLC), while the external quality is related to the functionality that could depend on some of the internal quality attributes. The quality models allow for prediction of the

DOI: 10.4018/978-1-5225-7862-8.ch008

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Text-Based Spam Tweets Detection Using Neural Networks



Vanyashree Mardi, Anvaya Kini, V. M. Sukanya and S. Rachana

Abstract Social media platform plays a major role in everyone's day-to-day life activities. Twitter is one of the vast growing platforms but it is also subjected to attacks such as Spamming and Combat Twitter attacks. The spamming is the use of the system to send an unsolicited message, especially the advertisement, sending messages repeatedly on same site which leads to major loss for customers and organization. In literature, the existing techniques for detecting the twitter spam text tweet suffer due to an issue such as limited work performance and data sets which leads to inefficiency of system. In order to solve these problems, we proposed a framework to detect the text-based spam tweets using Naive Bayes Classification algorithm and Artificial Neural Network. Performance study of these two algorithms shows that Artificial Neural Network performs better than Naive Bayes Classification algorithm.

Keywords Naive Bayes Classifier · Artificial Neural Networks (ANN) · Tokenization · Stemming · Stop word removal

1 Introduction

Nowadays Online Social Network (OSN) has become very popular among people. Twitter, Facebook, LinkedIn, and Instagram are some of the popular Online Social Networking sites. There are numerous social media sites like blogs, social networking

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401

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An Efficient Approach for Traffic Monitoring System Using Image Processing

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Abstract. Traffic congestion has become a major problem in the world wide. So we need efficient system which monitors the traffic and updates the time setting in traffic signal. The cameras installed in the road junction will be used to capture the real time traffic and these images will be processed to count the number of vehicles in each lane. MATLAB Platform is used where it develops the various object detection algorithms for the combination of many image processing algorithms. The real time object detection and tracking will be generated by control signals where Arduino programming will provide an interfacing hardware prototype. The centroid value will be calculated in each lane. Based on the centroid values obtained from the system, the signals will be sent for the traffic pole as the output.

Keywords: Zigbee communication · Arduino · MATLAB

1 Introduction

The increase in population in the world has created increase in number of vehicles in day today life, which leads to the traffic congestion problem that occurs in different countries. Due to traffic congestion people are not able to reach their destination on time and it also makes people to wait for longer time. Because of traffic, people are violating the traffic rules and also we can come across some accidents that happen due to the traffic. Traffic congestion also harms the environment by creating pollution which would also influence the health of the people. To overcome traffic congestion problem, one of the method that is proposed is RFID-based on smart traffic control context for emergency vehicles [1]. Based on RFID technology it controls and manages the traffic signal at the junction and make an easy way for an emergency vehicle to travel from the traffic jam. RFID technology helps in computing the density of vehicle to control the traffic.

In common traffic jam is associated with many more problems like mismanagement of traffic signals which leads to the loss of time, loss of fuel as well as loss of money. People nowadays are very busy, so that they don't want to waste the time. It is very necessary to develop fast, economical and efficient traffic monitoring system. To avoid such problems there are a many techniques available. But no technique is perfect as the

© Springer Nature Switzerland AG 2020
S. Smys et al. (Eds.): ICCNCT 2019, LNDECT 44, pp. 264–270, 2020.
https://doi.org/10.1007/978-3-030-37051-0_30


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Sentiment Analysis of Smartphone Product Reviews Using Weightage Calculation



Jayantkumar A. Rathod, Shetty Vignesh, Aishwary J. Shetty, Pooja and Nikshitha

Abstract Sentiment analysis is extremely useful in monitoring the social media and the most popular tool for text classification, and analyzes the input and informs you if it is positive, negative, or neutral. It helps to collect large amount of data systematically and it extracts the subjective information from them. Humans have the indelible ability to determine sentiment which is time-consuming process, conflicting, and costly in a business context. It is not practical to have people individually read all the reviews of the customer and scores them for sentiment. So, to overcome this, sentimental analysis models has been developed. In our proposed system, we are using weightage classification model to analyze the tweets from Twitter API and classify based on their respective sentiment.

Keywords Sentiment analysis · Weightage · Reviews · Tweets · Social media

1 Introduction

For most of the industries nowadays, taking up feedback from customers has become a most essential task. From time to time, it has great impact on growth of the organization. So, opinion mining plays an immense role in going through the feedback

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© Springer Nature Singapore Pte Ltd. 2020
H. Sharma et al. (eds.), *Advances in Computing and Intelligent Systems*,
Algorithms for Intelligent Systems,
https://doi.org/10.1007/978-981-15-0222-4_40

427


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Chapter 6

Neural Networks-Based Framework for Detecting Chemically Ripened Banana Fruits



R. Roopalakshmi, Chandan Shastri, Pooja Hegde, A. S. Thazeera and Vishal Naik

1 Introduction

Fruits are one of the most nutritious as well as naturally available foods, which are generally consumed in raw form. Specifically, fruits provide nutrients including potassium, fiber, vitamin C, minerals, protein, and protect human body against various disorders [1]. In general, humans consuming more fruits are likely to have reduced risk of dangerous diseases such as cancer. Specifically, for a normal human being, eating 5–9 servings of fruits per day will significantly reduce the risk of various chronic diseases. On the other side, in case of fruits, Ripening is a natural process, which makes them sweeter and softer as it ripens. Precisely, Ethylene is a natural ripening agent, also popularly known as 'Aging Hormone' in plants, which is responsible for changes in texture, softening, color, and all other processes involved in natural ripening [1]. However, in the present competitive world, 80% of fruits are ripened using hazardous chemicals such as Calcium carbide (CaC_2) by greedy traders which causes serious health issues [2]. Further, the regular consumption of fruits ripened using Calcium carbide causes cancer due to the presence of traces of poisonous gases including Arsenic and Phosphorous.

Furthermore, even very low consumption of Calcium Carbide at regular basis may result in vomiting, diarrhea, burning sensation of chest and abdomen, thirst, weakness and also sometimes leads to serious issues such as permanent damage of eyes and shortness of breath. Due to these reasons, Indian Government has introduced Prevention of Food Adulteration (PFA) act 1955 and also strictly banned the usage of Calcium Carbide for artificially ripening the fruits [2].

Although Calcium carbide is banned in most of the countries, greedy farmers and traders are still using it for chemically ripening the fruits for the sake of faster

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H. Sharma et al. (eds.), *Recent Trends in Communication and Intelligent Systems*,

55


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The New Approach for Creating the Knowledge Base Using Wikipedia

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Abstract. Wikipedia is recognized as one of the largest repositories in the Web. The term knowledge base was in connection with the expert systems as it is the part of Artificial Intelligence. A knowledge base can be created for any entity. The existing system like YAGO, MediaWiki tries to convert Wikipedia into a structured database to provide a vast knowledge base across the domains. It is very difficult to get the information which we want across the domains. So, the solution would be to get a systematic automated approach to build a knowledge base using Wikipedia on entity which we are interested in. The proposed system provides a knowledge base built upon the location as its entity. The system is seeded with seed data, by using these seed data it traverse through the Wikipedia graph and builds knowledge base using similarity measurement between seed data and traversed upcoming pages of wiki graph. Any expert AI systems uses gold standard knowledge base to take any decisions.

Keywords: Natural language processing · Knowledge base · Entity Linking

1 Introduction

As digital libraries are regularly increasing in volume, makes it more easy access to the content or information. But it makes it more difficult for a researcher to get a particular information. In that Wikipedia is a large-scale source of network, having all information through the collaboration of contributors. Wikipedia contains information in hierarchical level as articles, link between articles, categories of same kind of articles, multiple language linking etc.

Most records we tend to get from the web in everyday existence is within the style of texts. These texts contain an outsized range of named entities (e.g. person, organization, and place) that are the essential components of texts. However, these entities are extremely ambiguous, thus we want to link them to associate degree existing content in order that folks will apprehend what the entities ask and perceive the texts a lot of properly.

A Knowledge base (KB) could be a special reasonably information for sophisticated structured and unstructured information utilized by automatic processing system. In general, a Knowledge base isn't a static assortment of data, but a dynamic resource.

© Springer Nature Switzerland AG 2020
S. Seny et al. (Eds.): ICCNCT 2019, LNDECT 44, pp. 172–178, 2020.
https://doi.org/10.1007/978-3-030-37051-0_19

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SMART AGRICULTURAL MONITORING USING NDVI AND MULTISPECTRAL CAMERAS

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Abstract: The smart camera applications in advanced imaging, monitoring and mapping, in agriculture has become a part of precision farming that supports the conservation of pesticides, fertilizer, and machine time. This technique reduces the amount of energy required in terms of fuel. To overcome this drawback Smart, low-cost cameras are used which are well adapted to agricultural applications. The Normalized Difference Vegetation Index (NDVI) for image pixel is an algorithm and it will help to differentiate plant information from the soil background by a large difference in the reflectance between red channel optical frequency band and the near infrared (NIR). Here we explain the basics of multispectral imaging technology, reflectance, wavebands and vegetation indices such as NDVI and NDRE. All this information gives the farmer terrific insights into the health of the soil and plants.

Keywords: Multispectral Images, NDVI, Vegetation Indices, Spectrum

1. INTRODUCTION

Agriculture is the basis for the human species as it is the main source of food and it plays important role in the growth of country's economy. It also gives large ample employment opportunities to the people. The farmers are still using traditional methods for agriculture, which results in low yielding of crops and fruits. In this paper we use Multispectral Imaging Camera Drones for smart agriculture with NDVI. An agricultural drone is an aerial vehicle applied to farming to help increase crop production and monitor crop growth. Multispectral imaging camera sensors in agricultural drones allows farmer to manage crops, soil, fertilizing and irrigation more effectively. There are huge benefits both to the farmer and to the wider environment by minimizing the use of sprays, fertilizers, wastage of water and at the same time increasing the yield from crops. Multispectral camera remote sensing imaging technology use Green, Red, Red-Edge and Near Infrared wavebands to capture both visible and invisible images of crops and vegetation.

The Normalized Difference Vegetation Index (NDVI) is a type of numerical indicator and it uses visible and near infrared bands of the electromagnetic spectrum and is adopted to analyze remote sensing measurements and checks whether the target being observed contains live green vegetation. The NDVI is a parameter used to separate vital plant pixels from soil pixels in an image or to separate vital from non-vital plants. The NIR reflection is high in the vital plants and low in soil plants which absorb more light with red wavelengths, from 620 nm to 660 nm, than soil.


2. LITERATURE SURVEY

G Filippa et al., [1] proposed a work on NDVI derived from near-infrared-enabled digital cameras. The aim of the paper is making agriculture smart using automation. This paper gives information about NDVI sensors provide increased accuracy when comparing plant health data over time, which is a major benefit over visible spectrum cameras. This is helpful when you're trying to identify trends beyond a single point in time, such as throughout the course of a crop in the season.

H Yang et al., [2] proposed a work on Seasonal variations of leaf and canopy properties tracked by ground-based NDVI imagery in a temperate forest. This paper gives information about an NDVI (Normalized Difference Vegetation Index) camera to monitor daily variations of vegetation reflectance at visible and near-infrared (NIR) bands with high spatial resolution and resolutions with respect to time, and found that the NDVI based infrared cameras agreed well with the leaf expansion.

George E. Meyer et al., [3] proposed a work on Verification of color vegetation indices for automated crop imaging applications. This paper gives information about an accurate vegetation index is required to identify plant biomass versus soil and residue backgrounds for automated remote sensing and machine vision applications.

Sebastian Candiazo et al., [4] proposed a work on Evaluating Multispectral Images and Vegetation Indices for Precision Farming Applications from UAV Images. This paper gives information about farm resources management. This paper gives some experiences related to the analysis of cultivations (vineyards and tomatoes) with Tetracam multispectral data.


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A Foretaste of Blockchain Technology, Bitcoin and Ethereum

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Abstract: A peer-to-peer network, distributed consensus and cryptography all these contained in a unique technology known as Blockchain. Blockchain is about enabling peer to peer transaction in a decentralized network. As our day to day life shifting towards digitization and we depending more and more on online methods, "money" isn't left behind either. Online transaction is gaining more popularity over the past few years. A decade ago, an approach towards this online transaction led to the creation of "Bitcoin". To create many such applications similar to bitcoin and other different applications "Ethereum" was created with Blockchain Technology acting as the base for both of them.

Keywords: Blockchain, Bitcoin, Ethereum, transaction, blocks, nodes, EVM, decentralized.

I. INTRODUCTION

A blockchain can be defined as a time-stamped series of immutable record of data that is managed by cluster of computers and not owned by any single entity. Each of these blocks of data (i.e. block) are secured and are bound to each other using cryptographic principles (i.e. chain). The blockchain network has no central authority which means that it itself is the very definition of a decentralized system. The information in Blockchain is open for anyone and everyone to see because of the fact that it is a shared and immutable ledger. Hence, anything that is built on the blockchain is by its very nature transparent and everyone involved is responsible for their actions. A blockchain brings with itself no transaction cost. The blockchain is a simple yet creative way of passing information from user A to user B in a fully automated and safe manner. Single party to a transaction initiates the process by creating a block. This block is verified by thousands or perhaps millions of computers distributed around the internet. Then this verified block is added to a chain, which is stored across the internet, creating not just a unique record but also a unique record with a unique history. Forging a single record would mean forging the entire chain in millions of instances which is virtually impossible.

II. TYPES OF BLOCKCHAIN

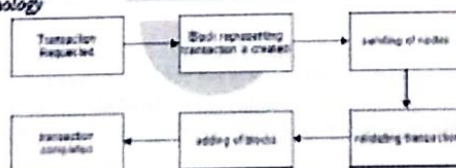
A. Public Blockchain

A public blockchain can be said as a blockchain that any person in the world can read, send transactions to and expect to see them included if they are valid, and any person in the world can participate in the consensus process i.e. determining what blocks get added to the chain and what the current state is. Here, in Public Blockchain ledgers can be 'public' in two senses: 1) Any person, who can write data, without permission granted by another authority. 2) Any person, who can read data, without the permission granted by another authority. Normally, when people talk about Public Blockchain, they mean anyone-can-write.

B. Private Blockchain

A fully private blockchain is a blockchain where write permissions are kept centralized to single organization. Read permissions can be public or restricted to an uninformal extent. Likely applications include database management, auditing, etc are internal to a single company, and so public readability may not be necessary in many cases at all, though in other cases public auditability is desired.

C. Working of Blockchain Technology



Initially, a transaction is being requested by a client who wants to perform exchange of money. After the transaction is requested, a block is created which will represent that particular transaction in the next step, the block representing the transaction is sent to every other node that resides inside the distributed network. The nodes validate the transactions that they receive and give the results. These nodes receive rewards as a proof of their work. After this step, the block is then added to the existing Blockchain.

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Plant Leaf Disease classification using Image processing Technique

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Abstract: Indian economy is highly depend on the agricultural products. Therefore detecting disease of plants at the earlier stage plays important role. To detect diseases, requires enormous amount of work, mastery in the leaf diseases, and additionally need the extreme amount of time. Image processing is a diverging area where researcher and advancements are taking a geometrical progress in the agricultural field. Identification of plant diseases can not only maximize the yield production but also can be supportive for varied types of agricultural practices. Plant leaf disease detection and identification includes the stages like image acquisition, image pre-processing, image segmentation, feature extraction and classification. This paper discusses techniques for image pre-processing, image segmentation algorithm used for automatic recognition and research on various plant leaf disease classification algorithms that may be used for leaves disease classification.

Introduction

India is one of the developing countries wherein majority of population of country is depends on agriculture and agricultural production. Studies show that the plant leaf disease reduces the quality and quantity of agricultural products. Plant disease detection is simply naked eye by experts through observation is done [1-4]. For doing so, a large team of experts as well as continuous monitoring of experts is required, which costs very high when farms are large [1]. In some countries farmers don't have the idea regarding plant diseases so that they consult experts. Consulting experts cause high expenses along with that time.

However, diseases are important cause for the reduction of agronomics in India. Farmers are faces several problems for control the diseases on crops. Detecting the disease is the important part in the agriculture field. And automatic detection of the diseases by just seeing the symptoms on the plant leaves makes it easier as well as cheaper. In plants some general diseases are brown and yellow spots or early and late scorch and other fungal, viral and bacterial diseases. Image processing is the technique which is used for measuring affected area of disease, and to determine the difference in the color of the affected area. The present Decision Support Systems (DSS) are establish on call center need that the farmers have to convey details about plant leaf through orally [7]. DSS based on image processing can be useful to improve the production of agriculture.

In this work, we propose the system which concentrates on disease recognition and classification through image processing which helpful for decision making.

Literature survey

Wan MohdFadzil et al. [], discussed a disease detection method for orchid plant leaves. The orchid plant leaflet images are received the usage of digital camera. The algorithm makes use of an aggregate of various strategies inclusive of border segmentation method, morphological processing and filtering technique used for categorizing input images into two disease class as black leaf spot and solar scorch.

Chaitali G. Dhanware, Mrs. K.H. Wanjale et al. [], discussed a disease detection method for plant leaves using image processing. The images are taken with the use of mobile camera which have minimum 2 megapixels and above resolution. The proposed system consists of four main phases are preprocessing, segmentation, feature extraction and classification.

Rong Zhou et al. [], explained method for resilient and advance identify of leaflet patch in sugar beet. For capturing images, Nikon photographic camera was used that was mounted on a stand to stay constant distance. The author used white background whereas capturing images to avoid the additional complications in process. The method implements hybrid methods of guide matching and support vector machine. This technique usage color primarily forms options 978-1-4673-8855- for segmentation, orientation code matching and support vector machine classifier for final malady classification.

Yongwan Tian, Lin Zhang et al. [], explained Study methods of detecting cucumber downy mildew using Hyperspectral imaging technology. Hyperspectral imaging technology has been widely applied in the quality nondestructive detection of the agricultural and livestock products. Hyperspectral image data is collected by the hyperspectral imaging system based on the spectrometer which is made of a high-spectral camera (ImSpector, V10E, Finland) based on spectrometer, a fiber halogen light of 150w (DC-950A,


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REVIEW ON BUILDING SMART HOME USING IOT

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Abstract: An emerging important feature of a smart home is conservation of the earth's limited resources. Smart home is a residence equipped with a number of devices that automate tasks normally handled by human beings. This paper mainly deals with the concept of smart home system and building smart home system using Internet of Things (IoT). The internet of things refers to the ever growing network of physical objects that feature on IP address for internet connectivity. FIIP architecture is the one of the platform for building smart home and this also discussed in paper.

Keywords: IoT, smart home

I. INTRODUCTION

A smart home is also known as e-home, where basically the main focus is done on the internet. Every device in the house is connected to the internet and the user can operate those devices from the remote area. A smart home system is called as a intelligent system as the entire system is monitored by a computer or some different electronic devices.

A smart home consist of new technology which is connected to home network which helps improving the quality of living. A smart home can be used to monitor or control the temperature, lighting, other home appliances and multimedia devices. Through IoT almost every object in day to day life can be controlled or monitored regardless of place and time.

II. MOTIVATION

As per the new program set by the government of India all the cities in India should be developed to smart cities. So that every person life becomes easy through IoT. As monitoring and controlling the devices will be easy through IoT. Through latest technology IoT can help the country in the technical development field.

A smart city is nothing but a place where infrastructure and the surrounding highly depends on Internet for various different services. In this paper there is a brief information about smart home and smart devices which are used through IoT. The main motive of this paper is to build a smart city in India through IoT.

III. VARIOUS FUNCTIONS OF SMART HOME

Through IoT smart home systems are built. The smart home system can have the following functions

A. Alerting the User:

A smart home device can sense its environment and after analyzing the environment it sends the required information to the user or on to the device which is registered. This information can be anything like if the Air-conditioner is left ON, the user will be sent a message that the Air conditioner is ON, these are sent through emails, or through mobile apps.

B. Monitoring:

Monitoring is the most important feature of a smart home system where a smart home monitors its surrounding & analysis it as per the requirement. Through various different sensors and actuators one can monitor the system. It is an important limitation as it keeps a track and record of the device. Due to the monitoring function various major decision can be taken for example monitoring the room temperature using temperature sensors. When the temperature increases or decreases it will send the user a message whether to change the temperature or not.

C. Controlling the devices:

This function of a smart home system helps the user to control different devices. Controlling various devices includes switching ON/OFF of lights, controlling the temperature of the air-conditioner, controlling the kitchen appliances, controlling the locks of doors and windows, controlling the garden area. The user can control the device from one place or from any different places. These devices are connected through the internet due to which the user can control those devices.

IV. SMART HOME APPLICATIONS

Applications area of smart home is only depended on human imagination. This give some brief application of the smart home systems.