ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY
Shobhavana Campus, Mijar, Moodbidri, D.K – 574225
Phone: 08258-262725, Fax: 08258-262726

DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

ALVA'S
Education Foundation®

Advanced Learners Presented/ Published Research articles in National/International Conferences

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

Pooja T. Shetty[2(✉)], R. Roopalakshmi[2], H. R. Manjunath[1], S. Pooja[2], M. Akshatha[2], and K. Sijas[2]

[1] Department of Information science and Engineering, Alva's Institute of Engineering & Technology, Moodbidri, Mangalore, India
[2] Alva's Institute of Engineering & Technology, Moodbidri, Mangalore, India
shettypuja02@gmail.com, shettypooja016@gmail.com, akshukeerthi@gmail.com, sijas186@gmail.com

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 widespread manner, and used by law enforcement officials, it can reduces 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

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

A New Automated Medicine Prescription System for Plant Diseases

S. Sachin, K. Sudarshana, R. Roopalakshmi, Suraksha, C. N. Nayana and D. S. Deeksha

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

S. Sachin · K. Sudarshana (✉) · R. Roopalakshmi · Suraksha · C. N. Nayana · D. S. Deeksha
Alvas Institute of Engineering and Technology, Moodbidri, Mangaluru 574225, India
e-mail: kerenalli@gmail.com

S. Sachin
e-mail: shettysachin1996@gmail.com

R. Roopalakshmi
e-mail: drroopalakshmir@gmail.com

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

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

S. M. Adikeshavamurthy · R. Roopalakshmi (✉) · K. Swapnalaxmi · P. Apurva · M. S. Sandhya
Alvas Institute of Engineering and Technology, Mangalore, India
e-mail: drroopalakshmir@gmail.com

S. M. Adikeshavamurthy
e-mail: as.maroor@yahoo.com

K. Swapnalaxmi
e-mail: swapnabs.bhat@gmail.com

P. Apurva
e-mail: apurvagowda66@gmail.com

M. S. Sandhya
e-mail: sandhyasgowda96@gmail.com

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

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

N. R. Meghana, R. Roopalakshmi, T. E. Nischitha and Prajwal Kumar

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 photo chemicals 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

N. R. Meghana (✉) · R. Roopalakshmi · T. E. Nischitha · P. Kumar
Alvas Institute of Engineering and Technology, Mangaluru, India
e-mail: meghanagowdanr@gmail.com

R. Roopalakshmi
e-mail: drroopalakshmir@gmail.com

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

IoT-Based Patient Remote Health Monitoring in Ambulance Services

C. M. Lolita, R. Roopalakshmi, Sharan Lional Pais, S. Ashmitha, Mashitha Banu and Akhila

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

C. M. Lolita (✉) · R. Roopalakshmi · S. L. Pais · S. Ashmitha · M. Banu · Akhila
Alvas Institute of Engineering and Technology, Shobhavana Campus, Mijar, Moodbidri, Mangalore 574225, India
e-mail: lolitacmenezes@gmail.com

R. Roopalakshmi
e-mail: drroopalakshmir@gmail.com

S. L. Pais
e-mail: lionalpais@gmail.com

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

2018 IEEE International Conference on Technological Innovations in ICT For Agriculture and Rural Development (TIAR 2018)

IoT-Based Automated Remote Water Metering System

Deekshitha, Roopalakshmi R, Divya L.N, Deeksha and Keerthi B
Alva's Institute of Engineering and Technology, Shobhavana Campus, Mijar, Moodbidri
{deekshitha875, drroopalakshmir, divyalsnaik, deekshabhandari28,keerthikumta08 }@gmail.com

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 in-accurate and in-efficient, 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,

978-1-5386-2338-1/18/$31.00 ©2018 IEEE

IoT-Based Framework for Automobile Theft Detection and Driver Identification

P. Chandra Shreyas, R. Roopalakshmi, Kaveri B. Kari, R. Pavan, P. Kirthy and P. N. Spoorthi

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 collects 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

P. Chandra Shreyas (✉) · R. Roopalakshmi · K. B. Kari · R. Pavan · P. Kirthy · P. N. Spoorthi
Alvas Institute of Engineering and Technology, Shobhavana Campus, Mijar, Moodbidri, Mangalore 574225, India
e-mail: chandrashreyasp@gmail.com

R. Roopalakshmi
e-mail: drroopalakshmir@gmail.com

K. B. Kari
e-mail: kaverib.kari@gmail.com

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

Proceedings of the 2nd International Conference on Inventive Communication and Computational Technologies (ICICCT 2018)
IEEE Xplore Compliant - Part Number: CFP18BAC-ART; ISBN:978-1-5386-1974-2

RFID-Based Smart Traffic Control Framework for Emergency Vehicles

Tejas Naik, Roopalakshmi R, Divya Ravi N, Pawdhan Jain, Sowmya B H and Manichandra
Alva's Institute of Engineering And Technology, Shobhavana Campus, Mijar, Moodbidri
{tejasnk814, drroopalakshmir, divyaravi2007, pawdhu.jain, soumyaraj277, mcsorokhaibam}@gmail.com

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-technologyt; traffic signal management; congestion clearence.

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

978-1-5386-1974-2/18/$31.00 ©2018 IEEE

Proceedings of the 2nd International Conference on Inventive Communication and Computational Technologies (ICICCT 2018)
IEEE Xplore Compliant - Part Number: CFP18BAC-ART; ISBN:978-1-5386-1974-2

Driver Drowsiness Detection System Based on Visual Features

Fouzia, Roopalakshmi R, Jayantkumar A Rathod, Ashwitha S Shetty, Supriya k
Alva's Institute of Engineering And Technology, Shobhavana Campus, Mijar, Moodbidri
{fouziya23, drroopalakshmir, ashwithashetty123, Supriya k189,}@gmail.com, jayantkumar720@yahoo.co.in

***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 2:006:00 A.M. and 14:0016:00 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 prospective, 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 voluntary 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.

PRINCIPAL
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225, D.K

978-1-5386-1974-2/18/$31.00 ©2018 IEEE

Proceedings of the 2nd International Conference on Inventive Communication and Computational Technologies (ICICCT 2018)
IEEE Xplore Compliant - Part Number: CFP18BAC-ART; ISBN:978-1-5386-1974-2

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

Arpita kunne, Dr. Roopalakshmi R, Suviksha.V.Shetty, Ananya S.V, Pankaj Devidas Divgi and Manasa
Alva's Institute of Engineering And Technology, Shobhavana Campus, Mijar, Moodbidri
{arpitakunne21697, drroopalakshmir, suviksha.shetty, ananyacta, pankaj.divgi, manasasmile16}@gmail.com

***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;

I.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