Systematic Literature Survey on Accident Alert & Detection System

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Abstract

Till date, there has been a lot of study about predicting a detecting the vehicle accident but there has not been pre intimation to the drivers about the accident. In this project, we propose to overcome the accident. The objective of this paper is to understand the various techniques that have contributed in the curb of accidents especially by preventing and detecting accidents. A study on different proposed methodologies involving various techniques for the stages involved along with their advantages and disadvantages is done which can help in the determination and appropriation of an efficient, accurate accident alert and detection system. System specifications based on thorough analysis of existing solutions and literature are proposed. Critical analysis and review of the systems that have contributed in accident alert and detection.

Keywords 1

Accident, Accident Detection, communication, GPS, GSM

1. Introduction

Now a day's numbers of vehicles are increasing very fast. This is causing a high increase in the number of road accidents due to which people are losing their lives. About 1.2 million people die each year, according to the World Health Organization. Despite contributing just 1% of the world's road vehicles, India is responsible for 16 percent of all road accident deaths. According to a report published in a leading newspaper, the number of people killed in road accidents in India reached an all-time high in 2018, with over 1.51 lakh fatalities, a rise of nearly 3,500 over 2017. The state of Uttar Pradesh had the most road fatalities, followed by Maharashtra and Tamil Nadu. In today's time, we see many people die on the road due to unnoticed road accidents. This is especially common at night, when contact is limited to phone calls. Accidents are on the rise due to an increase in the number of vehicles on the road without a corresponding increase in the road infrastructure needed to support them. We may not be able to avoid injuries, but we can still rescue victims. Vehicle collision detection is useful in such situations. Accident detection using smartphones, GSM and GPS software, vehicular ad-hoc networks, and mobile apps are among the systems suggested by various researchers.

2. Literature Survey

Mr. S. Kailasam, Mr. Karthiga, Dr. Kartheeban, R.M. Priyadarshani, K Anithadevi[1] states that due to lack of attention, Drowsiness, and drunk driving are the major causes of road accidents, this paper proposes preparing a system to prevent these circumstances. The proposed system herein aims at preventing and controlling accidents by using a Night Vision Camera. This system monitors the driver's face when the car starts which mainly helps in observing continuously. It uses two functions: One to detect the eye blinking, second is for reading the blinking. Automatic driving and braking systems are

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also combined with a controlling system using python programming. Speed is automatically reduced until the driver becomes alert and returns to consciousness. The proposed system alerts the driver depending on his state, and makes sure that he is not drowsy. However, if the driver has a medical condition or blinks at an abnormal rate despite not being drowsy, the system will give a false alarm. In the worst case scenario, the driver happens to be in an accident, the system fails to detect the impact and contact the concerned authorities. Lastly the system would constantly consume power and drain the power supply since it monitors the driver continuously. Hence the outcome of not being able to identifying the actual accident scenario made us reject the idea of adding face recognition to our system as it would be costly, power- consuming and inefficient.

Rajvardhan Rish, Sofiya Yede, Keshav Kunal, Nutan V Bansode [2] proposed a system which states that the leading cause of deaths in road accidents is due to delay in medical help. This can be prevented by messaging the authorities and emergency contacts too on time. The system consists of GPS, GSM, accelerometer and Arduino. It alerts nearest hospital, police headquarters, family and friends during the time of mishap mainly by detecting changes in accelerometer. The system sends a google map link using GPS module and Arduino. The vehicle sets the flag bit of the Arduino UNO as an accident is identified until it detects abrupt deviation from the threshold values with the help of the measuring system detector. Throughout the accident, the device sets the effective sensitive value for measuring instrument detectors, unless a crash is observed. Once the accident or set bit is detected by the measuring instrument detector, Arduino activates the GSM module, which has a manually saved signal of the accident victim's emergency contact, and sends a pre-stored SMS to that contact.

Though this system works fine, it lacks the detection of rare minor accidents with no casualties. So, it will eventually result in waste of resources and time in the case of minor accidents. Furthermore, it uses Arduino UNO which is less powerful than the recent microcontrollers available in the market. Hence, we decided to only take the system architecture components which would be beneficial to our project in accuracy which are the following: GSM, GPS module, accelerometer.

Aarya D.S, Athulya C.K, Anas.P, Basil Kuriakose, Jerin Susan Joy, Leena Thomas [3] proposed a system that states the vehicle accidents are one of the most leading causes of fatality. The period between the occurrence of an accident and the dispatch of emergency medical services to the accident site is a critical factor in accident survival rates.

Accident detection and messaging system will be stationed in vehicle itself which will be helpful during the time of accident as hospital, police and emergency contact can be informed immediately. The system is executed using GPS and GSM technology. A vibration sensor detects a collision using piezoelectric effect; which is the ability of certain materials to generate an electric charge when they are under mechanical stress. As soon as the collision is detected the GPS module locates the accident (latitude and longitude) and sends a message to the hospital and the emergency contact using the GSM module. The ambulance arrives to the location which is tracked by the GPS module and hence the victim is treated as soon as possible reducing the help time. In case if there is a minor accident, the victim can press a switch (button) to prevent the emergency contacts from being alerted. This system comprises of Arduino, GPS, GSM and vibration sensor, which detects the accident and alerts the authorities immediately, it also combats false alarms by using a switch provided for the driver. However, the system does not provide the medical data and history of the victim and hence there could be a delay in the victim’s treatment. We shall improvise our system in this scope.

Prashant Kapri, Shubham Patane, Arul Shalom [4] proposed a system which states that an accident might occur at an isolated area where humans are absent to report any mishap. Inbuilt hardware modules in luxury vehicles have recently been developed to detect and report accidents. Unfortunately, such devices are both costly and immobile.

They proposed a system in which the accidents are detected with the help of in-built sensors in the smartphone and physical context information. The system comprises of the a server and the software. The software acts as a sensing device as well as an interface for the third-party observers to contribute

information to the accident report. The software also uses Google maps on the smartphone for mapping purposes. The map will allow other drivers to plan their route intelligently around an accident, hereby reducing the congestion around that road via live update on map about accident. The client software can access the data from phone database such as a contact list to inform emergency contacts. The software will be installed in smartphone and will perform the task of detecting the accident and also exchanging information with server. The detection will completely depend on the sensors built in the phone which includes accelerometer sensor, GPS receiver, and microphone. Although in-vehicle detection system provides essential information very quickly but unavailability of this system are restricted by their non- portability and costs, whereas smartphone provides a promising platform with same sensors at cheap price and portability benefits. The functionality of a smartphone will outperform that of a traditional in-vehicle accident detection device. Whilst the idea of adding a smartphone was great but the major drawback of this would be if the battery of the smartphone ran out or if Bluetooth on the smartphone was disabled during the time of the accident, then this system fails. Hence, we decided to not implement application software as it could potentially fail in major accidents which are the main reason for the implementation of this project. Furthermore, if the device itself is damaged in a major accident, then there would be no detection making this implementation useless.

Bruno Fernandes, Vitor Gomes, Joaquim Ferreira and Arnaldo Oliveira [5] proposed system with a HDy Copilot, an Android application for accident detection integrated with multimodal alert dissemination. An android mobile is also used so that the rider can use the app, receive road hazard alerts from other vehicles in the area, and cancel countdown procedures if a false accident is detected. The software used are IT2S ITS-G5, GPS, 2 radio frequency (RF) modules, a field programmable gate array, USB. They demonstrated an accident detection system using an Android smartphone, ODB-II data, and vehicular communications, all of which were integrated with the e-Call platform: When an accident is identified, a DENM alert is sent to all nearby vehicles, along with SMS and voice calls to the emergency number. However, the major drawback faced was the same that is damage of smartphone/loss of signal which renders system useless.

According to Manuel Fogue, Piedad Garrida, and Francisco J. Martinez [6,] vehicular networks would play a larger role in the Intelligent Transportation System sector, reducing road fatalities. The majority of its uses, such as traffic control, fleet management, and navigation. These would be dependent on vehicle-to-roadside infrastructure communication, or even vehicle-to-vehicle communication. The introduction of sensoring technologies on-board vehicles, as well as peer-to-peer mobile communication between vehicles, are expected to result in major safety improvements in the near future. Based on the concepts of data mining and information inference, the proposed system depicts a smart system that will automatically detect road accidents, alert them through vehicular networks, and estimate their severity. On-Board unit (OBU) sensors, data acquisition unit, processing unit, and wireless interfaces, V2V and V2I communications, Control Unit (CU), Information Discovery in Databases are among the libraries and applications used to implement the system. Centered on V2V and V2I communications, the authors developed and implemented a prototype for automatic accident and assistance. After a thorough selection of relevant characteristics, the findings revealed that vehicle speed is a critical factor in front accidents, but in side and rear-end collisions, the type of vehicle involved and the speed of the struck vehicle are more significant than speed itself. The studied classification algorithms do not show significant differences, but they do show that if we can identify accidents based on the types of impacts, we can significantly improve the system's accuracy, particularly in front crashes where the vehicle is typically the striking one. We disregarded use of KDD algorithm as it didn't provide significant difference and was inefficient as well as complex to implement.

Vehicular networks will play an increasing role in the Intelligent Transportation Systems (ITS) area and hence reduce road fatalities. Most ITS applications, such as road safety, fleet management, and navigation. These will depend on communication between the vehicle and the roadside infrastructure (V2I), or even directly between vehicles (V2V). The integration of sensoring capabilities on-board of vehicles, along with peer-to-peer mobile communication among vehicles, forecast significant improvements in terms of safety in the near future. Piedad G., Manuel F., Francisco J. M. [7] proposed a framework defines a smart system that automatically detects, notifies, and estimates the magnitude of

road accidents across vehicle networks on the basis of the principle of data mining and information inference. On-Board Unit (OBU) sensors, the data acquisition unit, the processing unit and wireless interfaces, V2V and V2I communications, Control Unit (CU), Information Discovery in Databases are the libraries and applications used to implement the system (KDD). A prototype for automated accident and assistance based on V2V and V2I communications has been developed and implemented by the authors. Results showed that vehicle speed is a key factor in front crashes after a careful selection of relevant characteristics, but the type of vehicle involved and the speed of the hitting vehicle are more significant in side and rear-end collisions than speed itself. The studied classification algorithms do not show remarkable differences, but they demonstrate that, if we are able to classify the accidents depending on the types of impacts, we can noticeably increase the accuracy of the system, especially for front crashes where the vehicle is usually the striking one. We disregarded use of KDD algorithm as it didn't provide significant difference and was inefficient as well as complex to implement.

The late arrival of an ambulance is the leading cause of death in road accidents. If aid comes quickly, more lives can be saved. In some cases, injuries are minor, but the ambulance's late arrival can result in casualties. Usman Khalil, Tariq Javid, and Adnan Nasir [8] have proposed a system for sending accident messages to emergency services using the Vehicular AD-Hoc Network (VANET). VANET assists these services in finding the best route to their destination by using the ABEONA algorithm, a traffic signal module. This function will significantly reduce the time it takes for an ambulance to arrive at the accident scene. VANET, eCALL mobile application, and ultrasonic sensor are among the system's features. Accident detection using VANET is the most effective approach of all because it not only detects an accident, but also provides the ambulance with the best path to get to the accident site as quickly as possible. However, the system requires the machinery to be installed in both the vehicle and the ambulance, which is not always feasible. As a result, we determined that VANET will not be implemented in our scheme. In addition, if a cell phone is damaged in an accident, the application will be useless, rendering this solution useless.

OEMs do not instal such detection systems in most low-end cars in developed countries. Based on data obtained from mobile sensors, this algorithm confirms an accident. This is a less expensive choice. Smartphone, GPS receiver, accelerometer, magnetometer, and gyroscope are the components used to implement the device proposed by Harit S., Ravi K.R., Archana K. [9]. It uses a collision index and a crash detection algorithm. A few common crash detection systems are also smartphone-based and use MEMS sensor data collected in real-time while driving. However, data obtained from smartphone built-in sensors may contain significant noise, and therefore most current solutions may reduce detection accuracy and lead to false positives. To address the limitations of using a smartphone as a data capture source, the proposed solution employs collision index measurement, known false positive identification, and removal, as well as additional confirmation with position data from the smartphone. However, since this scheme does not have the victim's medical history, care could be delayed. This solution will not be able to offer what it promises in incidents where the smartphone is totally destroyed. As a result, a smartphone sensor-based application might not be able to match the precision of expensive in-vehicle systems fitted with high-end accident detection technology, as they have an obvious advantage of providing direct access to the vehicle.

Hossam M. Sherif, M.Amer Shedid, and Samah A. Senbel [10] suggested a solution in which three key components, namely the Node algorithm, Router algorithm, and Coordinator algorithm, are required to facilitate the accident report. During a road accident, the Real Time Traffic Accident Detection System (RTTADS) can intelligently notify the accident site through a wireless interface. It will also notify the appropriate authorities. It will not only tell you how many people have died, but also what kind of emergency services are needed. RFID sensors, an RF module, a wireless module, a crash sensor, a rollover sensor, a fire alarm sensor, a weight sensor, and a microcontroller are among the system's hardware components. The proposed system would detect an accident in real time and send information to the supervisory programme about the accident site, vehicle speed (before the impact sensors are triggered), number of passengers in the vehicle, crash sensors that have been activated (front, back, right side, and left side), rollover sensor status, and fire alarm sensor status. The rule-based system scans the estimated number of ambulance cars required for injured patients, as well as whether or not a

fire truck is required. We liked the concept of using three separate algorithms to organise the process of sending a message, but it can be easily implemented using a GPS and GSM module, and false alarms can be avoided using updated technology like the fingerprint sensor used in our proposed system.

Ms. Sharmila S. Gaikwad [11] proposes an agent-based framework for the extremely complex and variable sense of healthcare emergency decision support. It emphasizes the value of using mobile agents to help the real-time deployment of an emergency service, rather than just hypotheses. A mobile agent is an autonomous program capable of transporting itself entirely under its own control between network nodes, carrying with it the data and execution status required to resume execution at the destination host from where it left off on the original host. Hence this agent makes a decision on when and where to move and how to go about the execution without consulting the user repeatedly. Along with mobility, they are also capable of performing dynamic and intelligent inference tasks during their execution which makes them a great approach not only in situations of urgent medical help but also in other areas like military to educational.

Md. Syedul Amin, Jubayer Jalil, M. B. I. Reaz [12] have stated that speed is one of the most important and basic risk factors in driving. Not only does it affect the severity of a crash, but it also raises the likelihood of a crash. If emergency service could get accident reports and reach it in time, more lives could have been saved. The GPS tracks the speed of a vehicle and, through a microcontroller chip, compares it with the previous speed every second. Whenever the speed is below the stated speed, an accident is believed to have occurred. Through using the GSM network, the device will then submit the accident position obtained from the GPS along with the time and speed. They propose to use the ability of a GPS receiver to track a vehicle's speed and detect an accident based on the speed monitored and send the position and time of the accident from the GPS data processed by a microcontroller to the Warning Service Center using the GSM network. Kinetic energy is converted into destructive forces that cause damage to the passengers as well as to the vehicle when an accident occurs. The system uses GPS, GSM and a microcontroller unit for hardware and the software components are accident detection algorithm, speed measurement, detection and reporting by MCU, and finally the data interpretation unit. It will also show the previous speed of the vehicle before committing the accident. This data will help the Alert Service Center to assess the severity of the accident basing on the speed and also it can initiate a voice call. The detailed algorithm sure reaps a good result but it is time consuming and hence, only necessary steps can be initiated keeping speed in mind.

Nagarjuna R Vatti, Prasanna Lakshmi Vatti, Rambabu Vatti, Chandrashekhar Garde [13] have provided some shocking statistics of accident rates in India and also talked about the reasons of increase in road accidents that is caused by improper construction and low maintenance of the roads as well as overcrowding and increasing count of vehicles. Other than this, the youth succumb to their injuries on roads because of rash driving, drunken driving. The pre-existing types of accident prevention systems installed in cars are air bags, ABS. The projected system relies on the thought that the accident is detected by vibration and rotating mechanism sensors once a close review of current systems and literature surveys, and a message is straight away sent to the emergency contact numbers victimization the GSM module beside the situation found by the GPS module. If the vehicle gets any head-on collision the vibrations area unit created. If the vibrations exceed a threshold price they're detected and treated as a heavy accident case. The gyro detector can notice if the vehicle has toppled or atilt by an outsized angle. All told cases, the system can anticipate ten seconds. If button is ironed by the motive force among ten seconds the system considers that accident isn't serious and it resets back to traditional operation. During this system, the guts rate detector can notice the speed of the motive force only if the accident has occurred. By causation this data, the hospitals can get to grasp concerning the condition of the motive force and consequently they'll react to assist the motive force. They need to conduct experiments by implementing the system in a very toy automobile and determine that the system is functioning properly. This is by far the best and most efficient as well as cost friendly approach.

T Kalyani, S Monika, B Naresh, Mahendra Vucha[14] have proposed three main components in this system namely vibration sensors, GPS and GSM module. When a vehicle meets with an accident, the vibration sensor will read the impact and Arduino will then compare it with the threshold value set in

the program. If the value exceeds the threshold value then GPS will generate the current location and GSM will send the alert message to respective authorities with the help of Arduino. Vibration sensor is used to detect the accident. One of the major gaps with this system is that it doesn't provide any solution to a minor accident situation where there isn't any serious damage or any casualties. So in such cases if the system doesn't provide a solution to this problem this will ultimately result in waste of resources and time. Also this system doesn't provide any medical history of the victim which eventually results in the delay which will ultimately hinder the cause.

Bharath P, Saravanan M, Aravindhan K [15] have performed a detailed literature survey of 19 papers reflecting ideas on accident detection using machine learning. Machine learning is an artificial intelligence (AI) technology that gives systems the ability to learn and develop from practice automatically without being programmed specifically. Machine learning focuses on the development of a computer program that can access and use knowledge to learn for itself. The paper that stands out among them is the one where the dissertation system anticipates and predicts the destination location. Using a Damped area simulation, it tests four progressive scholarship approaches, namely, variable compound regression, spherical-spherical regression, irregular circular K-NN dropping off, and a gaggle of those techniques for his or her effectiveness in determining the matter of destination prediction.

Wen-Kai Tai, Hao-Cheng Wang, Cheng-Yu Chiang, Chin-Yueh Chien, Kevin Lai, and Tseng-Chang Huang [16] have stated that, traffic accidents are happening every day, still there is not an efficient way to investigate, record and measure such parameters with precision. The authors have come up with a system to extend the exactness and viability of knowledge retrieved in traffic accident investigation, shorten the investigation time, ensure the safety of investigators, decrease social value, and improve the general service quality of traffic accident investigations. The planned system contains four phases: prepared, Record, Measure, Archive, and Edit phases. The intent of this system is merging the practicality of drones associated mobile devices to form a system that may collect and record proof each fleetly and expeditiously. If the investigator must sketch the accident diagram, he will use the functions of Accident Diagram App (ADA). This technique provides correct and correct readings, with the assistance of overhead pictures enamored by the assistance of drones; the gap measured is correct with average error of +-5cm.This paper provides an excellent system which could be able to detect and investigate traffic accidents happening in the city, and help save time. It uses drones to investigate the accident spot which collects overhead photos and provides a function ADA to do so efficiently. However, if the accident is very fatal, this system would not inform any hospital or such designated authorities.

Barış Guksa and Burcu Erkmen [17] have proposed a system which would not only inform about the accident, but also detect if the driver is feeling sleepy and is not in a condition to drive, hence decreasing the possibility of an accident. To observe the driver's standing, the projected device uses a smartphone, which can do this with its front camera. The user is asked to require a photograph once the program is opened. Within the photograph, the situation of the face is set. Once the situation of the face is set, solely the face is cut and it's saved as a replacement photograph by the system. Then, the quantity of gap and shutting eyes in a very minute is saved within the system. If additional or less the quantity of eye gap and shutting in a very minute, that is completely different from the conventional, is detected, the motive force controls himself by causing him a voiced warning message speech "are you sleepy?" is aimed. The smartphone ought to have a front camera; associate ALS (Ambient light-weight Sensor), a gyro detector associated with a measuring system and a recipient IC (Integrated Circuit), which is required for GPS signals to be processed within the phone. The system proposed by the author could be efficient to prevent accidents from happening. As this system uses smartphone's sensors for detection, it is mandatory that the driver has a smartphone, since smartphones are very common these days, they could be useful in such a system, but if the driver forgets to bring his smartphone, nonetheless does not carry a smartphone, this could render the whole system inefficient.

Adnan Bin Faiz, Ahmed Imteaj, Mahfuzulhoq Chowdhury [18] have stated that, these days, smartphones have become an everyday requirement and this paper therefore proposes a device that uses

a smartphone to detect whether an accident using the sensors of the smartphone has occurred. The proposed system uses the GPS receiver of the phone to detect a sudden rapid change in deceleration that happens at the time of an accident. It also reads the change in pressure from the pressure sensor and the angle of tilt from an accelerometer sensor in a Smartphone. After detecting these three conditions, the android app would send an alert to the emergency contact. To prevent any false alarm, the system is provided with a switch which, if pressed, would prevent sending an alert to the emergency contact. This could be useful in case of wrong readings in the sensors, or if the accident is a minor one and not fatal. This device would require a constant internet connection in order to work smoothly. The system used in this paper can give systematic results and ensure the safety of the driver using smartphones which have become a daily necessity in today's life. Since the smartphone's sensors could provide false data sometimes, this system also comes with a switch, which could be used by the driver in case of wrong readings. Considering this system requires a constant internet connection, which may not be possible in remote areas, this may be a drawback in its working. In such a situation, the system could fail.

Miss. Priyanka M. Sankpal, Prof. P. P. More [19] have implied that this system aims at preventing accidents by detecting the driver's state i.e., if the driver is feeling drowsy or is not in the condition to drive. IR reflective obstacle sensors are used to detect the position of the eyes. If eyes are opened then the sensor gives the low signal to the controller, and if the eyes are closed till 4 sec then the sensor gives high signal to the controller. The PIC controller receives input from the sensor, and the controller gets the high or low signal and processes it to make the buzzer ON or OFF, depending on the buzzer the LCD displays "Driver Slept", if the buzzer is ON. Hence the driver is notified and a major mishap could be prevented from happening. Since drowsiness is a major cause of accidents, this system provides a very efficient way to reduce such incidents. Even if the system provides a way to prevent accidents from happening due to drowsiness, there could be other causes which may not be detected and since the system does not provide detecting the damage and notifying the emergency contacts, this could be a major drawback.

Dnyanesh Dalvi, Vinit Agrawal, Sagar Bansod, Apurv Jadhav, Prof. Minal Shahakar [20] have suggested a system which uses an android application to automatically detect and report an accident using a smartphone. An Android application was built and connected to a USB port in order to include an accident detection mechanism and eCall implementation. A GPS receiver, two Radio Frequency modules, a Field Programmable Gate Array for lower MAC, baseband PHY layer use and Universal Serial Bus connections are the highlighted features of the device that are helpful to the project. Due to its hardware resources and software capabilities, a smartphone has been chosen as an Application Unit (AU), even because it has a linear accelerometer of 3 axes. For eCall implementation, the GSM/GPRS capabilities are very useful.

The android application is divided into two modules: Design- Related to the elements of the Graphical User Interface (GUI), such as the added icons, colors, layouts, pictures and visual effects, and Core- Mostly related to the functionality of the application. It enables the GUI components, as well as Autonomous Accident Detection (aAD) and eCall processing, to perform the tasks needed when requested. The center of the eCall system is the Accident Detection Algorithm, which focuses on providing the application to automatically detect vehicle accidents. This system also offers a warning notification which the driver can press if there are any false alarms or if the accident is not fatal. Overall this system could work adeptly with the help of a smartphone which would contain the android application. But since it uses a smartphone, there comes the issue of network connectivity, which could be a problem in remote areas.

P. Kaliuga Lakshmi, C.Thangamani [21] have presented a system which detects an accident using MEMS sensor which would detect the car roll over and give it as an input to the controller for processing. When a rollover is detected, the system would detect the location using a GPS module and send a message to the medical authorities using the GSM module. Using Vehicle to Vehicle (V2V) or Vehicle to Road (V2R) communication, vehicles may communicate with each other. It could have certain applications like security distance warning, vehicle collision warning, map location, driverless

vehicle etc... Most applications include the measurement of traffic speed and travel time. This calculation helps roadway users to identify which routes to use. This calculation can be saved to analyze traffic speed and travel time for different time intervals. This paper suggests an approach which could be efficient and easy to implement, but it does not provide a switch or any kind of system to prevent a false alarm.

3. Critical Analysis and Review

After reading many papers thoroughly we understood that the main parts of an accident alert and detection system are gps, gsm, and accelerometer and a microcontroller. Indeed, these systems help in getting the medical help as soon as there is an accident detected but most of them will clearly wastes lots of resources and a time during scenarios when the accident is minor and there is no requirement of any medical help. Also, we think that the proposed systems by some authors can be more beneficial if the system contains drivers and passenger's medical history such as blood group, medical history, etc so that the medical professionals can be well equipped beforehand and can treat the patients faster. Also, if the system warns the driver of bad weather, and conditions of roads ahead then it will make the driver cautious and ultimately reduce the risk of an accident.

4. Conclusion

Thus, in this paper we have discussed the different methodologies that have contributed in the innovative advancements in the medical field and attempted to integrate the study on various researches and proposed systems along with addressing the different technologies involved, with their advantages and drawbacks which can help in the selection and adoption of the appropriate up to date techniques in the future.

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