



Accident Alert System and Intimation for Ambulance

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Abstract: Recent days many accidents are occurring due to heavy traffic and also driver carelessness and some rash driving not only in highways but also in cities. In most of the situation the information about the accident to the ambulance authorities and for the family members are not informed in time. So, this time delay in emergency causes death of the victim in most of the situation. so, this research paper will give the solution to this problem. This includes accident alert detection and ambulance transportation by a licensed ambulance service from the location of the sudden accident to the nearest hospital. For this purpose, we have come up with an effective ambulance system by using GPS and COLLISION sensor along with ranger technology.

I. INTRODUCTION

The usage of motor vehicles is growing at a fastest rate as the population increases. Accidents and the death rate are highly increased due to the irregular management of traffic. Mostly, deaths due to accidents are happened due to the time lagging of medical assistance. Majorly it was happened in highways to rectify this problem we have proposed a system. The proposed system is used to increase life time of patient. This action is done by sending a reliable data of an accident to the hospital and medical assistance for immediate recovery. The time efficiency of this system will be faster. An accident alert system and intimation for an ambulance is a technology-based solution designed to provide immediate assistance to accident victims by alerting emergency services and nearby hospitals about the accident location. This system uses various sensors, GPS, and communication technologies to detect and report accidents in real-time. The accident alert system and ambulance intimation work by detecting accidents through various sensors, such as accelerometer and gyroscopes, installed in the vehicle. These sensors detect sudden changes in vehicle speed, acceleration, and orientation, which may indicate a crash. Once an accident is detected, the system automatically sends an alert to emergency services, providing the location, time, and severity of the accident. The system also intimates the nearest hospital with details about the accident, including the number of victims and their conditions, to enable the hospital to prepare for their arrival. The ambulance service is also alerted, providing them with the necessary information to reach the accident location as quickly as possible. This technology-based solution can significantly reduce response time and save lives by providing immediate assistance to accident victims. Additionally, it can help reduce the number of fatalities and injuries resulting from accidents by enabling prompt medical attention to the injured.

II. LITERATURE SURVEY

Accident alert systems and ambulance intimation systems are designed to provide rapid emergency response to road accidents. The following literature review explores the various technologies and methodologies used in such systems, their effectiveness, and their limitations.

1. The paper proposes a smart accident detection and notification system using a Raspberry Pi-based device. The system uses sensors to detect accidents and sends notifications to emergency services and the victim's contacts.
2. The authors developed a system that uses wireless sensor networks to detect accidents and alert emergency services. The system is designed to operate in urban environments and can be easily integrated with existing traffic monitoring systems.
3. The authors proposed a system that uses smartphone sensors to detect accidents and automatically notify emergency services. The system also incorporates a feature for the automatic collection of accident-related data, which can be used for statistical analysis and research.
4. The authors developed a system that uses a smartphone app to detect and alert emergency services to traffic accidents. The system also includes a feature for the automatic collection of accident-related data, which can be used for research and analysis purposes.



5. The authors reviewed various ambulance dispatching systems and highlighted their strengths and weaknesses. They suggested that the most effective ambulance dispatching systems are those that utilize real-time data and predictive analytics to optimize ambulance routing.
6. The authors reviewed various smart ambulance management systems and identified their key features and benefits. They suggested that the most effective smart ambulance management systems are those that incorporate real-time location tracking, intelligent routing, and communication capabilities.
7. The paper proposes a smart accident detection and ambulance responder system using IoT devices. The system uses sensors to detect accidents and sends information about the location of the accident to nearby ambulances, reducing response times.
8. The paper proposes an intelligent system for early detection and alert of road accidents using machine learning algorithms. The system uses data from sensors and cameras to identify accidents and sends alerts to emergency services and other stakeholders.
9. The paper proposes a real-time accident detection and alert system using IoT devices, which can notify emergency services and send information about the location of the accident. The system uses sensors to detect the accident and transmit data to a cloud-based server, which processes the data and sends alerts to emergency services.
10. The paper proposes a smart accident detection and notification system using a Raspberry Pi-based device. The system uses sensors to detect accidents and sends notifications to emergency services and the victim's contacts.

Overall, accident alert systems and ambulance intimation systems have the potential to significantly improve emergency response times and save lives. However, the effectiveness of these systems depends on various factors, such as the accuracy of the sensors used, the reliability of wireless communication networks, and the availability of emergency services. Further research is needed to develop more advanced and reliable systems that can operate in diverse environments and conditions.

III. REVIEW OF EXISTING APPLICATIONS

They say that Reducing the time between when an accident takes place and when it is detected can reduce mortality rates by 6% [12]. Conventional in-vehicle accident detection and notification systems, such as OnStar, are effective in reducing the time gap before first responders are sent to the scene. These systems, however, are expensive and not available in all vehicles. To further increase the usage of automatic accident detection and notification systems, smartphones can be used to indirectly detect accidents through their onboard sensors, such as accelerometers. Many challenges must be overcome, however, particularly the potential for false positives from accidentally dropped phones. Due to the large volume of “phantom” (accidental) calls to emergency services, reducing the false positive rate of smartphone accident detection is important.

They said that A working model of Automatic vehicle accident detection and messaging system using a GPS and GSM modems has been implemented successfully. The biggest advantage of our research is, whenever the sensor is activated, we will be immediately getting the acknowledgement from GSM modem to our mobile numbers which are stored in EEPROM, without any delay. This system locates the accident spot accurately, realizing the automation of accident detection and messaging system. Consequently, it will save the precious time required to save the accident victims. Further this system can be implemented using the vibration sensors as well as the sound sensors, in order to make it more accurate and efficient to detect an accident.

The proposed that with this system, an Embedded System is designed which can be most useful for Accidents. It's a low cost, Power efficient system by which the action time can be minimized and exact location of an accident can also be defined with GPS service and also the information regarding accident can be sent to particular contact numbers e.g., Police stations, Doctors etc. Because of the flexibility of embedded system, this system is very much compatible to any kind of vehicles. Over all this system is very much affordable to a common man and this can be easily implemented.

This paper gives a design which has many benefits like low cost, portability, small size. This system uses the microcontroller in conjunction with vibration and alcohol sensor; PS and GSM. Interfacing which reduces the alarm time to a large level and give the location of accident accurately. It can also overcome the issue of lack of automated system for the detection of the site of accident. As a result, the time for detecting the site is reduced and the person can be treated as soon as possible which will save many lives.



IV. OBJECTIVE

The vibration should be effective enough to identify that it is an accident. The vehicle is also transmitted data in high speed and taken a very less time to share the data. The lora used to shared data with ambulance and any government server and also to nearest hospital without any barriers. The sensor is broken then the server is intimated a police or government would check the server and send the ambulance if needed. An objective accident alert system and intimation for an ambulance would be a system designed to automatically detect accidents and immediately notify emergency responders. Such a system could be implemented in several ways, including through the use of sensors, cameras, and other detection technologies. One possible approach is to use cameras and sensors installed on roads and highways to detect any accidents that occur. These cameras could be equipped with algorithms that analyze the images in real-time, looking for signs of an accident, such as debris on the road, cars in unusual positions, and people or animals in distress. Once an accident is detected, the system could automatically send an alert to emergency responders, providing them with information about the location and severity of the accident. This could be done through a dedicated communication channel, such as a mobile app, or through an integration with existing emergency response systems.

3.1 Proposed Methodology

The system comprises of a ranger transmitter, ranger transmitters are embedded inside the dashboard of the vehicle. Along with this a vibration sensor, a MEMS sensor, GPS and GSM modules are also embedded in the design of the vehicle. At the time of accident, the vehicle exhibits abnormal vibrations and also it gets tilted. these abnormalities are sensed and sent to the ESP Module. The vibration sensor senses the vibrations and the MEMS sensor senses the tilting of the vehicle and detects the occurrence of the accident, once the accident is detected using the GPS module the current location of the vehicle is recorded. GSM sends this recorded accident location to hospitals in the SMS format. Ranger is used for distance communication with coverage of 15 kms. Thus, the location of the accident through SMS is sent to the nearby ambulance and hospitals within 15 kms Range.

3.2 Expected Outcome & Advantages

- The new integrated and implemented into automotive system.
- It can offer to medical assistance to people injured in road accidents, reducing time delays and increase speed of data transfer time. It can overcome previous error innovations.
- This system is easily acceptance by the people.
- This system has integrated with collision sensor and ranger transceiver. In ranger used to easily data can transmit up to 15kms. So, this paper can save the souls from wasting and unwanted time of accident

V. CONCLUSION

In conclusion, an Accident Alert System and Intimation for Ambulance can be a valuable technology for improving emergency response times and saving lives. Such a system can work by using sensors or cameras to detect accidents and alerting emergency services or nearby hospitals. This can help reduce response times and improve the chances of survival for accident victims. In addition, the system can provide important information to emergency responders, such as the location and severity of the accident, as well as any medical conditions of the victims. This can help ensure that the appropriate medical resources are dispatched and that treatment is started as soon as possible. Overall, the Accident Alert System and Intimation for Ambulance is an important technology that can help improve emergency response times and save lives in the event of an accident.

By using advanced technologies such as sensors, cameras, and real-time data analytics, such a system can provide timely and accurate information to emergency responders and help ensure that accident victims receive the medical attention they need as quickly as possible. In conclusion, the Accident Alert System and Intimation for Ambulance is a critical technology that can help save lives in emergency situations. The system is designed to detect accidents and alert emergency services promptly, reducing response time and increasing the chances of survival for the victims. The use of advanced technologies such as sensors, GPS, and wireless communication makes the system efficient and effective. The system can be integrated into various modes of transport such as cars, motorcycles, and buses, and can be customized to suit specific requirements. The use of machine learning and artificial intelligence can enhance the accuracy and effectiveness of the system. The system can also be integrated with healthcare systems to provide real-time updates on the condition of the victims and their location.

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