Accidental Identification with Tracking Technology

S. N. Satapathy, Department of Mechanical Engineering,

Galgotias University, Yamuna Expressway

Greater Noida, Uttar Pradesh

Email ID: satya.narayan@Galgotiasuniversity.edu.in

ABSTRACT: Economic casualties due to traffic accidents are rising in most countries. Although the number of road deaths has decreased since 2001, much change is needed. The facilities to provide emergency care following an accident is also not up to the mark due to lack of knowledge. This is why we are implementing robotics in the ambulance that can help the rescue squad hit time to save lives. The automobile industry is more concerned with human welfare. This document is a car automation in which the network can be used to monitor the vehicle after the crash and to report relevant details about the vehicle in order to include emergency assistance. Emergency facilities or an SOS system shall be used to illustrate the operation of this system was considered. When the car has a crash, the device sends spatial coordinates and uses these coordinates. Tracking the location of the vehicle on the Google map through the internet is provided to the hospitality services. The message shall contain the Information of the car and even the precise location of the vehicle. Where an ambulance or emergency medical services can be needed be hurried to the scene of the crash.

KEYWORDS: GPS, GSM, Road deaths, Tracking ,Traffic accidents,

INTRODUCTION

The high demand for cars has also raised the chances of road traffic and road accidents. People's lives are at high risk. This is due to the lack of the finest emergency services available in our world. This concept is a device that can detect injuries in considerably less time and delivers simple information to the first aid centre within a few seconds, covering the spatial coordinates, timing and angle of the crash in the car. This distress message will be sent to the emergency team in a short time to help save precious lives[1]. A switch is often given to avoid transmitting a response in exceptional situations where there is no injury, which will save the valuable time of the emergency rescue team. When an accident happens, the warning code is transmitted immediately to the ambulance squad and the police department. It's a postsended via the GSM module and the location of the accident is identified with the aid of the GPS module. With the aid of both the Micro Electro Mechanical System (MEMS) sensor and the vibration sensor, the accident can be identified exactly. The Angle of the rolls over the car can also be detected by a message via the MEMS sensor. This application offers the optimal remedy for bad emergency conditions[2].

As per the National Highway Safety Administration (NHTSA) established by the Highway Safety Act, it represents the execution of safety programmes. According to the standards of NHTSA Vehicle makers seeking to incorporate safer cars or protective technologies, vehicles have various services, such as airbags and specialized devices to protect passengers during collisions, and thus, due to advanced construction procedures, these structures have more strict safety standards to avoid disasters. However, this type of accidents continues to occur, with damage to buildings, severe injury and a lack of emergency systems. Linear advances in automotive safety technologies would also aim to minimise serious accidents and human fatalities. NHTSA claims that this is the best improving vehicle protection can benefit from the extensive use of crash prevention, accident warning and immediate emergency assistance systems. Car protection is the research and practise of planning, building, machinery and legislation to mitigate the occurrence and effects of accidents and incidents. The proposed solutions seek to incorporate a low-cost safety accident warning system. Detection of an injury of the Messaging System is the simplest version of a technically feasible model using GSM and GPS technologies. To do this, all controls are rendered using a microcontroller that can talk faster. The causes for the crash may be the driver's fault or some other result, so it is important to provide proper emergency care following an accident. The purpose of this framework is to mitigate the various drawbacks of the automotive industry in the event of an unknown catastrophe by

supplying appropriate operation within a shorter span of time. Our scheme has been placed in order to resolve economic losses due to shortage of awareness and emergency care.
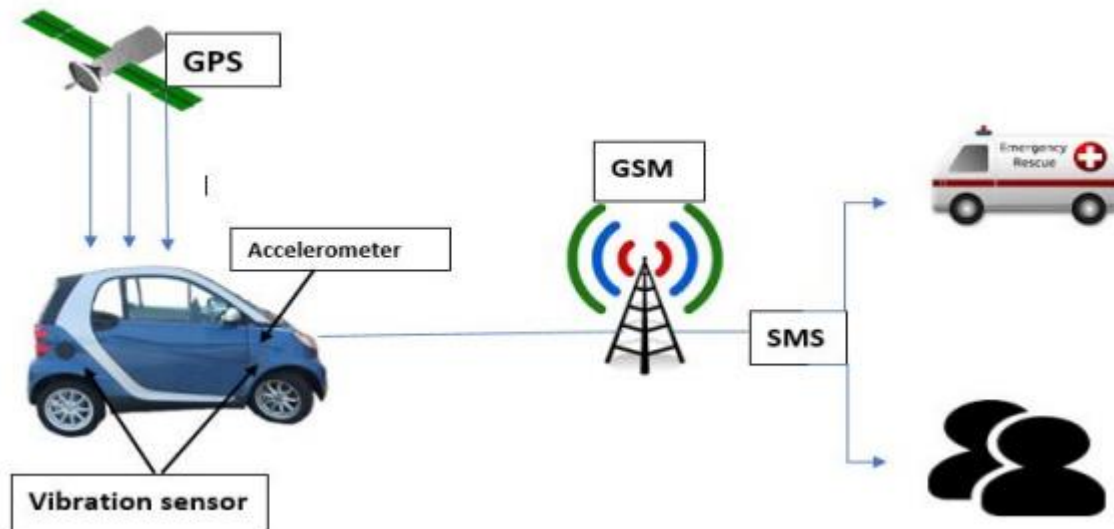

Figure 1: The planning of the system[3]

The key goal of the AVCSS is to monitor an accident that turns into a tragedy. The paper suggested a method to offer immediate help to individuals who have suffered an injury. The design consists of a microcontroller chip, an accelerometer, a vibration sensor, a GPS system and a GSM module. Power supply and all other electronics, including GPS, GSM, controller and warning, are installed on the fragile (Figure 1).

Box and sensors located at the critical stage of a vehicle where the effect of tilting and acceleration is more conserved. A high-performance (16/32) bit microcontroller unit is used to process and store a real-time signal from the accelerometer and vibration sensor. The accelerometer is the key sensor used to identify a major crash and vibration sensor attached to detect a normal crash and to alert the driver of any major accident. Once the crash has been identified, GPS gathers the current location values, including latitude (N or S), longitude (E or W). This is the Geographical coordinates are obtained by the microcontroller and the information will be transmitted to the cell phone with the aid of GSM.

Thus, the notification on the smartphone screen includes an exact location which will be routed to the Google map and warn the operator to provide hospitality facilities as well as interrupts or signals from the vibration sensor in case of a simple accident, the current driver will also send a message to the family member/vehicle owner that "your car has crashed." The platform of this system is an IDE where people can add separate telephone numbers for accident assistance[4].

1.1 GSM: It stands for Global System for Mobile Communication. GSM is used as a media used to manage and track the load of the transformer from somewhere by sending a packet. It has a deterministic character of its own. Hereby, GSM is used to track and control the DC motor,Stepper engine, temperature sensor and solid state relay by transmitting a message via the GSM modem[5]. There is also no reason to lose time by manual process and transport. It is also known to be highly efficient communication via mobile devices that would be useful in industrial controls, vehicles and equipment that can be operated from anywhere else. It is also extremely economical and less expensive; thus, GSM is favored for this mode of control[6].

1.2 GPS: It stands for Global Positioning System. GPS is used in both detection and navigation vehicles. Tracking systems allow the base station to keep track of the vehicles without the involvement of the driver, while the navigation device allows the driver to reach the destination. If it's a navigation device or a tracking system, the design is more or less identical. Where an accident has happened at some location, the GPS device monitors the position of the car and sends the details via GSM to the user by alerting the person through SMS or a call[7].

LITERATURE REVIEW

The high demand for cars has also raised the chances of road traffic and road accidents. People's lives are at high risk. This is due to the lack of the finest emergency services available in our world. This concept is a device that can detect injuries in considerably less time and delivers simple information to the first aid centre within a few seconds, covering the spatial coordinates, timing and angle of the crash in the car. This distress message will be sent to the emergency team in a short time to help save precious lives[8].

DISCUSSION AND CONCLUSION

This paper describes a proposal with characteristics such as functional viability, cost-effectiveness, movability and compactness. The accelerometer, vibration tracker, GPS and GSM system that reduces the catastrophe to a large degree. This machine can solve the lack of automation in the vehicle. The time to search the crash scene is reduced and the victim will be healed as soon as possible, helping to save more lives. The key purpose of the AVCSS crash framework is to minimise the risk of injuries in the case of an accident and also to warn the customer of the state of the car. Emergency networks if an event happens. They're alerted, and they can hit the specific location on time. This implementation is much more fitting for abandoned areas where an accident happens easily and injuries occur during the night.

REFERENCES

[1]   W. Hu, X. Xiao, D. Xie, T. Tan, and S. Maybank, "Traffic accident prediction using 3-D model-based vehicle tracking," *IEEE Trans. Veh. Technol.*, 2004, doi: 10.1109/TVT.2004.825772.

[2]   C. PRABHA, R. SUNITHA, and R. ANITHA, "Automatic Vehicle Accident Detection and Messaging System Using GSM and GPS Modem," *Int. J. Adv. Res. Electr. Electron. Instrum. Eng.*, 2014, doi: 10.15662/ijareeie.2014.0307062.

[3]   S. Deshpande, "Realistic Mobility Model of AVCSS (Advanced Vehicle Control and Safety System) for Accident Detection with Tracking Technology," *Int. J. Res. Appl. Sci. Eng. Technol.*, 2018, doi: 10.22214/ijraset.2018.3496.

[4]   Z. M. Khamis Al-Balushia, "Tracking and Accident Detection in Automobiles Using GPS and GSM Technology," *J. Student Res.*, 2017, doi: 10.47611/jsr.vi.571.

[5]   P. More and U. Patil, "A Survey on Accident Detection, Tracking and Recovery of Vehicles," *Int. Res. J. Eng. Technol.*, 2008.

[6]   A. KumarA, U. Scholar, and A. Professor, "Accident Detection and Alerting System Using Gps & Gsm," *Int. J. Pure Appl. Math.*, 2018.

[7]   R. Rathinakumar and D. Manivannan, "Wireless accident information system using GSM and GPS," *Res. J. Appl. Sci. Eng. Technol.*, 2012.

[8]   D. Shah, "Automatic Vehicle Accident Detection System Based on ARM &GPS," 2013.