

Vehicle Detection & Accident Alert System

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Abstract: In the present day, the rate of accidents can be increased rapidly. Due to employment the usage of vehicles like cars, bikes can be increased, because of this reason the accidents can be happened due to over speed. because of this reason, Not only the demand for performance and quality of automobiles increases rapidly but there is also demand for an anti-accident system for vehicles.

The main cause of accidents is a highspeed, drink and drive, diverting minds, over stress, and due to electronic gadgets. This project deals with accident detection that occurs due to the carelessness of the person who is driving the vehicle. This introduces accident detection and notification system which helps the person who is driving the vehicleGPS and GSM based accident identification and information system are focusing on accident happened during traveling especially to save the life of many people by reporting to hospitals and owners of the system.

Keywords: Accident, Accident Detection, communication, GPS, GSM

1. INTRODUCTION

Over the last decade, the use of automobiles has increased linearly, increasing the risk of human life. Road accidents are the leading cause of death around the world. The appearance of automobiles has an impact on people's lives. The growing demand for automobiles has resulted in an increase in traffic risks and accidents. Speeding, little sleep, drink and drive are all factors that contributed to the disaster. According to a study, every minute that an injured crash victim does not obtain emergency medical attention increases the risk of death. The majority of victims die as a result of such circumstances. As a result, the concept of saving lives through solving the problem emerges. The system uses the pre-installed smart sensing accelerometer equipment to provide real-time vehicle position information. This system uses GPS and GSM technology to send all of the data to a remote server, which is then analysed, and the retrieved information is used to deliver services to the individual in an emergency.

2. LITERATURE SURVEY

Ms. Meha Soman, Shruthi R, Sangeetha J, Ramya R, Ramyalakshmi.T(2018) Affiliation: Panimalar Engineering College, Chennai, Tamil Nadu

This paper presents an IoT-based system for automatic vehicle accident tracking and salvage using GSM technology.Introduces an Io T based system for automatic vehicle accident tracking and salvage using GSM technology. Utilizes MEMS and ultrasonic sensors, GPS,GSM, and Wi-Fi modules for real-time accident detection, accurate location tracking,and communication. Suggests future enhancements like integration with vehicle airbag systems and cameras

K. L.S. Soujanya, Sri Sai Rajasekhar Gutta(2019).

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 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.

CH B R SRIKANTH Affiliation: Visakha Institute of Engineering Technology, Andhra Pradesh.,(2020)

This paper focuses on a vehicle tracking and accident alert system utilizing Arduino, GPS, and GSM technology. Introduces a vehicle tracking and accident alert system using Arduino, GPS, and GSM. Detects sudden changes with an accelerometer and transmits precise location to emergency services. Aims to provide timely accident alerts and suggests future enhancements like integrating a wireless webcam. Introduction of a vehicle tracking and accident alert system using Arduino, GPS, and GSM. Detection of sudden changes using an accelerometer. Transmission of precise location to emergency services for timely accident alerts. Suggestion of future enhancements, including the integration of a wireless webcam.

Dr. Avinash Chandra, Rishab Kaul, Shaanvi Mehta, Subharthi Saha. Affiliation(2020)

Accident Alert and Vehicle Tracking System The paper discusses an accident alert and vehicle tracking system, providing insights into their approach and technology used. Proposes an Accident Alert and Vehicle Tracking System for prompt emergency response. Automatically detects accidents using sensors and sends distress messages with the vehicle's location. Allows manual cancellation to prevent false alarms. Suggests future enhancements like integrating cameras and driver monitoring. Proposal of an Accident Alert and Vehicle Tracking System for prompt emergency response. Automated detection of accidents using sensors. Sending distress messages with the vehicle's location to emergency services and user-selected contacts via GPS and GSM modules. Introduction of a manual cancellation feature to prevent false alarms. Suggestion of future enhancements, such as integrating cameras and driver monitoring.

Dr. Pradnya Maturkar, Kunal Dudhe, Krishna Roy Affiliation: Rajiv Gandhi College of Engineering and Research, Nagpur, Maharashtra(2021)

This research introduces an accident identification and alerting system with a focus on electronics and telecommunication engineering. Introduces an accident identification and alerting system using GPS and GSM technology. Detects accidents through sensors and sends alerts to registered numbers, police, ambulance, and hospitals. Emphasizes enhancing emergency services and provides a detailed design methodology. Introduction of an accident identification and alerting system using GPS and GSM technology. Detection of accidents through sensors. Sending alerts to registered numbers, police, ambulance, and hospitals. Emphasis on enhancing emergency services. Detailed design methodology, including components like ATmega328P, NEO-6M GPS module, MPU6050 accelerometer, GSM 800C module, and I2C LCD converter board

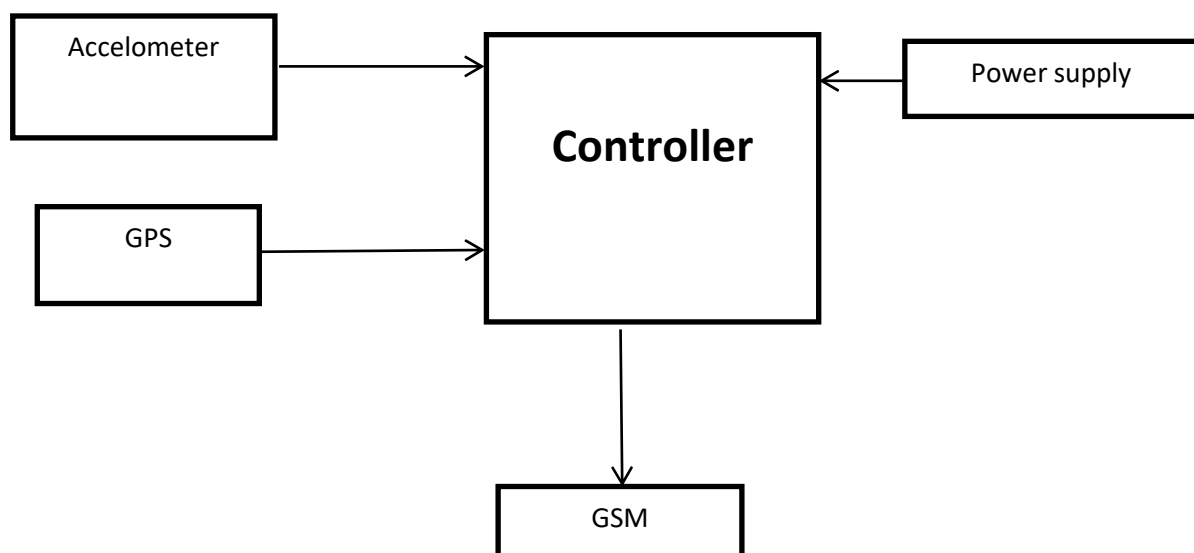
MD. Abu Sayem, MD. Siddiquir Rahman, Redwan Sharafat Kabir Affiliation: Daffodil International University, Dhaka, Bangladesh(2022)

The paper discusses an Io-based approach for global position monitoring and tracking of the motorized transportation system, emphasizing an integrated approach for adapting Industry 4.0. Focus: Io-based global position monitoring and tracking in the motorized transportation system. Discusses an Io-based approach for global position monitoring and tracking in the motorized transportation system. Uses components like ESP32+SIM800 module, NEO-6M GPS Module, and various sensors. Aims to address issues like the cost of sending GSM messages and limited battery life. Objectives include monitoring vehicle position, security, and evaluating driver's performance. Involves both software programming and hardware implementation. Discussion of an Io-based approach for global position monitoring and tracking in the motorized transportation system. Use of components like ESP32+SIM800 module, NEO-6M GPS Module, and various sensors. Aim to address issues such as the cost of sending GSM messages and limited battery life. Objectives include monitoring vehicle position, security, and evaluating driver's performance. Involvement of both software programming and hardware implementation.

Table

Author(s)	Paper Title	PublicationYear	Accuracy	Limitations
Ms. Meha Soman, Shruthi R, Sangeetha J, Ramya R, Ramyalakshmi.T	IoT-based system for automatic vehicle accident tracking and salvage using GSM technology.	2018	95%	Not mentioned
L.S. Soujanya, Sri Sai Rajasekhar Gutta	Controlling accidents by using a Night Vision Camera	2019	97%	Not mentioned
CH B R SRIKANTH	Vehicle tracking and accident alert system	2020	97%	Not mentioned
Dr. Avinash Chandra, Rishab Kaul, Shaanvi Mehta, Subharthi Saha	Accident Alert and Vehicle Tracking System	2020	98%	Not mentioned
Dr. Pradnya Maturkar, Kunal Dudhe, Krishna Roy	Accident identification and alerting system	2021	98%	Not mentioned
MD. Abu Sayem, MD Siddiqur Rahman, Redwan Sharafat Kabir	IoT-based global position monitoring and tracking of the motorized transportation system	2022	97%	Not mentioned

3. BLOCK Diagram



This block diagram provides a high level overview of the various components and their interactions within the accident alert system using GPS Module and Gsm technology. Vehicle unit consists of an accelerometer which keeps on informing the coordinate of vehicle position to the microcontroller. If it is found at random, the GPS location tracker

tracks and informs the emergency number with values of latitude, longitude and google map position using the GSM SIM module.

GSM MODULE: For providing communication between the GPS, GSM and the allocated mobile number GSM SIM900 module is preferred. The name SIM900 says that, it is a tri band work ranging a frequency of 900MHz to 1900 MHz such as EGSM900 MHz, PCS 1900 MHz and DCS 1800 MHz. Receiving pin of GSM module and transmitting pin of GSM module are used for communication between the modules and the mobile phone.

GPS MODULE: To find the location on the earth the whole is divided into some coordinates where the location can be easily captured by a module called GPS module. Here the GPS used is SIM28ML. This GPS module will find the location of the vehicle and the information fetched by the GPS receiver is received through the coordinates and the received data is first send to arduino and the information is transmitted to the saved contact through GSM module. The frequency is operated in the range of 1575.42 MHz and the output of the GPS module is in NMEA format which includes data like location in real time.

4. CONCLUSION

In the present world the percentage of accident has increased so widely because people were not helping when accident occurs even if the person is fallen in front of their eyes. After development of ADPS system in future if accident of person is happened he would not have to depend on other people for help one more advantage will be that, by using this application the location of nearby hospitals be acknowledged to the user and message will be send to nearby hospital.

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