

ACCIDENT DETECTION AND NOTIFICATION USING GSM AND LIVE LOCATION SHARING USING GPS

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ABSTRACT

This key must be used by the driver. If the accident is very common, or the driver has just hit the wall in some cases like parking the driver will press the key. This will let the little controller know that this is a normal risk and that the system will not send an SMS. But if the driver is not in a position to press a button or if the accident is a serious accident the driver will not press the key and the system will send an SMS. The microcontroller detects links to GPS modems. It will then send this information to the GSM modem. The GSM modem is used to send this information via SMS. An SMS will be sent to a member of the driver's family so that they can take immediate action to help people who have been traumatized by the accident.

Keywords: Microcontroller, GSM Modem, SMS.

I. INTRODUCTION

The development of the transport system has become a productive force so that humans can have a higher civilization than the creatures on earth. Cars are very important in our daily lives. We use it to go to our workplace, communicate with our friends and family, and deliver our goods. But it can also lead to disaster and even death. Speeding is one of the most fundamental aspects of driving. Not only does it affect the severity of the crash, but it also increases the risk of being involved in an accident. Despite the many efforts taken by various public and private organizations around the world with various programs to raise awareness of reckless driving, accidents occur frequently. However, many lives would have been saved if paramedics had received the details of the crash early. Therefore, effective automatic accident detection with automatic notification of emergency room service is a key requirement to save a precious human life. The project proposes to use the capabilities of the landfill receiver system to monitor vehicle speeds and hazard detection according to monitored speed and transfer the location and time of the accident from the ground system data processed by the sub-control via the GSM network to the Alerts Service Center. The concept of using a vibrating sensor is simple: there are three parameters measured by the vibrator sensor. Sensors work with the principle of piezoelectric. The crystal produces a low voltage or charge when pressed during pressure. Movement in the axial direction accentuates the crystal due to the negative force of the weight and produces a signal corresponding to the acceleration of that mass. This small acceleration signal can be amplified to measure acceleration or converted inside the sensor into a speed or shift signal. In general, the operating system of the whole system states: the vibration sensor detects an accident occurring depending on the frequency at which it is detected and detects and triggers an alarm, and sends a notification to the hospital and car owner, at the same time. The LCD indicates that the vibration sensor has been detected and a message has been sent.

II. LITERATURE SURVEY

(Hypothesis and Rationale showing part of the study)

At present, we cannot see where the accident took place and there are no related details, leading to the death of the person. Research work is underway to monitor the vehicle's position even in dark areas where there is no signal reception network. In this project GPS is used to track vehicle status, GSM is used to send a message and the ARM controller is used to save a mobile number to EEPROM and send a message to it when an accident is detected. From the previous event and the current approach, the following issues are noted:

1. Hand system is accepted.
2. Risk tracking is an important process in the system.
3. Needed medical care will not be provided to a person in need.

4. Loss of life and loss of property was not largely stopped. Considering all the obstacles in view, we have developed a proposed plan that includes all the barriers listed above.

III. PROBLEM STATEMENT

Road accidents are one of the biggest problems facing the world. One of the major causes of road accidents is traffic congestion and overcrowding. Reducing road accidents is one of the biggest challenges as the majority of deaths worldwide are due to road accidents. There is, therefore, a need to provide better transport services that can reduce the rate of road accidents and save lives. One of the proposed solutions in this paper is to use IR sensors and Arduino Uno technology. The program has two phases - Risk Detection and Risk Prevention. The detection phase is performed using IR sensors that can detect and alert people by sending an SMS using a GSM module containing pre-defined numbers and the location of danger using a GPS module. Phase Two, Accident Prevention is performed using IR sensors by alerting the driver to neighboring vehicles when the distance between them is above the limit.

IV. METHODOLOGY

Overheating: Usually, all cars have a temperature gauge but sometimes we fail to notice it so it is always nice to have a sound signal. The circuit will warn of a buzzer beep and a bright LED if the temperature rises above the safe level. This simple rotation would be a great idea to get a warning before the engine gets too hot so you can check what is going on or if the car needs cooling down.

Gas Leak Detection: Gas leak detection in the system will be performed using a gas sensor in the circuit. It will check the sensor status of the logic detector in the circuit. We can add an alarm system to the real-time system to notify the end-user and display numbers in the mobile app.

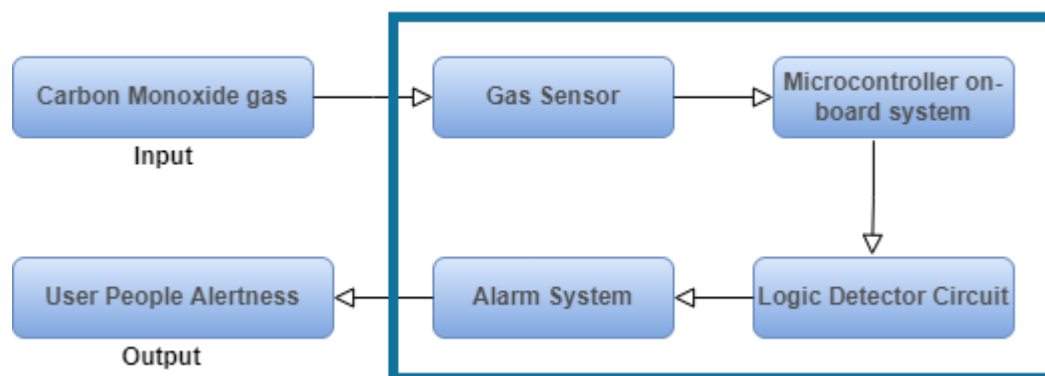


Fig 4.1: Block diagram (Leakage Detection)

Accident detection and notification: Accident is detected in real-time when the vehicle is involved in an accident. Whenever a deviant car partner is found by the Node MCU to engage, the driver, that is correct if no driver responds, will record the location of the vehicle using GPS connected to the MCU node. ADXL345 sensor connected to the Node MCU using the -I2C. Messages will be sent to emergency numbers. All data is sent to the server using MQTT.

V. PROPOSED SYSTEM

Today, developments in the automotive industry are on the rise, leading to more injuries and road accidents. Human existence is at stake. This is because emergencies in our country do not exist. In short, we will create a notification system application where there will be a sign-in page for the login page if the user is not registered in the app for new users which will be used as a private dashboard. where there will be little and all the entry details where we can see and they can give us the car details and handling that will be required. This situation prevails. Many people in our country have lost their lives as a result of incidents. Due to accidents or intervention by the emergency team. We overcome this by providing an effective solution and minimizing the loss of life as much as possible. In our view, the design of the device allows us to detect crashes in a very short time and to transfer important information to a first aid center. Links to the location, time, and angle of the car incident are included. This distress message will be sent shortly to the rescue team and the mobile phone number reported. This program saves many precious lives in real-time. The message is transmitted via GSM

and GPS. The basic idea is to locate the car device by collecting real-time car location via GPS and transmitting data via GSM via SMS. We are introducing a new framework for automatic risk detection to solve the current problem. Each vehicle has an impact sensor and signals are sent to the controller in the event of an accident. The signal is transmitted over an IoT network from a microcontroller to a central device. The GPS module provides the coordinates of the latitude and longitude of the target vehicle sent via the IoT network. The central unit sends areas to the nearest ambulance to pick up the victim. The central unit is located at the police station or hospital, where the vehicle unit receives signals. A collision sensor comes in handy when you need to get vibration and helps send a signal to the Arduino controller. Excessive temperature sensors to alert drivers will avoid further damage. If a person encounters a minor accident, the driver may inform him that there is no need to pay attention to interrupting the message using a switch. This was done to avoid wasting time with the doctor and the police team. Arduino controls to send a warning message about a GSM modem with location. This accepts the SIM card and then activates the purchase from the mobile operator. An ambulance is given a warning near the scene of the accident. The ambulance also has a GPS receiver that will map the scene of the accident. This helps ambulances to enter the area and rescue the victim on time.

VI. BLOCK DIAGRAM

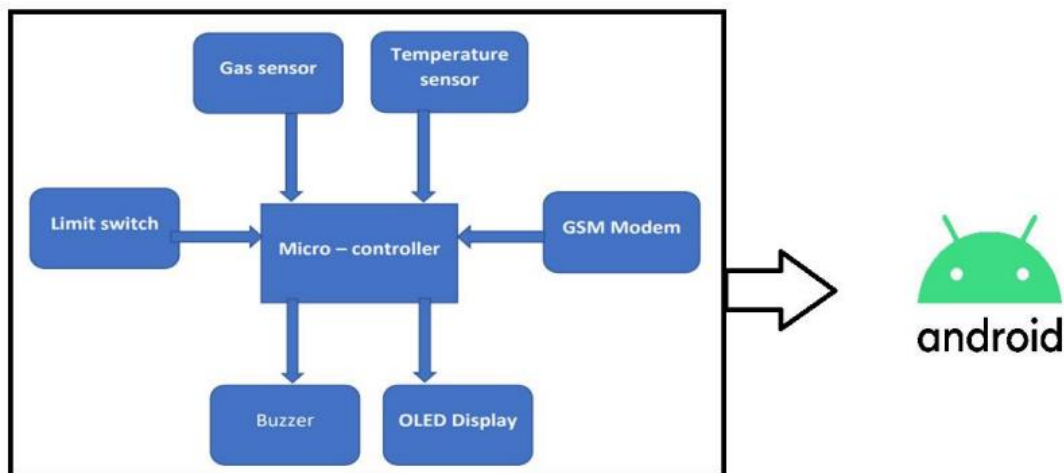


Figure 6.1: Block diagram for the proposed system

VII. ADVANTAGES

- School transport vehicle accident detection: “Vehicle Accident Detection system” can be used on the school bus.
- This project can be used for a cab or car companies.
- Alerts police and medical units about accidents.
- Simple design and can be interfaced with other systems.
- Easy to operate by the user.
- Reliable system.
- Easy to operate.
- Monitors hazards and threats.
- Sophisticated security.
- Simple and Reliable Design.

VIII. RESULT

The prototype of the proposed Car Accident Recovery and Rescue Program has been mentioned. In the event of an accident, it will shock the buzzer, and an SMS sent to the user by location. Exit response is displayed. The Automatic Vehicle Accident and Rescue System provides inexpensive solutions for tracking, risk detection, and warning users and rescue teams. The proposed system can send a notification to travel numbers registered to the application and the nearest hospital for assistance.

IX. CONCLUSION

The proposed program includes a warning and incident detection. The microcontroller node MCU is the backbone of a system that helps transmit a message to various systems. In the event of an accident, the Impact Sensor is activated and the information is transferred through the GSM module to a registered number. Position can be transferred using GPS via a location tracking system in the country. The impact sensor used as the main module on the device will receive an accident.

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