Accident Alert System Using GPS Tracker

Parameswari A[1], Augusta S [2], Tamilselvan S [2], Mounaritha M [2]

[1]*Assistant Professor, Adithya Institute of Technology, Coimbatore, India.*

[2]*Student, Adithya Institute of Technology, Coimbatore, India.*

Corresponding Author: augusta.sathrakabeal@gmail.com

Abstract: The level of accidents has increased mainly due to over speeding. Most road accidents occur because of distractions from driving. Nowadays accidents have increased in the past 10 years. To reduce the road accidents in this project. We are going to make an accident alert system using a GPS tracker which will monitor whether any object comes across the vehicle while driving, when the object comes across the vehicle the sensor detects and gives an alert in the form of LCD and audio. In case of an accident occur, in the vehicle, we fixed the GPS tracker it detects the location of the vehicle and sends the information to a given number in the program. It gives the alert in the form of call and message format.

Key Words: — ***Accident, GPS Tracker, LCD, Message Call, Vehicle.***

I. INTRODUCTION

Roadside accidents become a major problem in daily life. Especially in urban areas and cities, roadside accidents have been increasing daily. According to the survey by the Government of India, 1.2 million people died in a severe road accident and 50 million people have been injured the treatment for this has been increased by about 70% in the developing countries, especially in India. If the same condition is continued then it will contribute to the global burden of disease and injury by 2020. Most road accident deaths occur in the age group between 14-44. Due to the road accident, they have lost their life. In India, the living of middle-class people is higher than compared in other countries. The middle class doesn't have insufficient money to treat the person met with the accident and so it sometimes causes the death of the person. The standard of living will automatically decrease due to the death of the person. Driving at an excess speed, driving the vehicle with the consumption of alcohol or drug, while sleepy or tired are the major factors that lead to the accident.

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In developing countries, the exposure of road side accidents has been increased due to rapid drive of motorization, rapid population growth, lack of safety measures in the vehicles, crowded roads, and poor maintenance of the road. Improving the public transportation system can also reduce accident that happens on the roadside. According to the plan, the website has been developed by the General Insurance Council for the accident reporting to the police or victims' families in the form of call or message alerts at the time of 24X7. New technologies have been created for the avenue of the roadside accident.

II. PROPOSED SYSTEM

Our proposed system is used to detect objects and the accident-prone zone using a GPS tracker and send a call and message with location through the GSM module to the feeding helpline number. It helps to reduce accidents at the roadside in urban areas and cities. We have separated the process of our proposed system into 2 processes. One of the processes took place within the vehicle itself and another process was to send the message and call using a GPS tracker to avoid causing the death of life due to the accident. We have used an ultrasonic sensor to detect the object when the object is detected and the accelerometer reduces the speed of the motor instantly. Once the object was identified the output was displayed on LCD and gave audio output for the driver. All the processes are controlled by the Arduino Uno R3. In case an accident occurs, the output will be displayed in the form of a message with location and received the call from the vehicle unit to be given a mobile number in the program. And another output is in the

form of a call to the emergency number. Our proposed system is mainly used for life casting.

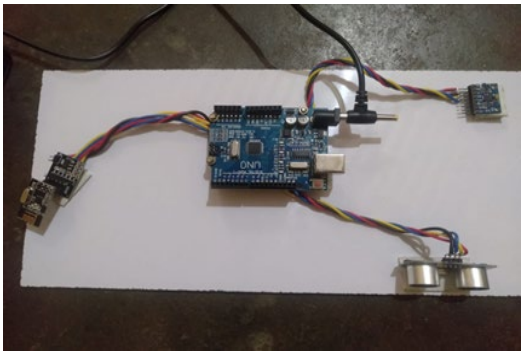

Fig.1. Transmitter Unit

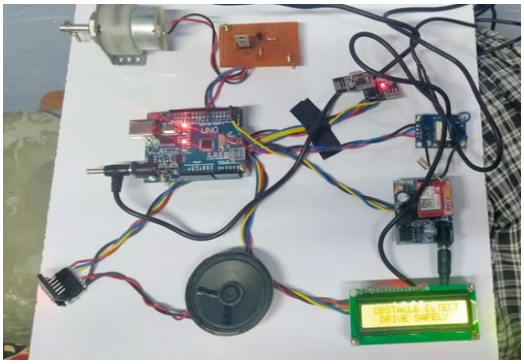

Fig.2. Vehicle Unit

2.1 Hardware Used

- Arduino Uno R3
- GSM Module
- GPS Module
- Speaker
- Sound Module
- LCD Display
- DC Motor
- Ultrasonic sensor
- PWM Driver
- MPU Module
- nRF Transceiver

2.2 Software Used

- Arduino IDE
- Embedded C

2.3 Block Diagram

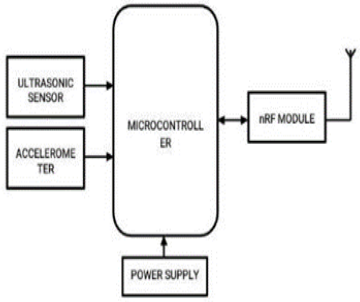

Fig.3. Transmitter Unit Block Diagram

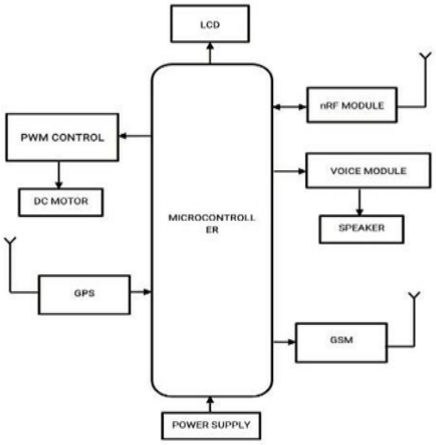

Fig.4. Vehicle Unit Block Diagram

III. RESULTS

In this project module, the Arduino Uno R3 is programmed for checking by using embedded C language. Two types of sensors namely Ultrasonic sensors, Accelerometer sensors are coded and connected with Arduino Uno R3. Here nRF module is used for the transmission of information into another Arduino Uno R3 that is connected with a GPS module and GSM module. We have separated the working process into 2 divisions one takes place within the vehicle and the other takes place in the GPS tracker. To reduce accidents in this project we are going to make an accident alert system using a GPS tracker which will monitor whether any object comes across the vehicle while driving, when the object comes across the vehicle the sensor detects and gives an alert in the form of a message or call. In case of an accident happens, the GPS tracker fixed in the vehicle detects the location of the vehicle and sends the information to the fed number in the program.

It gives the alert in the form of call and message format to the given mobile number in the program The output can be seen in the form of the message or call to our smartphones. At the same time, the dc motor is stopped when the object is detected and a voice alert is given in the 2 formats one is "OBSTACLE DETECTED DRIVE CAREFULLY" and another one is "ACCIDENT DETECTED".

Fig.5. Hardware Output of The Proposed System

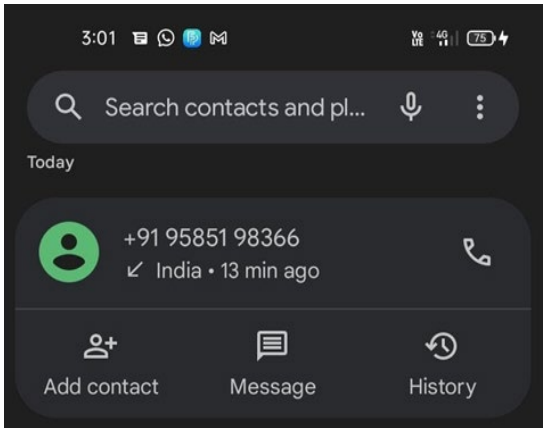

Fig.6. Software Output of The Proposed System -I

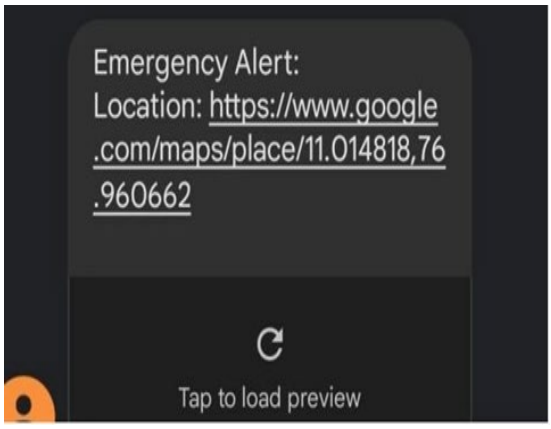

Fig.7. Software Output of The Proposed System -II

IV. CONCLUSION

The life of every living thing is important to each of the families that survive in this world. The cause of death due to the accident leads to a poor standard of living especially in a middle-class family and some accidents lead to the loss of any body parts of the family. In this project, we have developed a module to detect the object that comes across the vehicle and gives an alert to the driver and reduces the speed of the motor. Our proposed system is used to decrease accidents. Unfortunately, accidents happen the GPS tracker is used to detect the location and sends the information to the emergency helpline number from taking in the program. The output is in the form of a call and message with the help of the GSM module to save the life of God's creature.

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