

## Automatic Life Saviour in Roadway Automobile Detecting System

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**Abstract:** In this generation more accidents occur in front of schools, colleges, hospitals and industry. we had faced many accidents on seeing that our heart pricks and want to stop the accidents This project is to overcome the accidents that happen and people die .This deals with transmit the signal of car or bike or truck or any other vehicle approaching and signal is received and buzzer sound , lcd display and along with this recording of speed of vehicle. Accident preventions are taken care with the help of automatic breaking system using ultrasonic sensor. Using ultrasonic as a ranging sensor, its function based on ultrasonic wave. After transmit by transmitter, the wave can reflect when obstacle detected and receive by receiver. if suppose accident happen message will convey to nearby hospital and camera to record all to the prevention life of man who gone cross the MEDIAN in the way through GSM module.

**Keywords:** Buzzer, Lcd, ultrasonic Sensor , GSM,, Rf, Transmitter, Rf Receiver, Arduino UNO R3.

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### I. Introduction

“LIFE IS 10% WHAT HAPPENS TO US AND 90% HOW WE REACT TO IT”

Our roads, which are meant to take us places, often become venues of loss and sources of sorrow. India, appreciates and supports the initiative WHO(WORLD HEALTH ORGANIZATION) is taking to make the world a safer, more responsible place in which to live. A global scourge characteristic of our technological era, whose list of victims insidiously grows longer day by day.How many people die or are injured? How many families have found themselves mourning, surrounded by indifference that is all too common, as if this state of affairs were an unavoidable tribute society has to pay for the right to travel? Highway travel claims more lives than any other work-related activity.In 1995, approximately 1,600 workers died in highway traffic incidents, compared to 1,000 work-related homicides.



**Fig1:** Accident crossing highway.

Of the 6,210 fatalities documented in the 1995 BLS Census of Fatal Occupational Injuries, highway incidents accounted for a fifth of the total. Homicides numbered a sixth of the fatalities, but no other deadly circumstance made up more than a tenth of the 1995 total. Although truck drivers outnumbered, by far, any other occupation involved in highway fatalities, most victims of work related highway accidents did not operate trucks or other motor vehicles for a living.

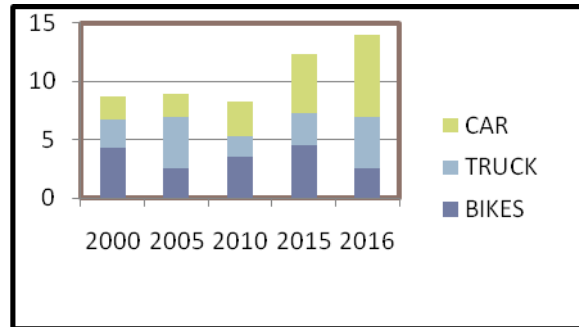


Fig2: Strategy of accidents in highway

Low-income and middle-income countries account for about 85% of the deaths and for 90% of the annual disability. Projections show that, between 2000 and 2016, with the assistance of official organizations and voluntary associations, lead to greater and genuine awareness, on the part of road users for the lives of others.

- To develop a prototype of automated life savior using Arduino Uno to identify whether the person is safe to crossing the highway and this system also takes protective measures until the entire vehicle completely moves in the highway.
- To replace human intervention by introducing fully automated system to provide safety and secure crossing for peoples.

## II. Design

### WHY ARDUINO?

There are many other microcontroller and platforms available for physical computing and low power consumption. Arduino simplifies the process of working with microcontrollers, but it offers some advantage for teachers, students, and interested amateurs over other systems. Cross-platform - The Arduino software runs on Windows and Linux operating systems. Most microcontroller systems are limited to Windows and inexpensive.

### A. Arduino Uno (Controller)

An Arduino unoR3 board historically consists of an Atmega328, 16-or 32-bit AVR microcontroller with complementary components that facilitate programming and incorporation into other circuits. An important aspect of the Arduino is its standard connectors, which let users connect the CPU board to a variety of interchangeable add-on modules termed shields. Some shields communicate with the Arduino unoR3 board directly over various pins, but many shields are individually addressable via an I<sup>2</sup>C serial bus—so many shields can be stacked and used in parallel. It provides 14 digital I/O pins, six of which can produce pulse-width modulated signals, and six analog inputs, which can also be used as six digital I/O pins. This board has a 5 volt linear regulator and a 16 MHz crystal oscillator.

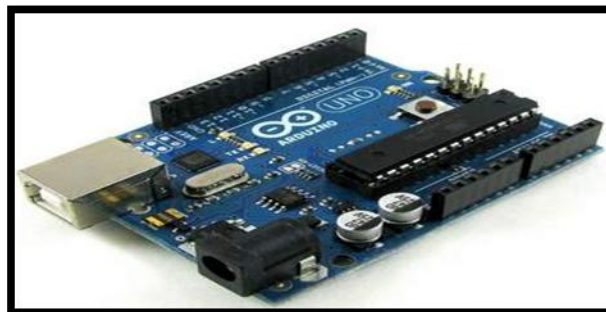


Fig3: Arduino uno R3

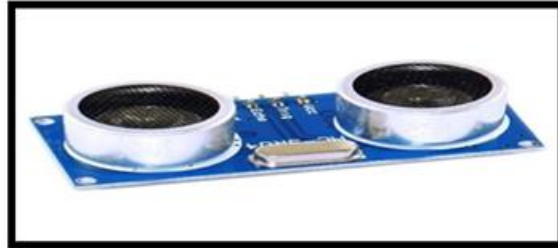
### B. Ultrasonic Sensor Module

Ultrasonic sensor emits ultrasonic pulses, and by measuring the time of ultrasonic pulse reaches the object and back to the transducer. The sonic waves emitted by the transducer are reflected by an object and received back in the transducer. After having emitted the sound waves, the ultrasonic sensor will switch to

receive mode. The time elapsed between the emitting and receiving is proportional to the distance of the object from the sensor.

Features:

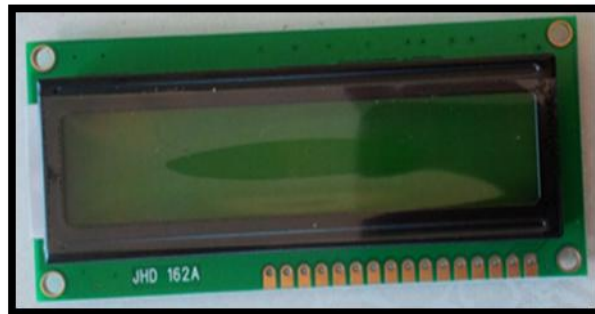
- Working Voltage: 5V<sub>DC</sub>
- Working Current: 15mA
- Detecting Range: 2cm - 4.5m
- Trigger Input Pulse width: 10uS



**Fig4:** ultrasonic sensor

### **C. Liquid Crystal Display**

The LCD Display consists of 16 pins. It has 8 bits of data being used. The last two pins 15 and 16 are for lighting up the led present in the display. The brightness can be adjusted by connecting a potentiometer to the appropriate pin. This helps the person to show thus he should not cross while vehicles available and when to cross so that easy to save the life of a person through this act. Solar power can be given to this device.



**Fig6:** Lcd display

### **D. Buzzer**

For this project, we are going to interfacing the piezo buzzer to Arduino uno and create a simple beep sound by just applying the Pulse Width Modulation (PWM) signal to it. this is designed and programmed based on human hearing capacity and based on human distracting intension from any other work rather than crossing the road.



**Fig7:** Buzzer

## E. GSM

### What is GSM?

GSM, which stands for *Global System for Mobile* communications, reigns as the world's most widely used cell phone technology. Cell phones use a cell phone service carrier's GSM network by searching for cell phone towers in the nearby area.

A GSM modem is a wireless modem that works with a GSM wireless network. A wireless modem behaves like a dial-up modem. The main difference between them is that a dial-up modem sends and receives data through a fixed telephone line while a wireless modem sends and receives data through radio waves. A GSM modem can be an external device or a PC Card / PCMCIA Card. Typically, an external GSM modem is connected to a computer through a serial cable or a USB cable. A GSM modem in the form of a PC Card / PCMCIA Card is designed for use with a laptop computer. It should be inserted into one of the PC Card / PCMCIA Card slots of a laptop computer.

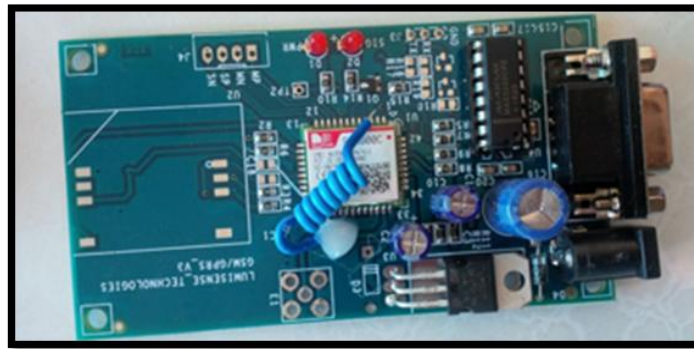


Fig8:GSM

In addition to the standard AT commands, GSM modems support an extended set of AT commands. These extended AT commands are defined in the GSM standards. With the extended AT commands, you can do things like:

- Reading, writing and deleting SMS messages.
- Sending SMS messages.
- Monitoring the signal strength.
- Monitoring the charging status and charge level of the battery.
- Reading, writing and searching phone book entries.

The number of SMS messages that can be processed by a GSM modem per minute is very low -- only about six to ten SMS messages per minute.

### III. Methodology:

There are two methods transmitter and receiver where all signals transmitted of upcoming vehicles and man in median then it will indicates lcd display and give buzzing to the person to be alert and save life. The AND gate is an electronic circuit that gives a **high** output (1) only if **all** its inputs are high. A dot (.) is used to show the AND operation i.e. A.B. Bear in mind that this dot is sometimes omitted i.e. AB.

Based on this logic this acts and this methodology has rf tx and rx based 433mhz only and ultrasonic sensor will checks always the departure in it.

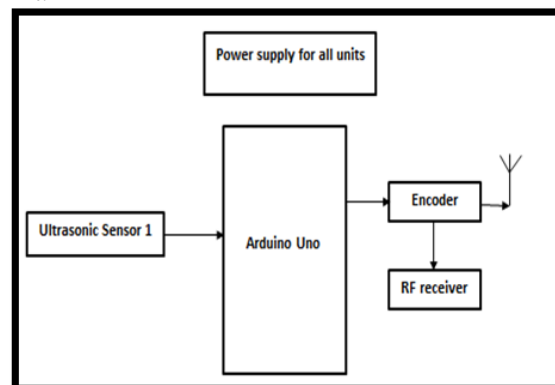


Fig9: Transmitter

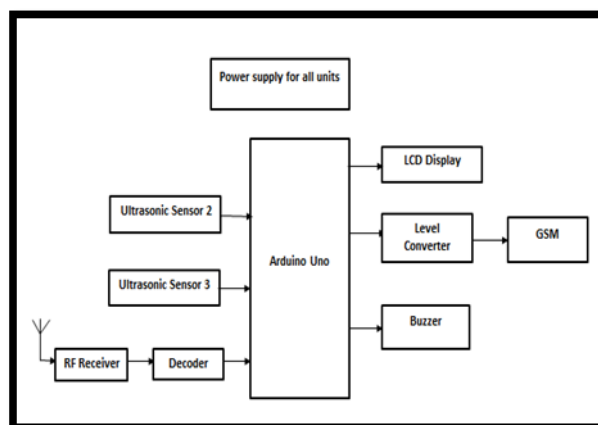


Fig10: Receiver

### A. Circuit Diagram

The circuit diagram of the proposed system. An Arduino UNO is the base of this circuit and all the other components are connected to this board. Three ultrasonic Sensors, us1, us2 and us3, are connected to pins 3, 5 and 6 of Arduino UNO. respectively. Each of these LEDs are grounded through 1kΩ resistor. A buzzer is also connected at pin 3. When us1 detects the coming, it sends a high signal to pin 3. As soon as the Arduino UNO detects a high signal, it raises the signal at pin 11 and the components connected to this pin shows an output i.e. the yellow LED glows and the buzzer buzzes. us2 sends a high signal to pin 5 when the train is detected by it. This sends a high signal to pin 12 and pin 9. When us3 senses, it sends a high signal to pin 9 and pin 13.

- Monitoring Arduino Reading Arduino enables users to monitor various kinds of sensors such as IR sensor and motion detectors in real-time. The analog and digital pins on the Arduino board can serve as general purpose input and output pins (GPIO). Usually The ATmega328 microcontroller embedded on the Arduino board contains the analog-to-digital converter (ADC), which converts the analog input signal to a number between 0 and 1023.
- The integer number is always proportional to the amount of the voltage being applied to the analog input. Any sensor operating on 5 volts can be directly connected to the Arduino board. The prototype has been implemented on the board .

The triggering is finally done by Arduino gateway. While monitoring sensors in real-time. The Arduino takes action in real time to control the on/off of the led and controlling the buzzer. The transmitter section where the power supply and the light output is given. The other one is the receiver section where light input is taken it and exit sensor circuit.

### B. Powersupply

The power supply is taken from solar cells where battery is connected so that it store and the energy during night and other time. the solar cells charges and supply the necessary power needed for all the components.



Fig11: Solar cells.

#### IV. Logic

Based on this logic whole project is occurs .

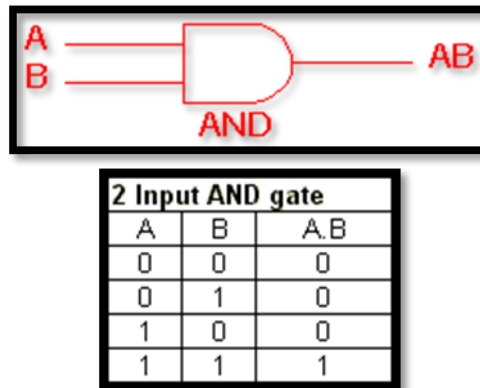


Fig12: logic gate and truth table

The AND gate is an electronic circuit that gives a **high** output (1) only if **all** its inputs are high. A dot (.) is used to show the AND operation i.e. A.B. Bear in mind that this dot is sometimes omitted i.e. AB

Arduino programs are written in C or C++. The Arduino IDE comes with a software library called „Wiring“ from the original wiring project, which makes many input/ output operations much easier. User only needs to define two functions to make a run able cyclic executive program.

#### A. Experimental Result

This has been check in our project where we had result of with 35 m .we had great result and this will l definitely bring great change in our today’s life. In our modern and business world the accident occurs thus our project 50% reduce.

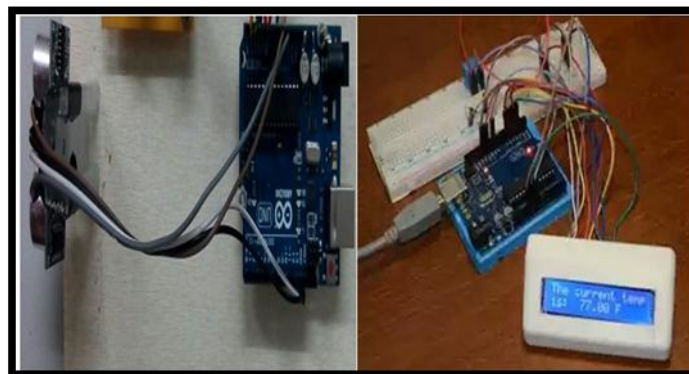
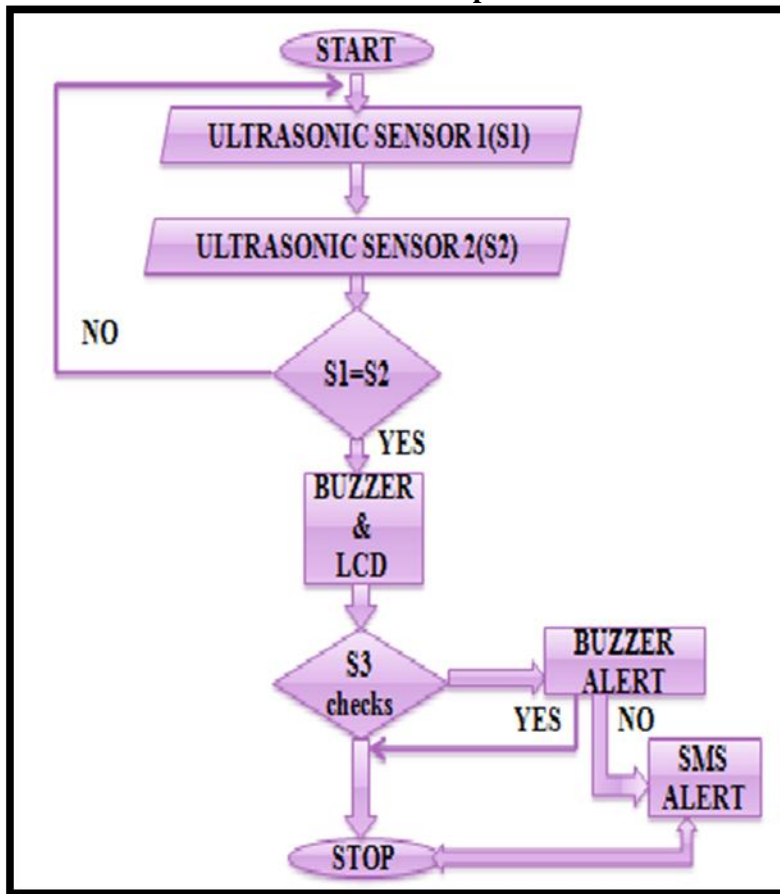


Fig13: project.



V. Flow Graph



- Step1:start the process by detecting the person and vehicle
- Step2:ultrasonic sensor -1 will sense the person departure
- Step3:ultrasonic sensor -2 will sense the vehicle departure
- Step4:if step2 & step3 happens at the same time step 5 will continue, otherwise step 2 will be continued
- Step5: Buzzer alert will be given and stop (picture) will display
- Step6: if the person crosses ultrasonic sensor -3 step 9 will follow, otherwise step 7
- Step7: buzzer alert and go (picture) will display on the display
- Step8:second time checks if the person crosses ultrasonic sensor-3 step10 will follow
- Step9:if the person crossed ultrasonic sensor-3 sms alert is made in it
- Step10:stop the process by detecting the person and vehicle

VI. Cost Incurred:

COMPONENTS	COST
Arduino Uno(2)	1050
Ultrasonic Sensor (3)	250
L.C.D(1)	135
gsm module(2)	1600
Connecting wires	40
Piezo Buzzer	30
Male to male connectors	50
<b>Total</b>	<b>3155</b>

VII. Advantages:

- Solar power is used as power supply.
- At low budget project valuable life is saved life.
- Construction and simple components used.
- Wireless project with automatic happens all.

### **VIII. Conclusion:**

This will save the life's of the people and also counting will reduce those who dies in highway crossing and fear to cross the highway our project deals with protection in turning point of highway who wished to cross and also get down of the pedestrian .ULTIMATE AIM ” **we wished to keep dot at the accidents and make it comma for people lives”.**

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