



# Accident Detection and Rescuing on Hilly Region

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**ABSTRACT:** In developing countries accidents is the major cause of death. If we gaze at the top dangerous roads in the world we can see that all of them are mountain roads and curve roads. In the mountain roads there will be tight curves and roads will be narrow. In these kinds of roads accidents are not prevented and detected. Thus the accidents will be detected and the medical measures can taken immediately. In these type of situations the driver of a vehicle cannot see vehicles coming from opposite side..Thus the accidents will be detected by using IR sensors for counting the vehicles between bends of roads and using ESP8266 microcontroller we can sent information to the rescue team.

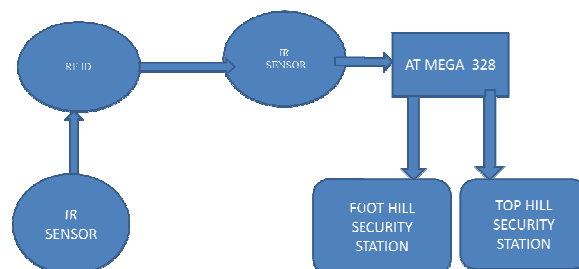
## I. INTRODUCTION

There are many dangerous roads in the world like mountain roads, narrow curve roads, T roads. In these some mountain roads will be very narrow and they contain so many curve. In some of the curve roads, the other end of the curve road cannot be seen by the driver because of the obstacles like trees or rocks etc present in the middle. In these type of roads thousands of people die.The growing popularities of activities like mountain tourism mountain roads has also been getting more and more congested, as a higher population and increased business activities result in greater demand for cars and vehicles for transportation.

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The main aim of this project is a scheme to detect accident, find accident location and provide a smooth flow to reach hospital in time in emergency. In proposed system the unit contain IR sensors in between certain distance of the road.

## BLOCK DIAGRAM



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## II. EXPLANATION

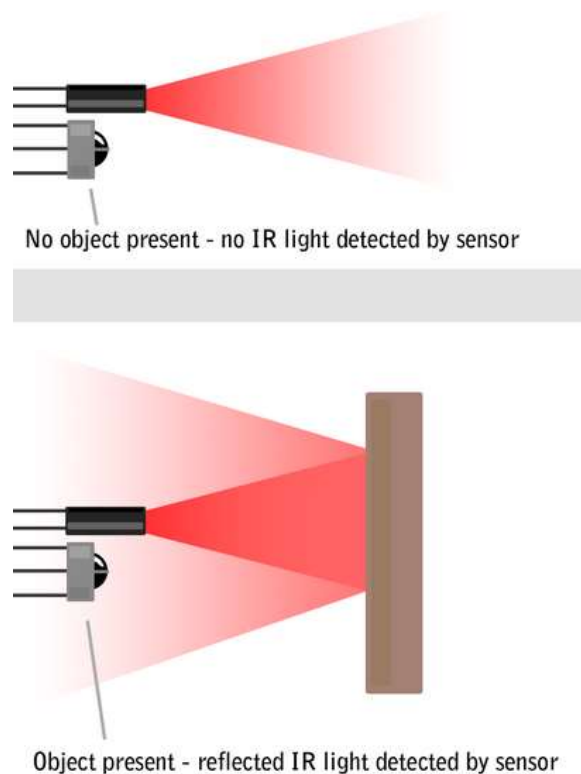
IR sensor has 4 pins. They are +5V VCC, GND, Trig pin and Echo pin. Here Trigger pin is output pin and Echo pin is input pin.

IR sensor sends the signal in the form of pulses from trigger pin. When this signal hit the object it will get reflected back and is received by the echo pin. From echo the signal is sent to microcontroller arduino UNO

ATMEGA 328 is an 8bit microcontroller

1. 32k Flash memory
2. 1k EEPROM
3. 2k SRAM

**IR SENSOR:** Based on a simple basic Idea, this IR obstacle sensor, is easy to build, easy to calibrate and still, it provides a detection range of 1- 3m. This sensor can be used for most indoor applications where no important ambient light is present. It is the same principle in ALL Infra-Red proximity sensors. The basic idea is to send infra red light through IR- LEDs, which is then reflected by any object in front of the sensor. with a ac-to-dc adapter or battery to get

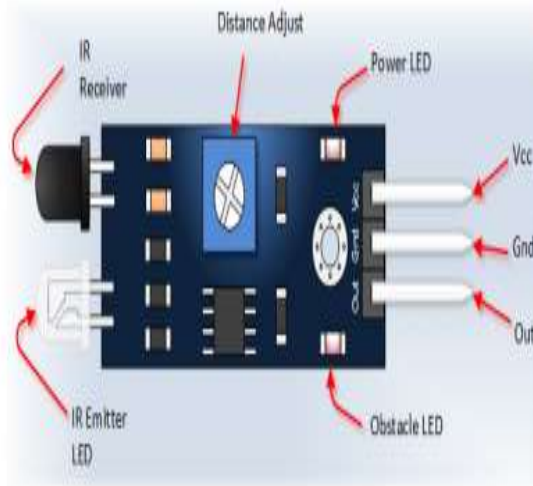


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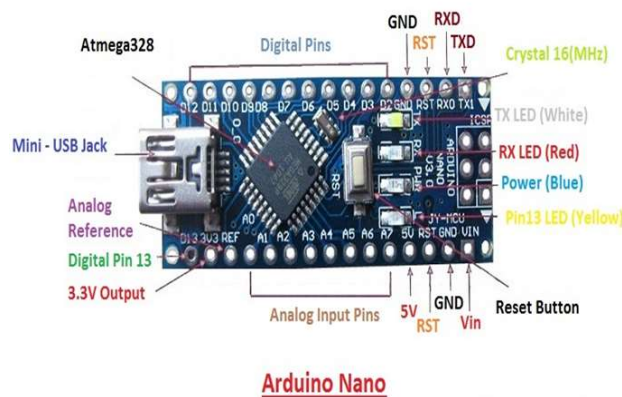
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### III. ARDUINO CONTROLLER

The arduino uno is a microcontroller board based on the atmega328. it has 14 digital input/output pins (of which 6 can be used as pwm outputs), 6 analog inputs, a 16 mhz ceramic resonator, a usb connection, a power jack, an icsp header, and a reset button. it contains everything needed to support the microcontroller; simply connect it to a computer with a usb cable or power it with a ac-to-dc adapter or battery to get started. the uno differs from all preceding boards in that it does not use the usb-to- serial driver chip



Arduino Nano

### IV. RADIOFREQUENCY IDENTIFICATION

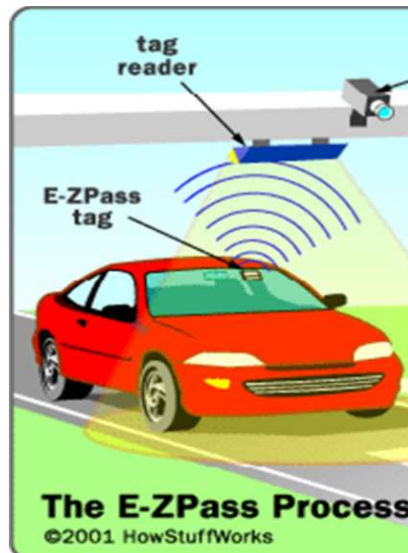
TAG: Uses electromagnetic fields to automatically identify and track tags attached to objects. The tags contain electronically-stored information. Passive tags collect energy from a nearby RFID reader's interrogating radio waves. Active tags have a local power source (such as a battery) and may operate hundreds of meters from the RFID reader. Unlike a barcode, the tag need not be within the line of sight of the reader, so it may be embedded in the tracked object. RFID is one method of automatic identification and data capture.

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## V. WORKING

Coding for micro controller which consists of set of commands arduino UNO to process the data from sensor and to operate the LED. Program for micro controller arduino UNO of sensor based accident prevention. Circuit connection having sensor and microcontroller arduino UNO where the sensor senses the obstacle and the microcontroller arduino UNO processes and operates LED as per the light to the model of curve road. Detection of vehicle by the sensor when vehicle passes through the road.. It is the experimental demonstration for this paper. The signal sent by the sensor hits the vehicle and reflected back to the sensor. Output is obtained i.e. glowing of LED at the instant when the signal is received by the sensor after hitting the vehicle.

## VI. SOFTWARE DESIGN

Micro controller which is programmed by using Arduino 1.0.5 IDE tool which is open source software. Programming can be done by using sensor can be used for most embedded C. Operating system that we used is windows 8. As shown in the flowchart first initialize the trigger (9) and echo (6) pin to input and LED (12) pin to the output . Then send pulse through trigger

### ADVANTAGES:

- 1.) Avoid accidents in curve roads mountains roads and hill roads
- 2.) Saves thousands of lives
- 3.) Easily implementable to the existing roads Fully automated .No person is required to operate
- 4.) Installation cost is very less. Vehicle monitoring systems can be implemented

## VII. FUTURE WORK

- 1.) Avoid accidents in curve roads mountains roads and hill roads
- 2.) No person is required to operate
- 3.) Installation cost is very less
- 4.) Vehicle monitoring systems can be implemented



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## VIII. CONCLUSION

The purpose of this paper is to decrease the number of accidents in curve roads. This is done by alerting the security station by means of LED light .The vehicle is detected by the help of IR sensor which is interfaced to the microcontroller arduino UNO. By this we can save thousands of lives in the curve roads

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