The Road Rescuers
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Project Keywords

eyic2019-20,SDG,Arduino,PIR sensor,X BEE module

Project Introduction

One day when I was watching news in the TV with my friend, we observed an accident happened at a sharp U-turn. In that accident, a car hit the truck coming in the opposite lane. Four people of the same family were left dead after that incident. Me and my friend felt so bad and decided to implement a plan to reduce these accidents. Then we decided to develop the project named THE ROAD RESCUERS, which is our project now. In INDIA, per day a total of 400 lives were taken in the form of road accidents which means 1,50,000 lives per annum. These accidents are majorly happening at U-turn, sharp turnings, edges with slope. So it is our responsibility as a student to develop the projects which are useful for the safety of people. In our project we use different technical equipment and help the drivers to know the vehicles coming in the opposite lane. By this we can reduce and control the road accidents.

Project Literature Survey

At present, a CONVEX mirror is being used to help the people at sharp turns.These mirrors reflect light outwards which helps not to focus the light and create better visibility of opposite lane vehicles. But many people don't pay attention to these mirrors and take other people lives. To make people travel in safer path we need to grab their attention with proper indication, like we need to provide a sound buzzer or traffic light (red, green signals) whenever an opposite lane vehicle is approaching. So, then one side lane will be stopped till the opposite lane is cleared which will reduce the accidents.

Hardware Requirements

1. Arduino
2. PIR sensor
3. HC 12 module
4. Traffic signal

Software Requirements

1. Arduino IDE

Implementation

PIR Sensor: Passive InfraRed sensor is a passive sensor which will not emit any signal but only receive the radiation signal from the object. In our project we used this PIR sensor form detecting the moving vehicle.Whenever the sensor detects a moving vehicle it generates a signal which is given to Arduino 1.

Arduino 1: An Arduino is a single board device consisting of microcontroller ATMEGA and its input output peripherals. The program is dumped into the Arduino using Ardunio IDE software. This program is stored and whenever input of 5V is given, the program starts running.
In our project, when the signal is receiver from PIR sensor the Arduino processes it and gives an output signal to the X BEE communication module.

X BEE(1): It is a multi-channel wireless transceiver used as transmit and receive the serial information. The output signal given from Arduino 1 is communicated between two X BEE modules.

X BEE(2): The communicated signal received by X BEE (2) is given the Arduino 2.

Arduino 2: The process taking place in Arduino 2 is different from Arduino 1. In Arduino 1, the sensor input signal is processed and output is given to X BEE (1). But in Arduino 2 is vice versa i.e,The signal from X BEE (2) is processed in Arduino 2 and output signal is given to traffic light.

Traffic signal: Traffic signal: When output signal from Arduino 2 is given to traffic signal, the light switches from low to high.

Future Scope

We can also modify this project based on the requirement and use IMAGE PROCESSING through camera instead of PIR sensor. As we know, now a days RASPBERRY PI is most used and developing platform so instead of ARDUINO we can replace it. And we can send automated message, mail alerts to a phone when an accident happens. By doing this we can reach the spot of incident as quick as possible and rescue the people.

Feasibility

The Road Rescuers project shows the output through a sound buzzer or traffic light (red, green signals) which has the advantage of grabbing attention of the drivers which is not possible in general CONVEX mirror method. And it also lets the driver to know that a vehicle is approaching towards him in opposite direction.

References

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