

Arduino Uno Based Accident Avoiding System IN Mountainous Area ACROSS U-Turn

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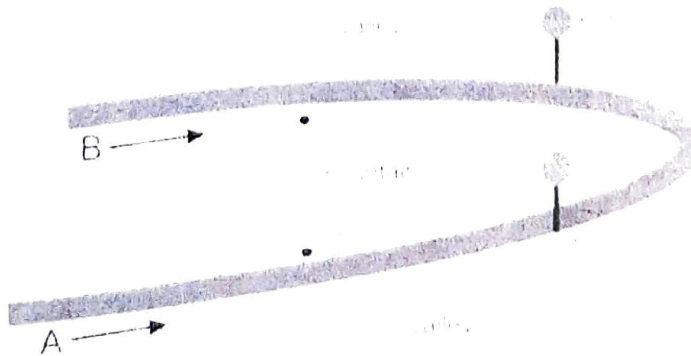
Abstract:

Where there is a U-turn either on a ground level road or in mountainous area, the place becomes prone to accidents, particularly if the speed of vehicles is more, banking of the road is more or non-signalling of horn and light while taking the U-turn on such places.

However, the road accidents on such places can be avoided using "Accident Avoiding System in Mountainous Area Across U-Turn". The suggested system use the typical use of Arduino UNO dev. board along with two ultrasonic sensors, sensor interfacing circuits, lamp driver circuits and two red lamp posts on opposite sides of the U-turn area on such places.

Introduction:

The setup of this system can be understood with the help of following diagram. Here consider one U-turn in a mountainous area. The traffic may be from both sides of the road and there is no disciplined system of traffic like one-way traffic.



Suppose one vehicle (A) is approaching from bottom road towards the U-turn and another vehicle (B) is approaching from top road towards the U-turn simultaneously.

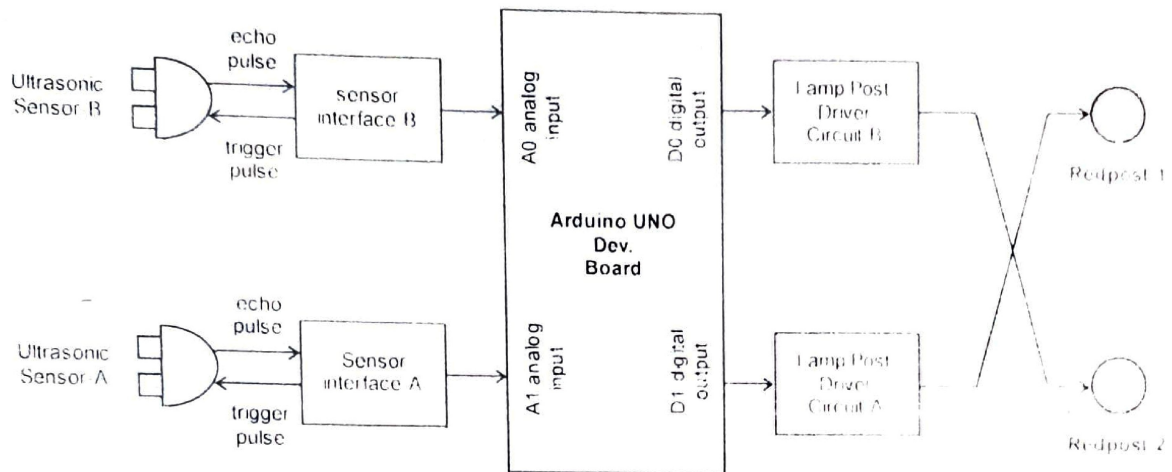
There are two RFID lamp posts fixed at the starting points of U-turn, as shown above. Redpost-1 is controlled by sensor-A and the Redpost-2 is controlled by sensor-B.

Whenever the vehicles will pass in-front of the sensors, the sensor system will switch ON the respective Redpost-1 or Redpost-2.

For example, suppose vehicle-A is detected by sensor-A, then it will switch on the Redpost-1, i.e. the lamppost on opposite side of U-turn. This will give a visual alarm to vehicle-B coming from other side of the mountain.

In the same way, vehicle-B will be detected by sensor-B and it will switch on the Redpost-2 i.e. the lamppost on opposite side of the U-turn. This will give a visual alarm to the vehicle-A coming from other side of the mountain.

Block Diagram



Block diagram of Arduino UNO Based Accident Avoiding System in Mountainous Area across U-Turn

Brief Working of the System

The working of the system can be understood by considering two possible conditions:

- 1) Only vehicle-A is approaching: In this case, the US sensor-A will detect the presence of the vehicle. It will send an echo pulse to the sensor interface circuit A. Then the detected signal will be processed inside the Arduino UNO dev. board as per the stored code of the system and will trigger the Lamp Post Driver Circuit-A. This will switch on the Redpost 1 to give a visual alarm on the other side of the mountain.
- 2) Only vehicle-B is approaching: In this case, the US sensor B will detect the presence of the vehicle. It will send an echo pulse to the sensor interface circuit B. Then the detected signal will be processed inside the Arduino as per the stored code of the system and it will trigger the Lamp Post Driver Circuit-B. So the Redpost-1 will be switched on to give a visual alarm on the other side of the mountain.

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