

[DESIGN AN Obstacle Detector]

[Experiment 6]

ABSTRACT

Design and development of obstacle detection and warning device which is used for above abdomen level of human in order to support and guide the visually impaired person.

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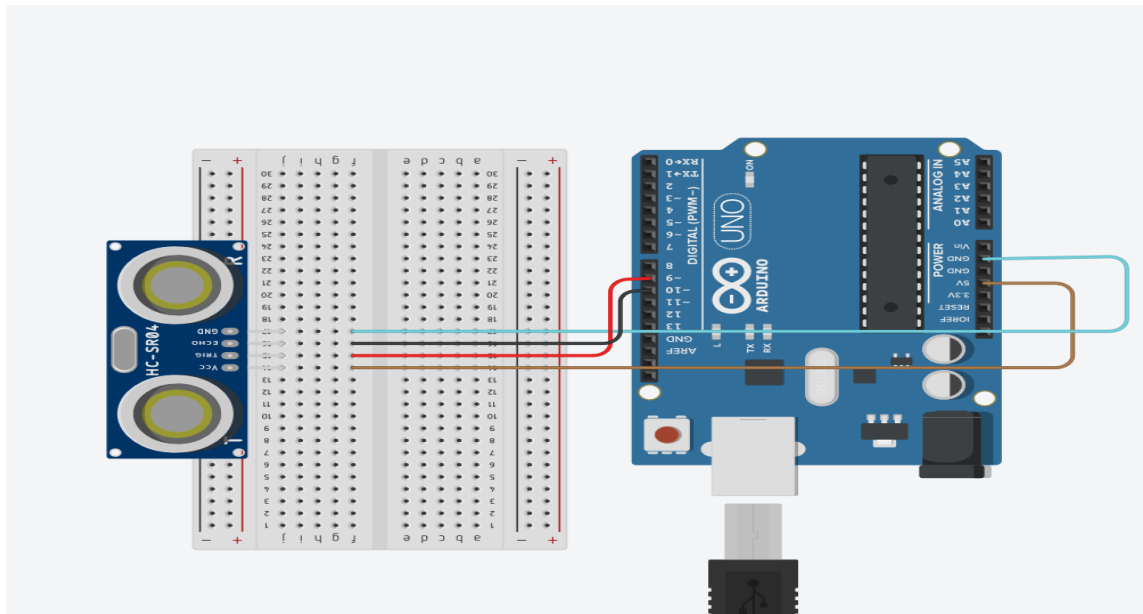
ROLL NO: 19BCG1011

Stream: CSE(G&G) GROUP: A

University: CHANDIGARH UNIVERSITY

Experiment: - 6 (Obstacle Detector)

Circuit Diagram:



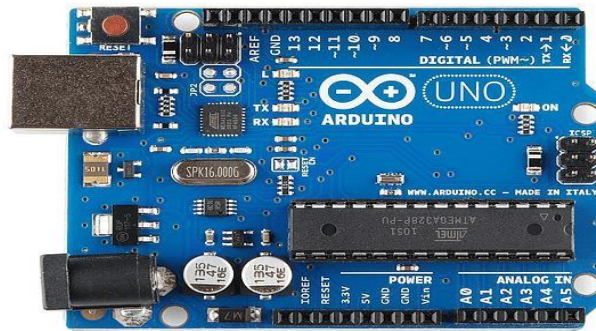
Theory:

CONCEPT USED:

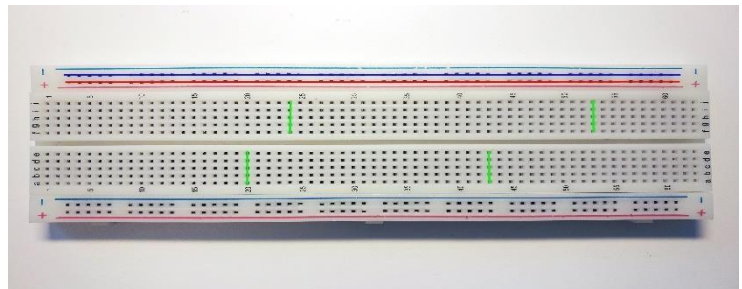
- I. An Ultrasonic sensor is a device that can measure the distance to an object by using sound waves.
- II. It measures distance by sending out a sound wave at a specific frequency and listening for that sound wave to bounce back. By recording the elapsed time between the sound wave being generated and the sound wave bouncing back.
- III. It is possible to calculate the distance between the sonar sensor and the object.

Hardware Required

I. Arduino



II. Breadboard



III. Ultrasonic Sensor



LEARNING & OBSERVATION:

- I. I learned how An Ultrasonic Sensor works and its connections with Arduino using breadboard.
- II. I learned about how Ultrasonic Sensor real life Applications.
- III. When the wave hits obstacle it reverts back and the distance between obstacle and the sensor is calculated.

PROBLEMS & TROUBLESHOOTING:

- I. There was problem while uploading code to Arduino, as the port selected was incorrect hence, to solve it I change the PORT.

- II. The sensor was not detecting the object as there was error in code. So, code was debugged.
- III. To select the right port and type of Arduino.

PRECAUTIONS:

The problems faced by me while doing this task are:

- I. Arduino Board should be kept at dry place.
- II. Correct Board/Port is to be selected.
- III. All connections should be tight.
- IV. No objects should be placed in front of sensor.
- V. The Trigger pin should be connected with pin as Output mode.
- VI. The Echo pin should be connected with pin as Input Mode.

LEARNING OUTCOMES:

- I. How the waves are sent and received by sensor when object is detected.
- II. Whenever person passes by The waves are bounced back and the whole time taken is T whereas to reach the object it is $t/2$.
- III. Learnt how to make connections between sensor and Arduino using breadboard.

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