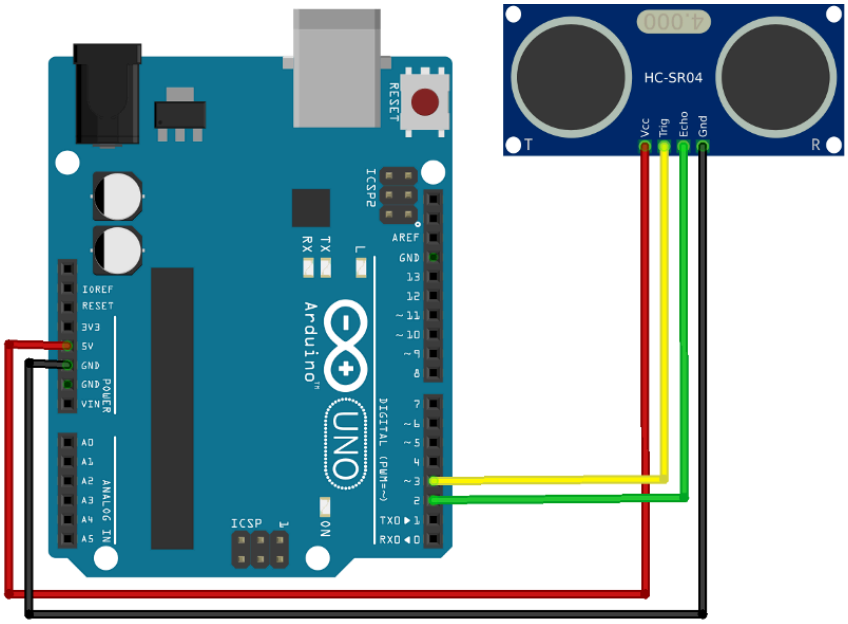
PIS In-class Activity 2
Assignment 5
Total Marks:10

In this experiment, we will learn to program simple applications, using an Ultrasonic sensor attached to the Arduino board.

Overall Components Needed for all three tasks: Arduino UNO and USB cable, Breadboard, HC-SR04 ultrasonic sensor, two LED, connecting jumper wires.

Task 1: Connect the Echo pin with arduino digital pin (say, e.g., 12,) Trigger pin to another digital pin (say e.g., pin 13), Vcc to 5v, and Gnd to gnd.

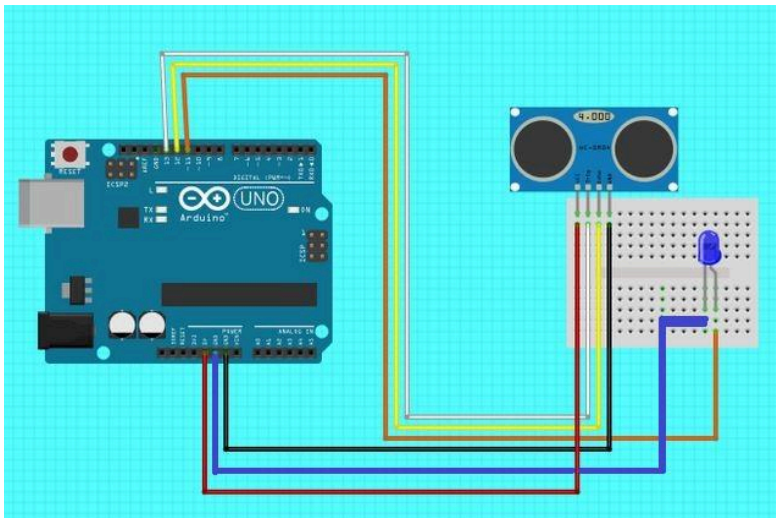
Write down code for HC-SR04 and test the obstacle distance at 1 inch and read the values on the serial monitor to validate.
Point the set up towards the ceiling and see what happens (Note down the reading from Serial Monitor). **3 Marks**



Reference circuit. You can select the digital pin differently, excluding the pin related to power and gnd connection.

Task 2: Now hook up a LED and modify your circuit and code.This code should work to get a warning across the LED (LED will glow) when something is closer than 35 cm to the sensor.

3 marks



Reference circuit. You can select the digital pin differently, excluding the pin related to power and gnd connection.

TASK 3: Use ultrasonic as input and add two LEDs as outputs. If something is closer than the value A (say, e.g. 40 cm), the LED_1 should glow and LED_2 **should not glow**.
And if something is closer to the sensor than the value B (say, e.g., 15 cm), **both** LED_1 and LED_2 should glow.
(For this task circuit will almost be the same as above. The only difference will be that you just need to connect one more LED to a different pin of Arduino in the same manner as the previous LED was connected).

4 marks