Assignment -4

Assignment Date	19 September 2022
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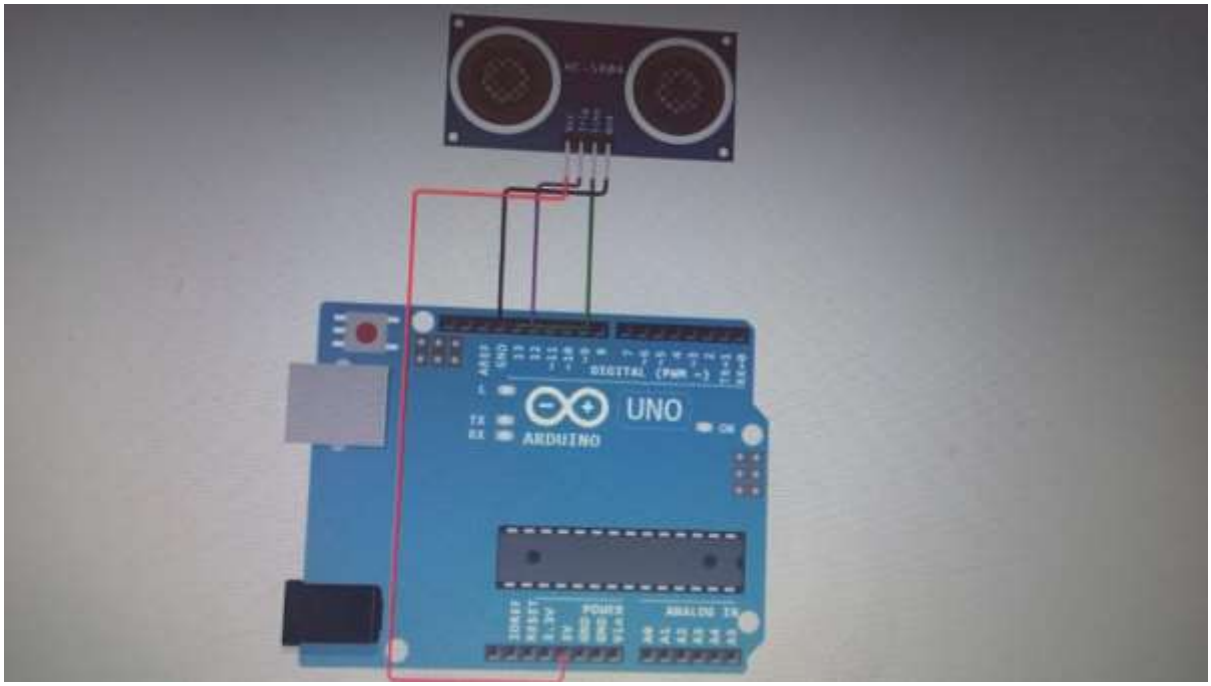
Student Roll Number	911919104301
Maximum Marks	2 Marks

Reference link:

https://wokwi.com/projects/312346565007114818

```
#include "Ultrasonic.h"

Ultrasonic::Ultrasonic(uint8_t trigPin, uint8_t echoPin, unsigned long timeOut) {
  trig = trigPin;
  echo = echoPin;
  threePins = trig == echo ? true : false;
  pinMode(trig, OUTPUT);
  pinMode(echo, INPUT);
  timeout = timeOut;
}

unsigned int Ultrasonic::timing() {
  if (threePins)
    pinMode(trig, OUTPUT);

  digitalWrite(trig, LOW);
  delayMicroseconds(2);
  digitalWrite(trig, HIGH);
  delayMicroseconds(10);
  digitalWrite(trig, LOW);

  if (threePins)
    pinMode(trig, INPUT);

  previousMicros = micros();
  while(!digitalRead(echo) && (micros() - previousMicros) <= timeout); // wait for the echo pin HIGH
or timeout
  previousMicros = micros();
  while(digitalRead(echo)  && (micros() - previousMicros) <= timeout); // wait for the echo pin LOW or
timeout

  return micros() - previousMicros; // duration
}

/*
 * If the unit of measure is not passed as a parameter,
```

```
 * sby default, it will return the distance in centimeters.
 * To change the default, replace CM by INC.
 */
unsigned int Ultrasonic::read(uint8_t und) {
  return timing() / und / 2;  //distance by divisor
}

/*
 * This method is too verbal, so, it's deprecated.
 * Use read() instead.
 */
unsigned int Ultrasonic::distanceRead(uint8_t und) {
  return read(und);
}
class Ultrasonic {
  public:
    Ultrasonic(uint8_t sigPin) : Ultrasonic(sigPin, sigPin) {};
    Ultrasonic(uint8_t trigPin, uint8_t echoPin, unsigned long timeOut = 20000UL);
    unsigned int read(uint8_t und = CM);
    unsigned int distanceRead(uint8_t und = CM) __attribute__ ((deprecated ("This method is deprecated, use read() instead.")));
    void setTimeout(unsigned long timeOut) {timeout = timeOut;}
    void setMaxDistance(unsigned long dist) {timeout = dist*CM*2;}

  private:
    uint8_t trig;
    uint8_t echo;
    boolean threePins = false;
    unsigned long previousMicros;
    unsigned long timeout;
    unsigned int timing();
};
```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