Assignment -4

Assignment Date	19 September 2022
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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();
};
```