ASSIGNMENT -4 SMART SOLUTIONS FOR RAILWAYS

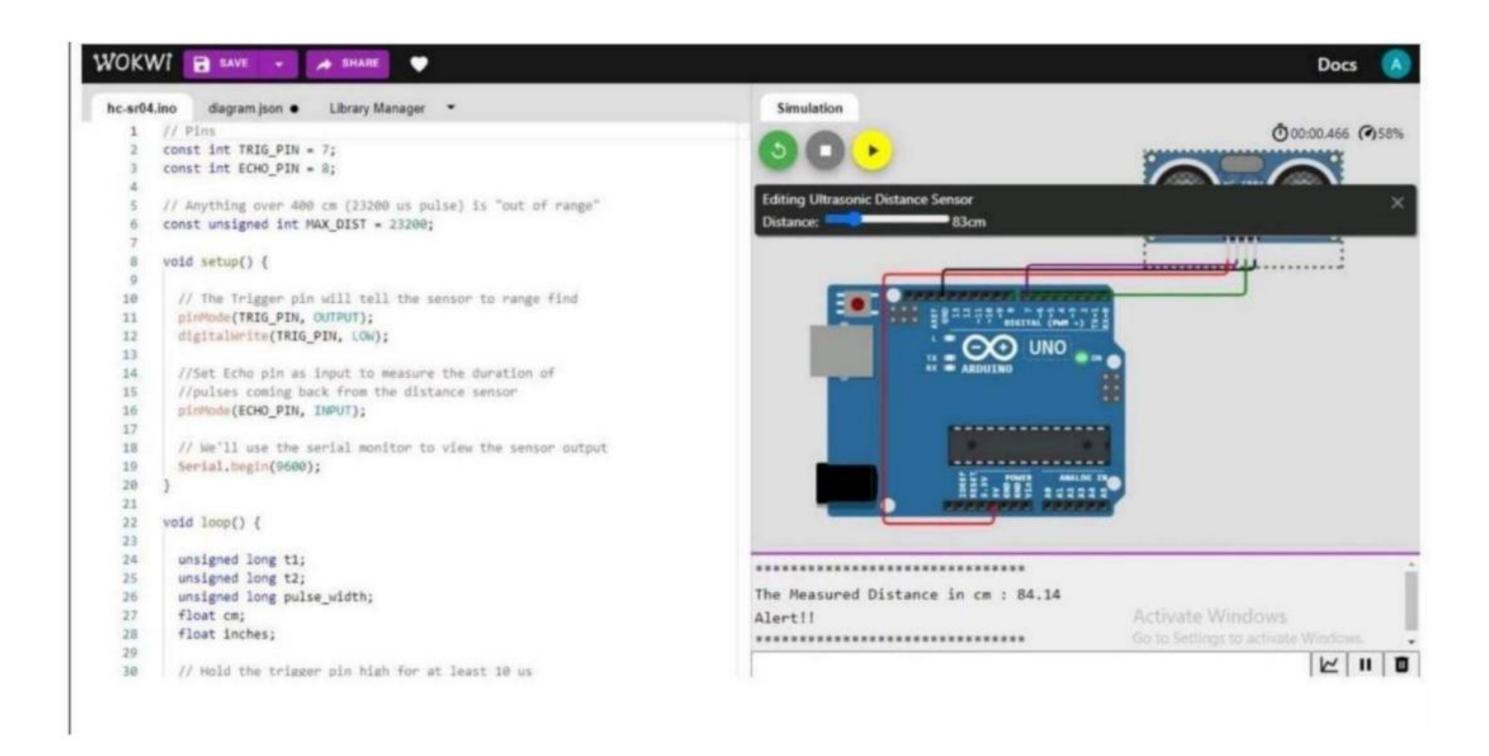
ASSIGNMENT DATE	04 November 2022
PROJECT NAME	SMART SOLUTIONS FOR RAILWAYS
TEAM ID	PNT2022TMID37659
MAXIMUM MARKS	2 Marks

1. Write Code and connections in wokwi for ultrasonic sensor. whatever distance is less than 100 cms send "Alert" to ibm cloud aand display in device recent events.

```
const int TRIG_PIN = 7; const int ECHO_PIN = 8;
void setup() {
digital Write(TRIG_PIN, LOW);
void loop() { unsigned long t1;
unsigned long t2;
unsigned long pulse_width; float cm;
float inches;
while (digitalRead( ECHO_PIN )==0 );
while (digitalRead(ECHO_PIN) == 1); t2= micros ();
pulse_width = t2-t1;
inches = pulse_width/148.0;
if (pulse_width >MAX _ DIST ){ Serial.println("Out of range");
else {
Serial.println("********************************);
Serial.print("The Measured Distance in cm: ");
Serial.println(cm);
if( cm < 100 ){
//while(true){
Serial.println("Alert!!");
//}
Serial.print("**********************************);
```

Output:

1. If the distance is less than 100 cms, it alerts.



2. If the distance is more than 100 cms, it won't alert

```
WOKWI - SAVE -
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 hc-sr04.ino
             diagram ison • Library Manager *
                                                                                   Simulation
                                                                                                                                               Ō00:00.599 (?)62%
    1 // Pins
    2 const int TRIG_PIN = 7;
        const int ECHO_PIN = 8;
        // Anything over 400 cm (23200 us pulse) is "out of range"
        const unsigned int MAX_DIST = 23200;
        void setup() {
          // The Trigger pin will tell the sensor to range find
   10
   11
          pinHode(TRIG_PIN, OUTPUT);
   12
          digitalWrite(TRIG_PIN, LOW);
   13
   14
          //Set Echo pin as input to measure the duration of
   15
          //pulses coming back from the distance sensor
   16
          pinMode(ECHO_PIN, IMPUT);
   17
   18
          // We'll use the serial monitor to view the sensor output
   19
          Serial.begin(9600);
   20
   21
   22
        void loop() {
   23
   24
          unsigned long t1;
                                                                                **************************
   25
          unsigned long t2;
                                                                                The Measured Distance in cm : 227.10
          unsigned long pulse_width;
                                                                                ************************
   27
                                                                                                                              Activate Windows
          float cm;
   28
          float inches;
                                                                                                                              Go to Settings to activate Windows.
```

3. Simulation and code execution

