

SMART SOLUTION FOR RAILWAYS

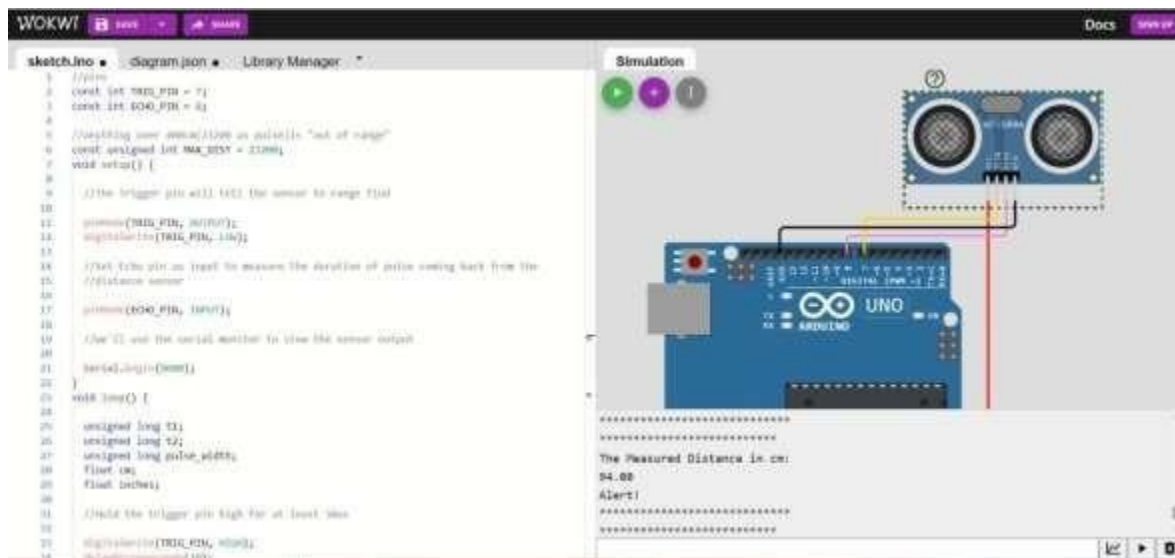
ASSIGNMENT-4

Date	31 October 2022
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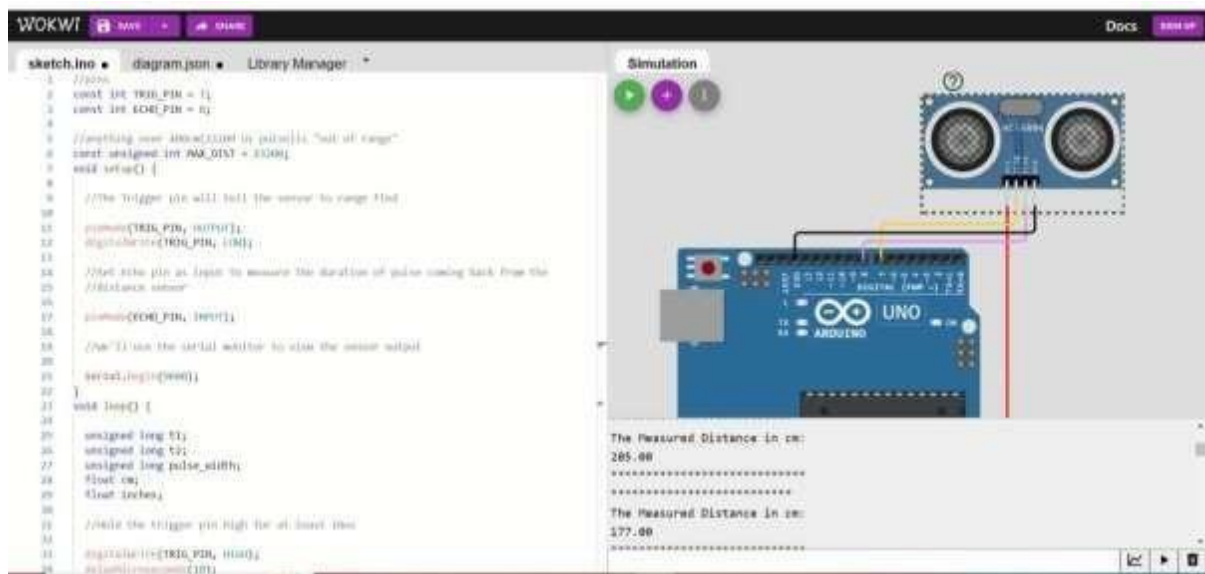
QUESTION:

Write Code and connections in wokwi for ultrasonic sensor. Whatever distance is less than 100 cm send "Alert" to IBM cloud and display in device recent events.

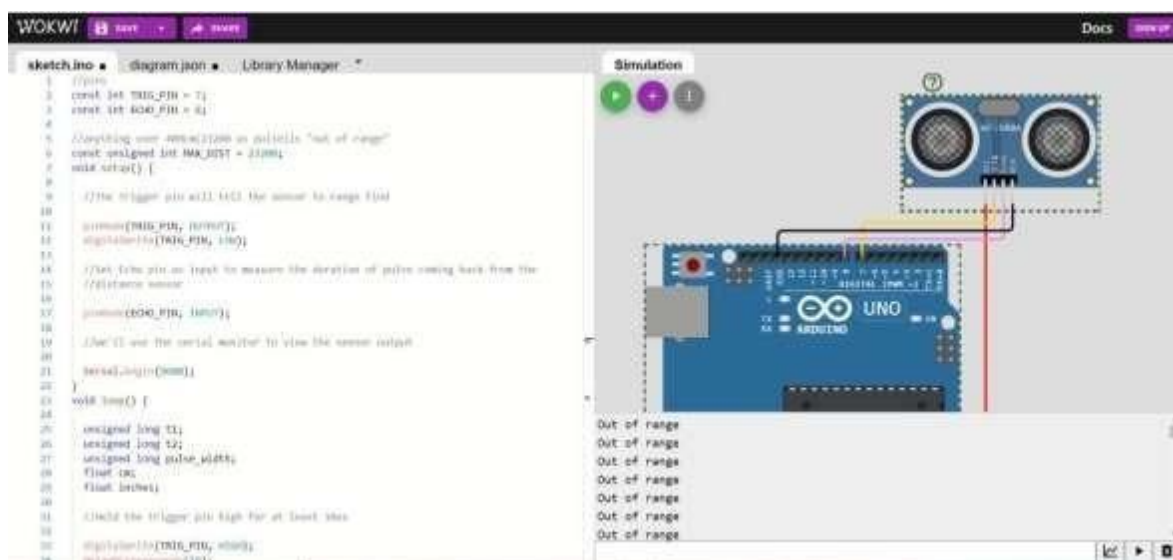
CASE 1: Distance less than 100cm 🕒 It Alerts



CASE 2: Distance more than 100cm 🕒 It won't Alert



CASE 3: Beyond limits ☹ Out of Range



CODING:

```

const int TRIG_PIN = 7; const
int ECHO_PIN = 8;
const unsigned int MAX_DIST = 3300;
void setup() {
  pinMode(TRIG_PIN,      OUTPUT);
    digitalWrite(TRIG_PIN, LOW);
  pinMode(ECHO_PIN, INPUT);

  Serial.begin(9600);
  
```

```

} void loop()
{

    unsigned long t1; unsigned long
    t2; unsigned long pulse_width;
    float cm; float inches;
    digitalWrite(TRIG_PIN, HIGH);
    delayMicroseconds(10);
    digitalWrite(TRIG_PIN, LOW); while
    (digitalRead(ECHO_PIN) == 0)
t1      =      micros();      while
    (digitalRead(ECHO_PIN) == 1); t2 =
    micros(); pulse_width = t2 - t1; cm
    = pulse_width / 58; inches =
    pulse_width / 148.0; if
    (pulse_width > MAX_DIST) {

        Serial.println("Out of range");
    } else
    {
        Serial.println("*****");
        Serial.println("The Measured Distance in cm:");
        Serial.println(cm);
    if (cm < 100)
        {
            //while (true)
            {
                Serial.println("Alert!");
            }
            Serial.println("*****");
        }

        //wait at least 1000ms before next measurement
    delay(100);
    }
}

```

CIRCUIT:

Simulation

