ASSIGNMENT-4

Wokwi Program

Assignment Date	19 October 2022
Student Name	Vanathi.M
Student Roll Number	812019106040
Maximum Marks	2 Marks

Question-1

Write code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100 cms send an "alert" to the IBM cloud and display in the device recent events.

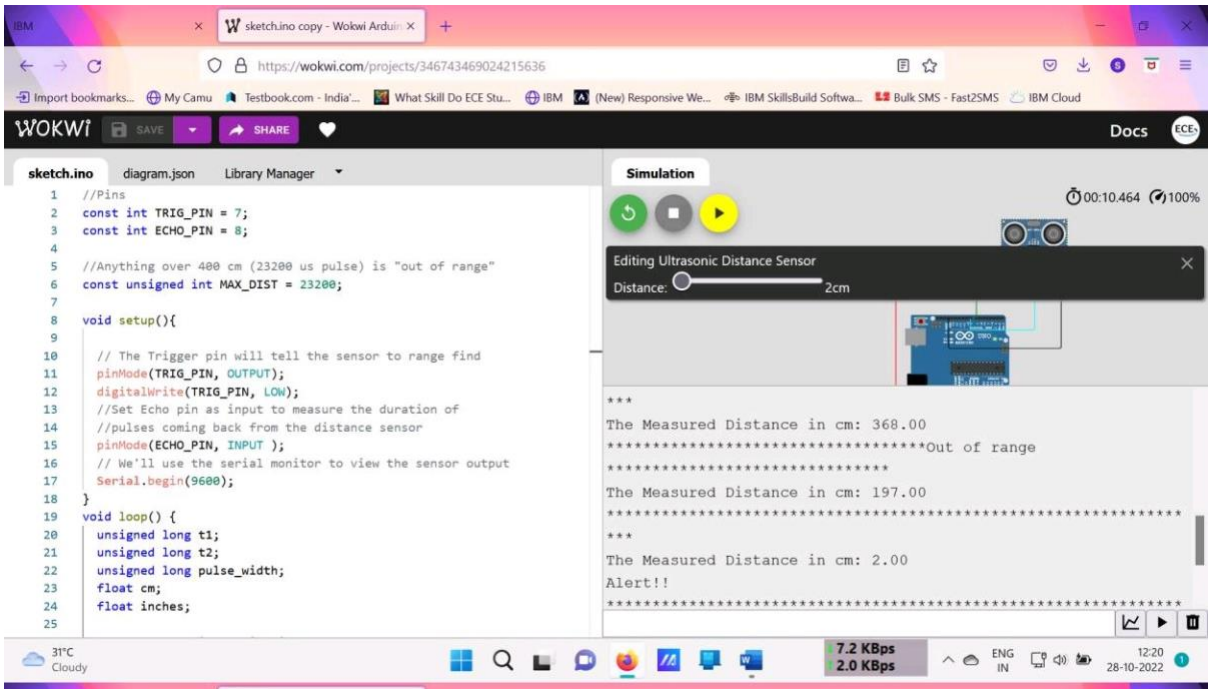
Program

```
//Pins
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 pinMode(TRIG_PIN, OUTPUT);
  digitalWrite(TRIG_PIN, LOW);
  //Set Echo pin as input to measure the duration of
  //pulses coming back from the distance
  sensor pinMode(ECHO_PIN, INPUT );
  // We'll use the serial monitor to view the sensor output
  Serial.begin(9600);
} void loop() { unsigned
long t1; unsigned long
t2; unsigned long
pulse_width; float cm;
float inches;

  // Hold the trigger pin high for at least
  10 us digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW); // Wait for
  pulse on echo pin while (digitalRead(
  ECHO_PIN )==0 );

  // Measure how long the echo pin was held high (pulse width)
  // Note: the micros() counter will overflow after-
  70 min t1= micros ();
```

```
  while (digitalRead(ECHO_PIN) ==
  1); t2= micros ();
  pulse_width = t2-t1;
  // Calculate distance in centimeters and inches. The constants
  //are found in the datasheet, and calculated from the assumed speed
  // of sound in air at sea level
  (340m/s) cm=pulse_width/ 58 ;
  inches = pulse_width/148.0; //
  Print out results 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("***********************************");
    }
//wait at least 1000ms before next
measurement delay(1000);
}
```

Output

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


sketch.ino copy - Wokwi Arduin
https://wokwi.com/projects/346743469024215636
WOKWI
SAVE
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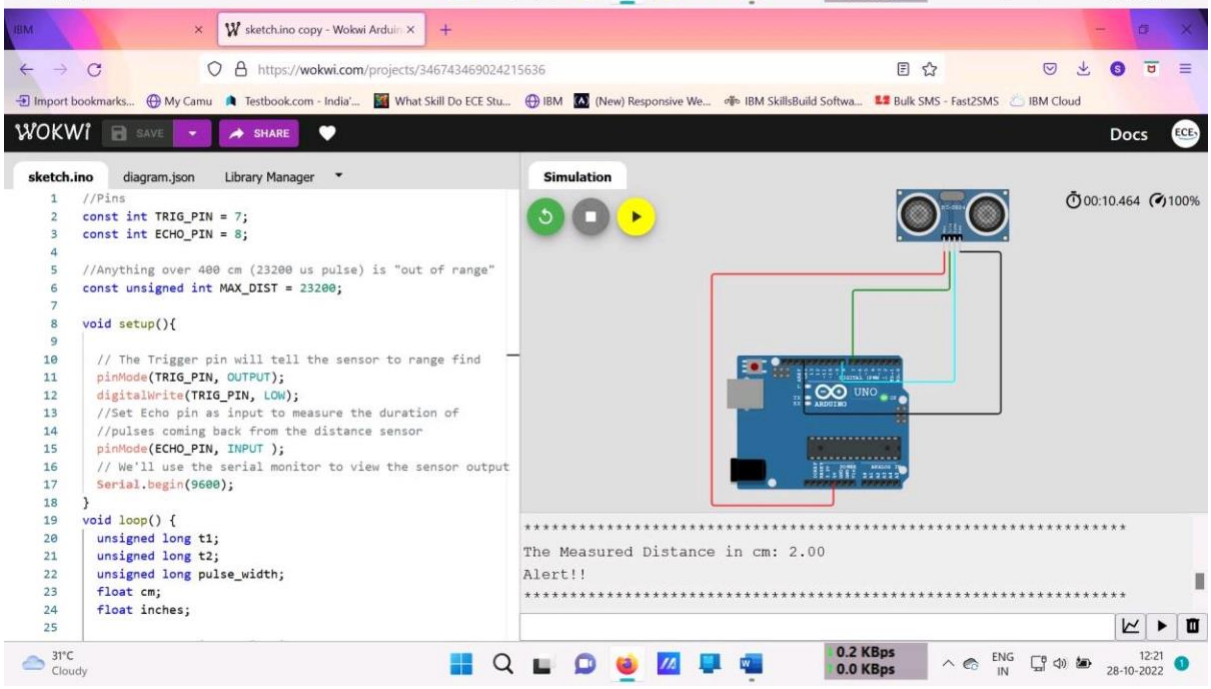
sketch.ino
diagram.json
Library Manager
Simulation
00:10.464
100%
Editing Ultrasonic Distance Sensor
Distance:
2cm
//Pins
const int TRIG_PIN = 7;
const int ECHO_PIN = 8;
//Anything over 400 cm (23200 us pulse) is "out of range"
const unsigned int MAX_DIST = 23200;
void setup(){
// The Trigger pin will tell the sensor to range find
pinMode(TRIG_PIN, OUTPUT);
digitalWrite(TRIG_PIN, LOW);
//Set Echo pin as input to measure the duration of
//pulses coming back from the distance sensor
pinMode(ECHO_PIN, INPUT);
// We'll use the serial monitor to view the sensor output
Serial.begin(9600);
}
void loop() {
unsigned long t1;
unsigned long t2;
unsigned long pulse_width;
float cm;
float inches;
***
The Measured Distance in cm: 368.00
**********Out of range
****
The Measured Distance in cm: 197.00
***
The Measured Distance in cm: 2.00
Alert!!
31°C
Cloudy
7.2 KBps
2.0 KBps
ENG
IN
12:20
28-10-2022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WOKWI
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00:10.464
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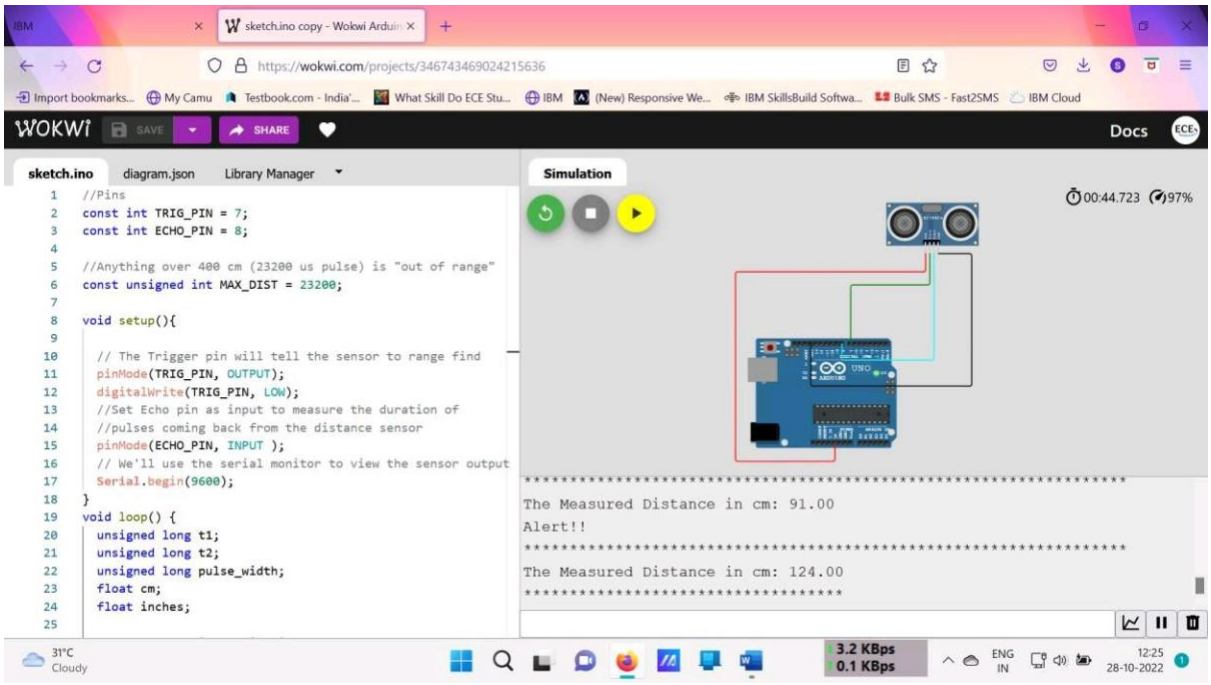
void setup(){
// The Trigger pin will tell the sensor to range find
pinMode(TRIG_PIN, OUTPUT);
digitalWrite(TRIG_PIN, LOW);
//Set Echo pin as input to measure the duration of
//pulses coming back from the distance sensor
pinMode(ECHO_PIN, INPUT);
// We'll use the serial monitor to view the sensor output
Serial.begin(9600);
}
void loop() {
unsigned long t1;
unsigned long t2;
unsigned long pulse_width;
float cm;
float inches;
The Measured Distance in cm: 2.00
Alert!!
31°C
Cloudy
0.2 KBps
0.0 KBps
ENG
IN
12:21
28-10-2022



Link:
https://wokwi.com/projects/346743469024215636