Assignment - 4

Assignment Date	21 October 2022
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Student Roll Number	813819205050
Maximum Marks	2 Marks

Question :

To write a code and connection in wokwi for ultrasonic sensor. Whenever distance is less than 100cms send alert to IBM cloud to display in device recent events

Program Code :

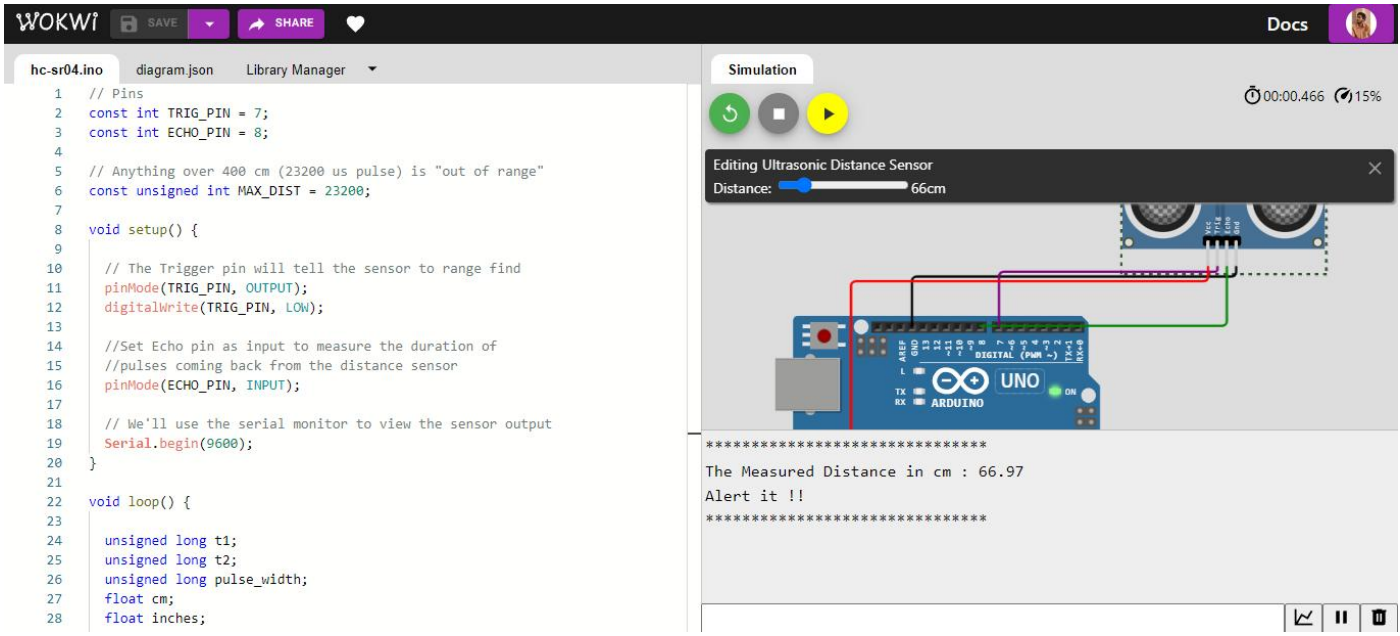
```
// Pins
const int TRIG_PIN = 7;
const int ECHO_PIN = 8;
// Anything over 400 cm (23200 us pulse) is "out of range"
const unsigned int MAX_DIST = 23200;
void setup() {
  // The Trigger pin will tell the sensor to range find
  pinMode(TRIG_PIN, OUTPUT);
  digitalWrite(TRIG_PIN, LOW);
  //Set Echo pin 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 (~340 m/s).
cm = pulse_width / 58.0;
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 it !!");
    // }
  }
  else{
    Serial.println("Don't Alert it !!");
  }
  Serial.print("******************************");
```

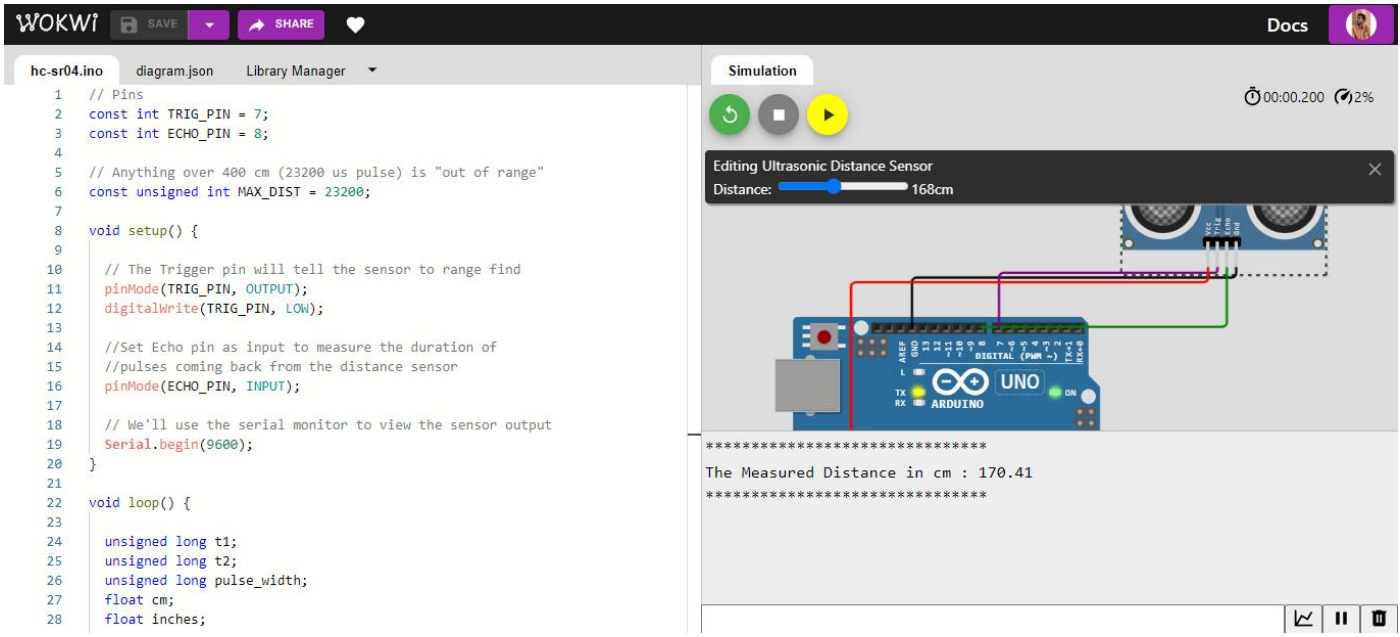
```
  }
  // Wait at least 1000ms before next measurement
  delay(1000);
}
```

Output :

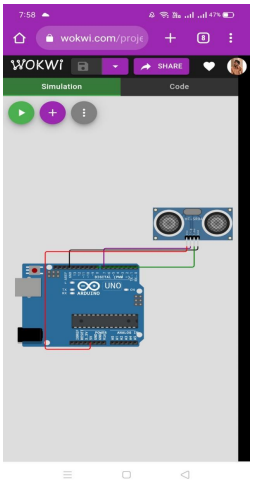
I) If the Measured Distance is Less than 100, then it alert

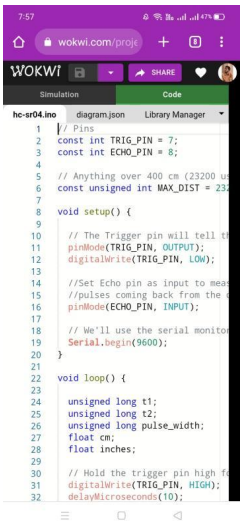


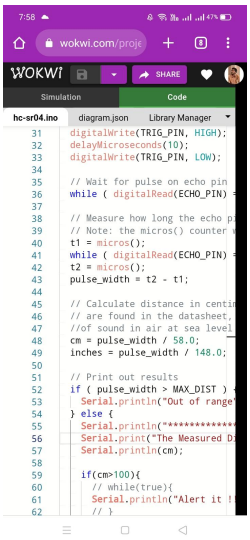
II) If the Measured Distance is not Less than 100, then it won't alert

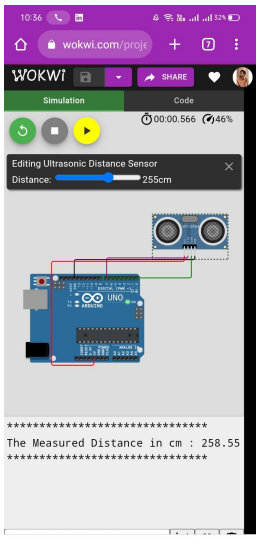


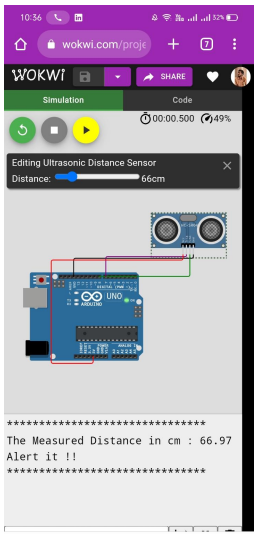
III) Simulation and Code Execution











Project Link :

https://wokwi.com/projects/346136429340918356