Assignment-4

Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100cms send “alert” to ibm cloud and display in device recent events ?

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Maximum Marks	2 marks

Program Code:

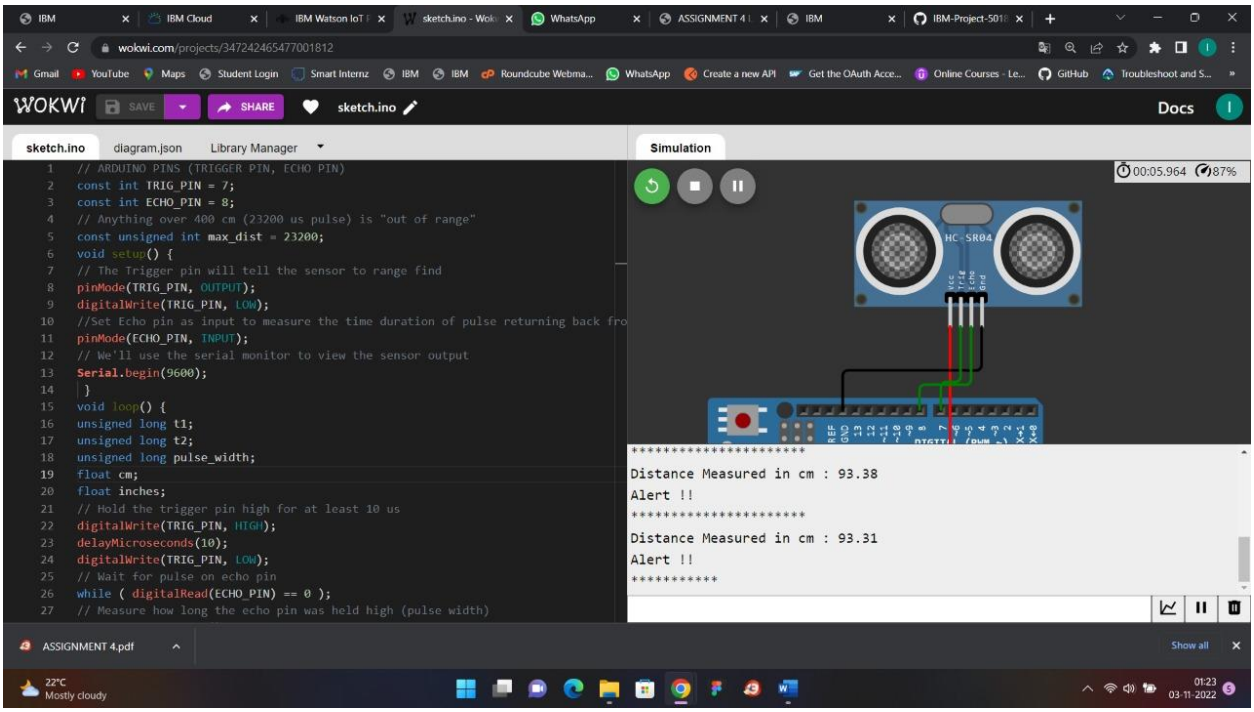
```
// ARDUINO PINS (TRIGGER PIN, ECHO PIN)

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 time duration of pulse returning back from the distance sensor

pinMode(ECHO_PIN, INPUT);
```

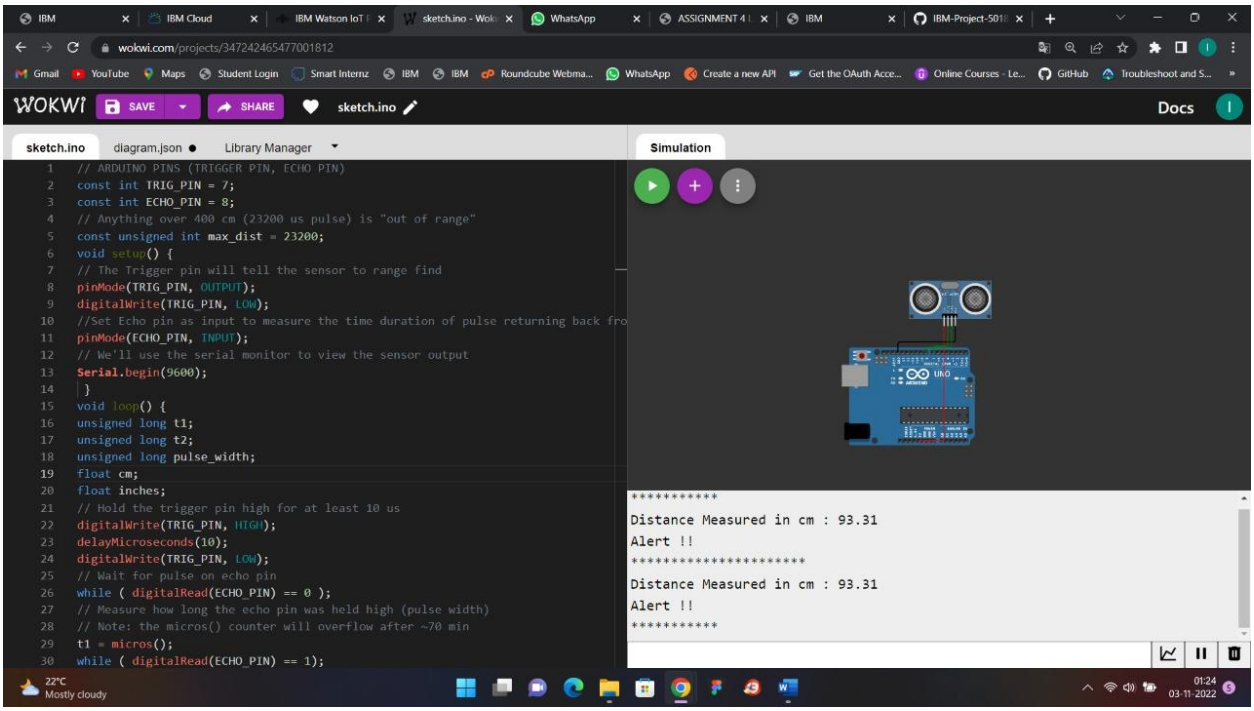
```
// We'll use the serial monitor to view the sensor output
Serial.begin(9600);
}
void loop() {
unsigned long t1;
unsigned long t2;
unsigned long pulse_width;
float cm;
float inches;
// Hold the trigger pin high for at least 10 us
digitalWrite(TRIG_PIN, HIGH);
delayMicroseconds(10);
digitalWrite(TRIG_PIN, 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("Distance Measured in cm : ");
Serial.println(cm);
if(cm<100){
// while(true){
Serial.println("Alert !!");
// }
}
Serial.print("**********");
}
// Wait at least 1000ms before next measurement
```

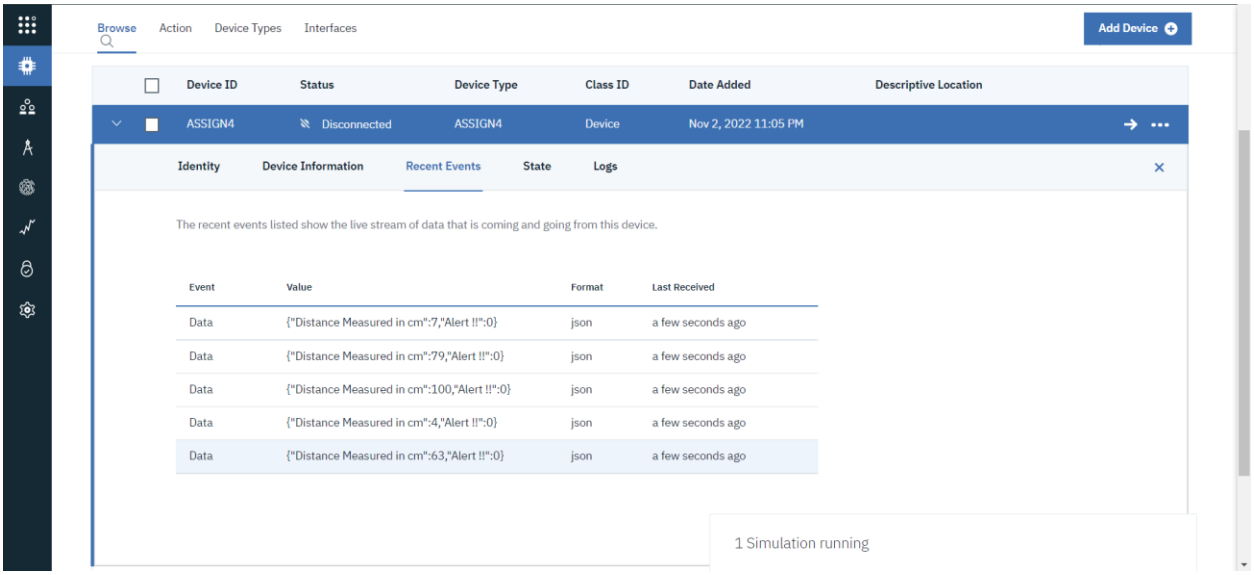
```
delay(1000);
}
```

Output:

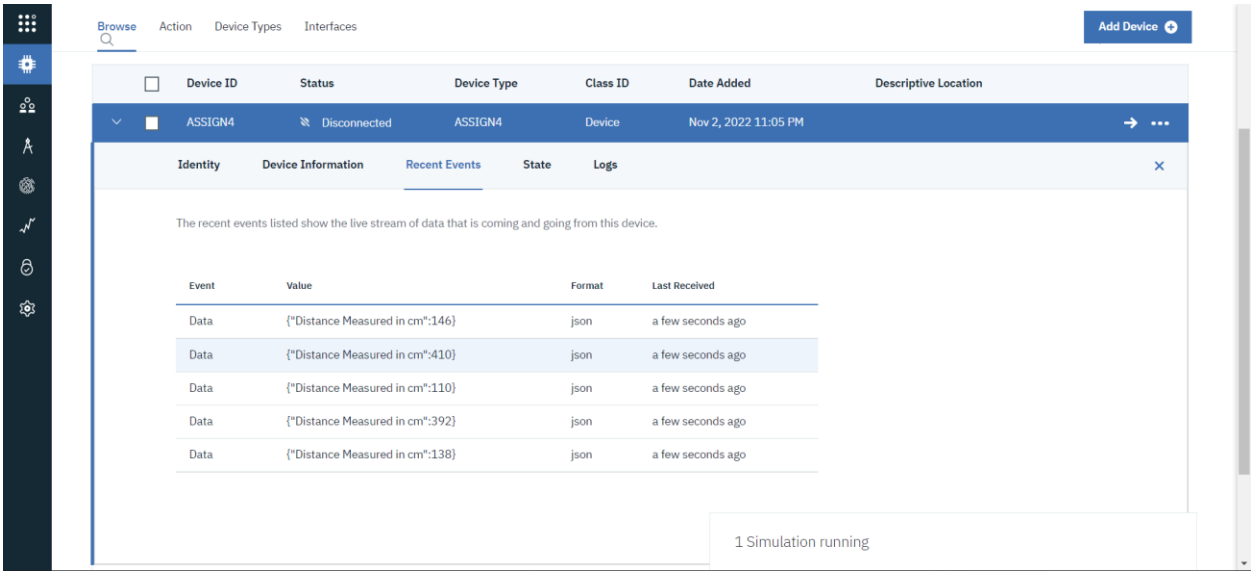




IBM Cloud (NEAR) :



IBM Cloud (FAR) :



Reference Simulation Link :

https://wokwi.com/projects/347242465477001812