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| Assignment - 4 | |
| **Assignment Date** | **22 October 2022** |
| **Student Name** | ABISHEK M |
| **Student Roll Number** | **610819205001** |
| **Maximum Marks** | **2 Marks** |
| Question-I:  Write code and connections in wokwi for ultrasonic sensor.Whenever distance is less than 100 cms send "Alert" to ibm cloud and display in device recent events.  Solution:  // Pins const int TRIG  PIN = 7; const int ECHO PIN = 8;  DIST = 23200; void setup() {  // The Trigger pin will tell the sensor to range find  PINMODE(TRIG\_PIN, OUTPUT);LOW;  DigitalWrite(TRIG\_PIN)  INPUT);  void loop() {  unsigned long tl ; unsigned long t2; unsigned long pulse\_width; float cm;  float inches; | |

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| HIGH); delayMicroseconds(  10) ;  LOW);  // Wait for pulse on echo pin while (    // Measure how long the echo pin was held high (pulse width) // Note: the micros() counter will overflow after 40 min tl = micros(); while (  1); t2 = micros(); pulse\_width = t2 - tl;    // 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.print("The Measured Distance in cm : l'); Serial.println(cm);  if(cm<100){  // while(true) {  Serial.println("Alert! !    delay(1000); |

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| Output:   * If the distance is less than 100 cms , it alerts.   WOKWt VB SAVE Docs  hc-sr04.ino dagram ison Lbrary Manager Shnulation   * // Pins Öoo:00A66 * const int TRIG\_PIN 7; 00 > * const int EGO PIN 8;   4  5 // Anything over cm (232eø us pulse) is "out of range" Editing Uttrasoruc Distance  6 const unsigned int PAX\_DIST • 232ee•, Distance. 83an  7 Distance. 83an  8 void setup() {  9 // The  Triggerpin will tell the sensor to range find  11 A-JTPUT);  12 UNO  13  14 Set Echo pin as input to measure the duration of . AROUINO  15 pulses coning back fron the distance sensor  16 IWUT);  17  18 we wil use the serial mnitor  to view the sensor output  19 Serial.begin(96ee);  20  21   1. void loop() {   23   1. unsigned long t1 2. unsigned long t2; 3. unsigned long pulse\_width The Measured Distance in cm : 84.14 4. float cm; Alert ! !   28 float inches;  29 If the distance is more than 100 cms, it won't alert. |

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| hc-sr04.ino 'agramjson Library Manager Simulation   * // Pins Öoo:oo.599 * const int TRIG PIN 00 > * const int ECHO PIN 8; * s // Anything over 40B cm (23200 us pulse) is "out of range6 const unsigned int PAX\_DIST 2320e;   7   * void setup() {  * le // The Trigger pin will tell the sensor to range find   11  12  13  14 //Set Echo pin as input to measure the duration of  15 //pulses coning back from the distance sensor  16 IIPUT);  17  18 // We'll use the serial monitor to view the sensor output  19 Serial.  20 begin(96ee);  21  22 void loop() { 23 | | | | | | |
| * unsigned long tl; * unsigned long t2; The Measured Distance in cm : 227.10 * unsigned long pulse\_width; | | | | | | |
| * float cm;Activate Windows * float inches; Go to Settings to activa | | | | te Windows | | |
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| 3) Simulation and code execution | |  | | | | | |
|  | Simulation | | Code |  |  |  | |
| Editing Ultrasonic Distance  Sensor |  | | | |
| Distance: 199cm |
|  | The Measured Distance in cm201 .79 |  | | | | |  |
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