

ASSIGNMENT - 4

Date	19 September 2022
Student Name	PRIYADHARSHINI.R
Student Roll Number	917719D066
Maximum Marks	2 Marks

QUESTION:

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.

SOLUTION:

Link: <https://wokwi.com/projects/346784825273746003>

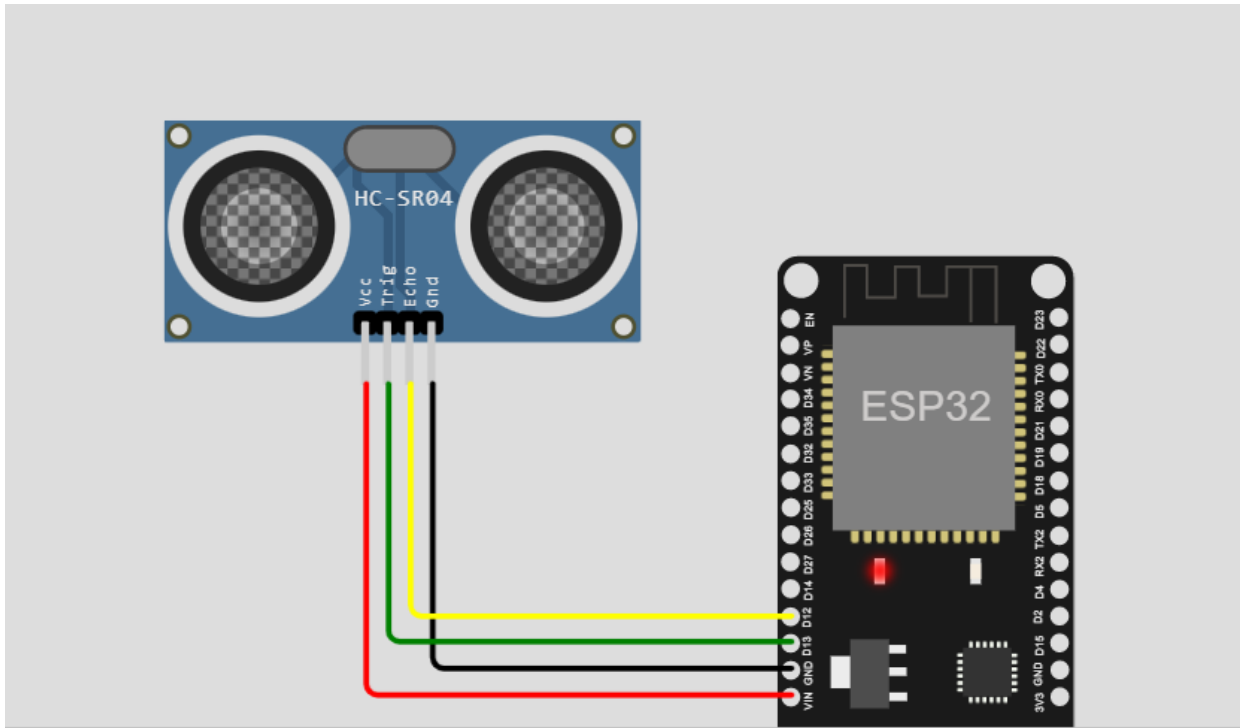
The screenshot displays the Wokwi web interface for a project titled "sketch.ino". The left pane shows the Arduino sketch code, which includes the following key sections:

- Includes:** `#include <WiFi.h>` for WiFi and `#include <PubSubClient.h>` for MQTT.
- Constants:** `#define TrigPIN 15`, `#define EchoPIN 4`, and `#define MINDIST 100`.
- Callback Function:** `void callback(char* topic, byte* payload, unsigned int payloadLength);`
- IBM Credentials:** `#define ORG "4qb92"`, `#define DEVICE_TYPE "rasperrypi"`, `#define DEVICE_ID "12345"`, and `#define TOKEN "123456789"`.
- Server and Topic Configuration:** `char server[] = ORG ".messaging.internetofthings.ibmcloud.com";` and `char publishTopic[] = "iot-2/evt/Data/fmt/json";`
- Client Setup:** `WiFiClient wificlient;` and `PubSubClient client(server, 1883, callback, wificlient);`
- Setup Function:** `void setup() { ... }` for configuring the ESP32.

The right pane shows a simulation of the hardware. An ESP32 microcontroller is connected to an HC-SR04 ultrasonic sensor. The sensor's VCC pin is connected to the ESP32's 5V pin, GND to GND, Trig to D15, and Echo to D4. The simulation status bar at the top right indicates a runtime of 00:20.893 and 101% zoom.

The bottom right pane shows the console output, which includes the following messages:

- `Sending payload: {"MESSAGE":"ALERT"}`
- `Publish ok`
- `Sending payload: {"MESSAGE":"ALERT"}`
- `Publish ok`
- `Sending payload: {"MESSAGE":"ALERT"}`
- `Publish ok`
- `Reconnecting client to 4qb92.messaging.internetofthings.ibmcloud.com`



OUTPUT:

IBM Watson IoT Platform

4qbk92.internetofthings.ibmcloud.com/dashboard/devices/browse

shakinscha@student.tcu.edu ID: 4qbk92

Search by Device ID

Device Simulator

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
12345	Connected	rasperrypi	Device	21 Oct 2022 22:13	

Identity | Device Information | **Recent Events** | State | Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
Data	{"MESSAGE": "ALERT"}	json	a few seconds ago
Data	{"MESSAGE": "ALERT"}	json	a few seconds ago
Data	{"MESSAGE": "ALERT"}	json	a few seconds ago
Data	{"MESSAGE": "ALERT"}	json	a few seconds ago
Data	{"MESSAGE": "ALERT"}	json	a few seconds ago

0 Simulations running