

## ASSIGNMENT-4

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Topic	Smart solution for Railways

### Task:

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.

Upload document with wokwi share link and images of IBM cloud

### Wokwi share link:

<https://wokwi.com/projects/322410731508073042>

### Connections:

The screenshot shows the Wokwi IDE interface. On the left, the code for `esp32-dht22.ino` is displayed. It includes headers for `WiFi.h` and `PubSubClient.h`, defines IBM Cloud credentials (ORG, DEVICE\_TYPE, DEVICE\_ID, TOKEN), and sets up a callback function to send distance data and alerts to the cloud. The simulation window on the right shows the ESP32 board connected to an ultrasonic sensor (HC-SR04). The output console displays the distance from the obstacle (28.28 cm) and an alert message: "ALERT!!! Distance less than 100cm...".

### IBM Cloud output:

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The main content area displays the 'Recent Events' for a device named 'testing'. The events list shows a stream of distance data and alerts sent to the cloud.

Event	Value	Format	Last Received
Data	{\"Distance\":28.23,\"ALERT!!!\":\"Distance less than ...	json	a few seconds ago
Data	{\"Distance\":28.23,\"ALERT!!!\":\"Distance less than ...	json	a few seconds ago
Data	{\"Distance\":28.28,\"ALERT!!!\":\"Distance less than ...	json	a few seconds ago
Data	{\"Distance\":42.33,\"ALERT!!!\":\"Distance less than ...	json	a few seconds ago
Data	{\"Distance\":65.53,\"ALERT!!!\":\"Distance less than ...	json	a few seconds ago