Lab Exercise 4 – Connect IoT to AWS Cloud

Objectives:

- Introducing how to connect your IoT devices to the cloud and monitor them remotely.
- Understanding the MQTT messages transmission (publish and subscribe)

Note: Please be gentle with the hardware. Do not save your lab scripts on the board.

Give: You must submit your code via *give* by the assessment date (which is the day of your lab in the following week) or you will receive a mark of 0. You may submit as many times as you wish. Your latest submission will override previous files.

Please finish the provided tutorials 6 before attempting to solve this exercise. Following a systematic approach will save you a lot of time and heartache.

Introduction:

This exercise Introducing how to connect your IoT devices to the cloud via MQTT messages. MQTT is a bi-direction communication method which allows for messaging between device to cloud and cloud to device. This makes for easy broadcasting messages to groups of things. AWS IoT Core enables you to connect devices to AWS Services and other devices, secure data and interactions, process and act upon device data, enables applications to interact with devices even when they are offline. In this exercise, our goal is to publish the sensor reading of the device to your AWS cloud.

Marking Criteria

Task:

Sensor reading and local transmission (2 Marks)
You must demonstrate that your Nano BLE Sense Rev2 transmit the value of **humidity sensor** every **1s** via BLE, and print them out on the terminal.

HINT:
1. Refer to Tutorial 2 to learn how to regularly read the value of sensors
2. Refer to Tutorial 5 to learn how to use python to communicate between your device and your laptop via BLE.

Publish sensor reading to AWS cloud (4 Marks)
You need to finish your AWS IoT configuration, and publish your reading in above task to AWS IoT Core. You must demonstrate your lab tutor the sensor reading on your AWS page and it will change in real time.

HINT:
1. Refer to Tutorial 6 to learn how to bridge to AWS IoT Core

Mosquitto publisher/subscriber on localhost (2 Marks)

You must demonstrate that you can send message with format "zid+name" to topic "test/comp6733" locally by using mosquitto and showing both the subscriber and publisher connection messages in the broker terminal.

HINT:
1. Refer to Tutorial Install Mosquitto MQTT Broker section.

Reference:

- Tutorial 2
- Tutorial 5
- Tutorial 6