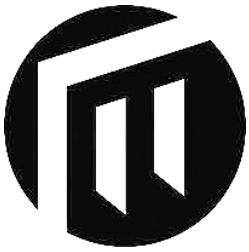

DA274A: Internet of Things and People

Connecting Things to the Cloud

Lab 4

Radu Mihailescu

November 2017

Lab4: Connecting Things to the Cloud

Objective:

* In short: the goal of this Lab assignment is to develop an Android APP that can remotely switch on/off an LED.

Learning goals:

* Understand the basics of using IoT communication protocols

* Understand the basics of using IoT Cloud platforms

Tasks:

* Connect the Android phone to a Cloud IoT platform using the MQTT protocol, specifically to CloudMQTT

* Use the Cloud as a means to remotely send a command to an actuator (i.e. the LED)

Getting started with CloudMQTT: https://www.cloudmqtt.com/docs.html

CloudMQTT are managed Mosquitto servers in the cloud. Mosquitto implements the MQ Telemetry Transport protocol, MQTT, which provides lightweight methods of carrying out messaging using a publish/subscribe message queueing model.

MQTT is the machine-to-machine protocol of the future. It is ideal for the “Internet of Things” world of connected devices. Its minimal design makes it perfect for built-in systems, mobile phones and other memory and bandwidth sensitive applications.

Message queues provide an asynchronous communications protocol, the sender and receiver of the message do not need to interact with the message queue at the same time. Messages placed onto the queue are stored until the recipient retrieves them or until the messages times out.

MQTT and Mosquitto are for good use by bandwidth sensitive applications.

CloudMQTT let you focus on the application instead of spending time on scaling the broker or patching the platform.

Steps:

1. CreateaCloudMQTTaccount
    1. https://www.cloudmqtt.com/
2. CreateaCloudMQTTinstance
    1. See: https://www.cloudmqtt.com/docs.html
3. Create an Android App that publishes commands (LED on/off) to a CloudMQTT topic.
    1. See: http://androidkt.com/android-mqtt/
4. Use the NodeMCU to subscribe to that topic and switch the LED on/off accordingly.
    1. https://www.cloudmqtt.com/docs-nodemcu.html
    2. http://nodemcu.readthedocs.io/en/latest/en/modules/mqtt/