SIT314/SIT729 - Task 2.1P
Mini Project: Design IoT Application

Overview

The IoT device landscape encompasses 'things' that are end-user devices, network devices and cloud devices.

In this task, you are required to Design an IoT application/solution that uses the three device categories. This means that your design should make use of;

a) an end-user device
b) a network device
c) a cloud device

You can use include single board computers such as Arduinos, Raspberri Pis, etc as well as off-the-shelf devices such as mobile phones, tablets or even your laptops. You also have the option to simulate devices (e.g.: instead of a physical device sensing the environment, you can use a script to generate random values).
For prototyping cloud devices, you can include any existing free cloud service such as Google Maps, plot.ly, IBM Watson etc.
For instance, you can design an application that connect smartphones to a free cloud service and uses the cloud service to visualize sensor readings such as GPS and acceleration.

Here are two examples: (you are not restricted to following these examples!)

- Connect a temperature sensor to your Arduino (representing an end user device) and use it to collect sensor data. Connect the Arduino (e.g., via USB) to your internet connected laptop (representing a network device). Relay the sensor data to the laptop, and then upload them to plot.ly (representing cloud services/devices). The data upload part can be manual and does not need to be real time at this point – that is, you can collect sensor data on a data logger module on the Arduino, and then copy that data manually to your laptop, then manually upload them to the cloud.

- Use your smartphone (representing an end user device) to collect GPS data. Then upload the collected GPS logs to an online GPS visualizing service (representing cloud services/devices).

Task Requirements

a. Read the concepts & recommended readings introduced in Week 2
b. Research an appropriate application first.
c. Read the task instructions

Task Instructions

Your task submission should include:

- A report (maximum 6-pages) describing a design including hardware, data flow between the devices and a diagram showing its architecture.
- Your report should clearly identify the IoT device categories.
- Submit the report as a PDF to onTrack.

Task goal

Demonstrate clear understanding of IoT device categories and their capabilities.