Lab 2

Objectives:

- Become familiar with the MicroPython's Bluetooth Low Energy (BLE) library.
- Learn how to read/write data based on the hierarchy of services and characteristics.

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 (3, 4) before attempting to solve this exercise. Following a systematic approach will save you a lot of time and heartache.

Marking Criteria

Demonstration (7 marks) – Due next week.

Task 1 (2 marks):

Please use a timer to read the temperature and humidity data with a frequency of 3 Hz with the ***event driven programming paradigm.*** In the meantime, use a different timer to read the pressure data with a frequency of 1Hz with the ***event driven programming paradigm***. The available timers are Timer 1-4. Please see tutorial 3 for example codes of the ***event driven programming paradigm.***

Task 2 (2 marks)

Send 'r', 'g', 'b' keystrokes to the device via BLE to toggle red/green/blue LED on the device with a frequency of 0.5Hz.

Task 3 (3 marks)

Use 'p', 't', 'i' keystrokes to remotely collect five samples from the pressure sensor, temperature sensor and IMU respectively. You should send human readable data to the host.