UFCFXK-30-3 - Digital Systems Project

Formal Project Proposal

Name:	**Kieran Cooper**
Programme:	**Computer Systems Integration**
Student No:	**14036784**
Email address:	**Kieran2.cooper@uwe.ac.uk**
Date Submitted:	**05/10/2017**
Title of Project:	**Making a Offline LoRaWAN Gateway**

Details of Project plans:

Brief description of topic:	**LoRaWAN gateways are often connected to the internet in order to interface with some cloud based application using service providers such as TTN. However, in areas with little to no internet this is obviously not possible. On the other hand, the long range of LoRaWAN makes it ideal for these areas.** **An offline gateway would allow long range wide area data capture, which could be either streamed to an offline PC, or saved to an SD and collected at a later time. An obvious application of this would be collecting GPS data in remote locales, such as for hikers or mountain climbers, which could then be used to quickly provide a search area in the event of an accident.**
Aims and objectives:	**1. To create a functioning offline gateway using an MCU with ARM M-type CPU.** **2. To use the gateway to collect data from GPS enabled nodes** **3. To provide some way of using the data the gateway collects, either by live streaming to a PC or writing to SD card.** **4. To create an application that uses this data in some meaningful way.**
Research done and steps to follow:	**Research into the capabilities of LoRaWAN as a protocol, including strengths and drawbacks.** **Research into current gateway implementations, found information on independent LoRaWAN networks but no offline solutions thus far.** **To follow:** **Research potential target boards for gateway implementation.** **Research alternatives to LoRaWAN** **Research mbed and evaluate potential for use.** **Research LoRaWAN further** **Acquire LoRaWAN board and read technical spec**
Full details of initial literature sources, in correct UWE Harvard format:	**LoRa™ Alliance(2017) *LoRaWAN™ 101 A Technical Introduction.* Available from: https://docs.wixstatic.com/ugd/eccc1a_20fe760334f84a9788c5b11820281bd0.pdf** [Accessed 4 October 2017].
Pattern of meetings agreed with supervisor:	**Weekly group meetings at 9:30am on Thursdays. Individual meetings on request.**

Signed (student):	**Kieran Cooper**

Please complete this form and then upload on Blackboard in the assignments area.