The project will be assessed as 20% of the overall module. Assessments will take place in the week 12 lab sessions (week of April 4).

The project assignment is to develop a FRDM-K64F microcontroller based embedded system that includes a minimum of the following features: -

- At least 2 publish feeds and at least 2 subscribe feeds in the cloud
- Basic RTOS system contains a network initialisation task, a publish task and a subscribe task as provided in the demo project.
- Add 3 or more tasks to provide data to be published to the cloud or to process published data from subscribed topics.
- 3 or more different FreeRTOS synchronisation/communication objects: -
  Queues, Event groups, task notifications, semaphores, mutex, software timer, stream buffer, message buffer.
- 2 or more different interrupt sources to those provided in the demo project.
- 3 or more K64F microcontroller peripherals
  e.g. serial interfaces, GPIO, timers

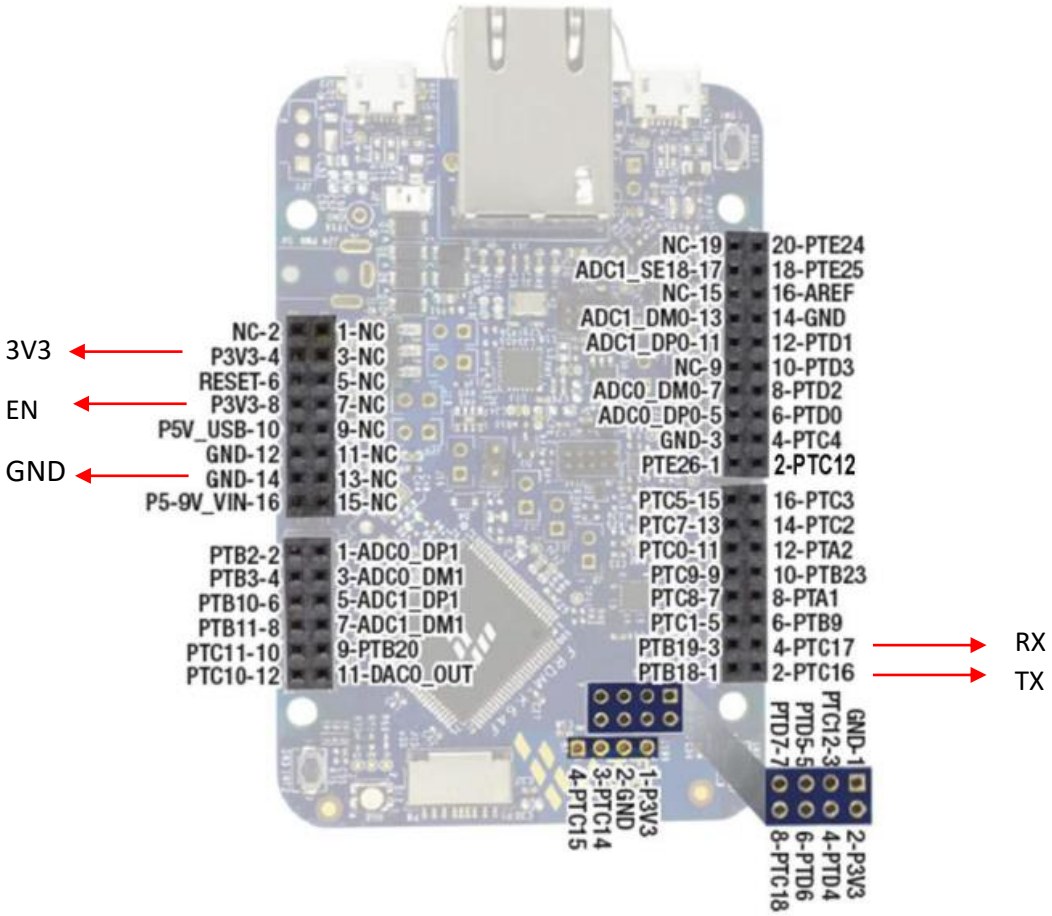
Upload your code and a system architecture diagram to the Learnonline assignment.

Marking Scheme

Architecture Diagram	10%
Features Implemented	60%
Demonstration of Understanding	30%

Board Connectivity

Connect the ESP8266 module to the FRDM-K64F board using 5 wires as shown below.



Adafruit IO

The IoT project will connect to an MQTT broker on Adafruit IO.

Create an account on https://io.adafruit.com/

MQTT.Fx Application

Download and install the Windows 64-bit version of the MQTT.fx application from Index of /apps/mqttfx/1.7.1 (jensd.de)