# Dept. of Biomechatronics Engineering, National Taiwan University
# Automated System Design
# Lab 3



**Deadline: Demo to TA, before November 03th**

Finish the following items 3-1, 3-2, 3-3, and 3-4 for the Lab. 3.

3-1 Node-RED: Generate randomly an age every second, classify the age into seven categories and display them accordingly by using Node-RED: Infant (age 0~1), Toddler (age 2~6), Child (age 7~12), Adolescence (age 13~18), Young adult (age 19~40), Middle adult (age 41~65), Old adult (age 66~).

3-2 Publisher (paho), HiveMQ, Subscriber (paho): Use python to write two programs, publisher (paho MQTT module) and subscirber (paho MQTT module), and form the IOT architecture with MQTT protocol through the public broker, HiveMQ. Publiser can generate appropriate temperature and humidity every second randomly and publish those data to the broker. The subscriber receives the temperature and humidity from the broker and display them.

3-3 Publisher (paho), HiveMQ, Subscriber (Node-RED): The subscirber in the item 3-2 above is replaced by constructing a Node-RED program with the function, dashborad and debug nodes.

3-4 Publisher (Node-RED), HiveMQ, Subscriber (paho): The publisher in the item 3-2 above is replaced by constructing a Node-RED program with the inject and random nodes.

3-5 (If you are willing to.) Publisher (paho), EMQ, Subscriber (paho): Use python to write two programs, publisher (paho MQTT module) and subscirber (paho MQTT module), and form the IOT architecture with MQTT protocol through the public broker, EMQ. Publiser can generate appropriate temperature and

humidity every second randomly and publish those data to the broker. The subscriber receives the temperature and humidity from the broker and display them.