Assignment I

IoT Arduino Workshop

by Assoc. Prof. Dr. Chaiyod Pirak and MCES Laboratory

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Conditions: *1. Each student will present the assignment within* ***5 minutes****; therefore, the students are required to produce* ***the video recording of the live demonstration*** *for the presentation purpose.*

2. Each student may conduct a live demonstration of the assignment to the RA, if the time is permitted.

1. **Adding two more LEDs and control (10 Points)**
    a. Add two more LEDs to the ESP8266 Arduino development board.
    b. Create two toggle switches in the NETPIE Freeboard and associate them to the LEDs, mentioned in (a).
    c. Totally, there are three LEDs with three toggle switches for controlling via the NETPIE Freeboard.
    d. Demonstrate the result by a video recording and presentation.
2. **Adding temperature criteria (10 Points)**
    a. Write the code to ESP8266 Arduino with the following criteria,
        i. If Temperature >= 25 C, then LED1 is ON and update the Toggle 1's status in the Freeboard. Otherwise, LED1 is OFF and update the Toggle 1's status in the Freeboard.
        ii. If Temperature >= 26 C, then LED2 is ON and update the Toggle 2's status in the Freeboard. Otherwise, LED2 is OFF and update the Toggle 2's status in the Freeboard.

iii. If Temperature >= 27 C, then LED3 is ON and update the Toggle 3's status in the Freeboard. Otherwise, LED3 is OFF and update the Toggle 3's status in the Freeboard.

b. Demonstrate the result by a video recording and presentation.

3. Adding a PUSH notification to Mobile App (10 Points)

a. Write the code to ESP8266 Arduino with the following criteria,

i. If Temperature > 30 C and Humidity > 90%, then PUSH the 1st notification message to the Mobile App as "High Temperature & Humidity Alert!" and the 2nd notification message as "Temperature =" + Temperature Value + "Humidity =" + Humidity Value.

ii. If Temperature < 27 C and Humidity < 70%, then PUSH the 1st notification message to the Mobile App as "Normal Temperature & Humidity Restoration" and the 2nd notification message as "Temperature =" + Temperature Value + "Humidity =" + Humidity Value.

b. Demonstrate the result by a video recording and presentation.