BVI2214

Technology Data Acquisition and Analysis II

Lab 3

INSTRUCTION

1. Please refer to Figure 1.
2. Set up a wireless connection between the ESP32 and a WiFi router.
3. Obtain the programming codes for both the ESP32 node and gateway from the KALAM.
4. Verify and upload the codes to both ESP32 devices.
5. Open the serial communication to monitor the output.
6. Please refer to Figure 2.
7. Add a DHT22 sensor to the existing hardware and select an appropriate input pin for the sensor.
8. Modify the existing code on the ESP32 node to read temperature and humidity values from the DHT22 sensor and verify that the ESP32 gateway received the same information.
9. If successful, modify the existing code on the ESP32 gateway to send the sensor information to Thingspeak using the HTTP GET command. Refer to Figure 3 for an example of the dashboard that should be produced.
10. Finally, integrate IFTTT to receive the same sensor information and send an email to the user each time it is received. Refer to Figure 4 for an example of the IFTTT applet.
11. Write a report with this information (refer to Table 1 for mark distribution):
    a. Simple introduction (name, project description).
    b. Circuit drawing.
    c. Flowchart and code.
    d. Results (picture of hardware running, circuit constructed, output terminal, Thingspeak, and IFTTT)
    e. Conclusion.

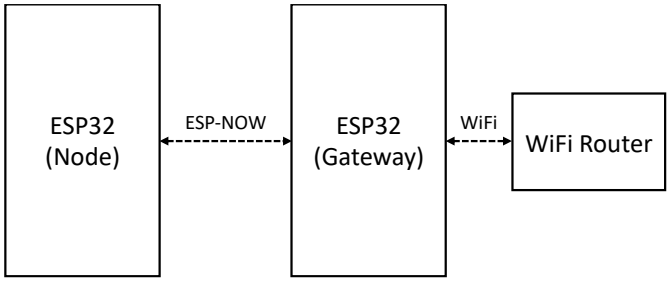

Figure 1: Wireless communication between ESP32

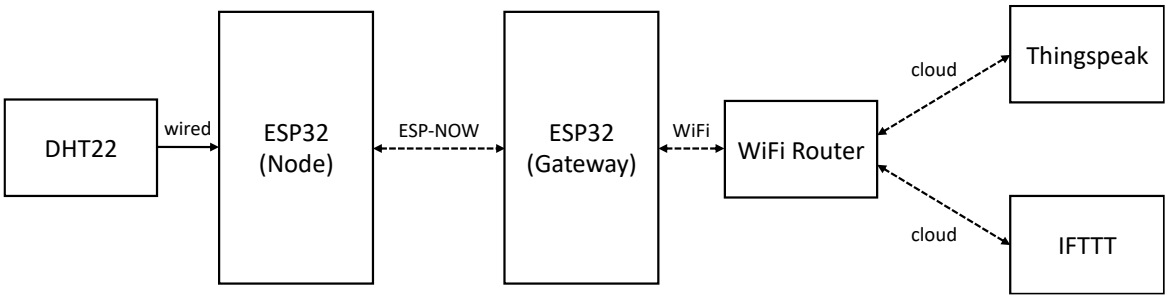

Figure 2: Sensor and integration with cloud services

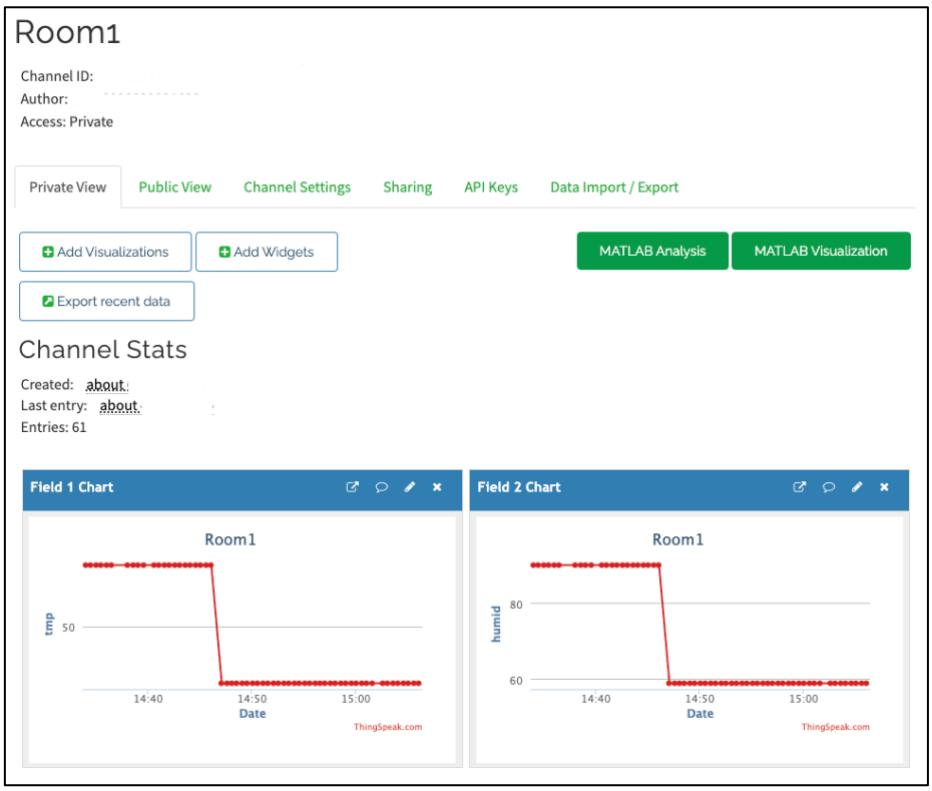

Figure 3: Example of Thingspeak dashboard

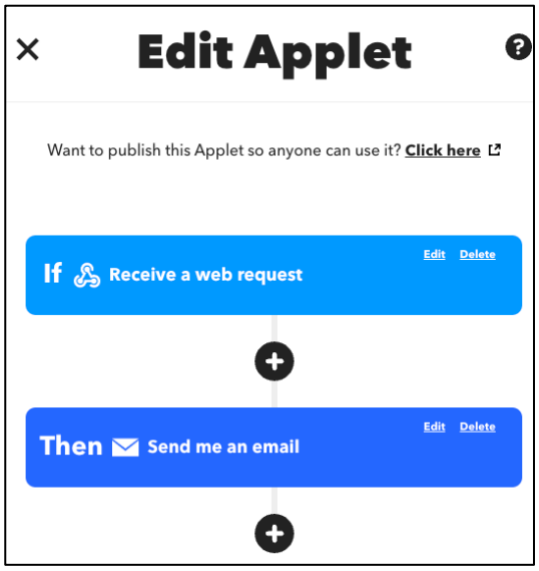

Figure 4: Example of IFTTT applet

Table 1: Lab report rubric [normalize to 10 marks]

Item/Criteria	Marks	Score (1-5)	Total Marks (Score/5 * Marks)
1. Introduction and conclusion	10		
2. Flowchart	10		
3. Programming code	10		
4. Media quality - Figure - Image	10		
5. Grammar, punctuation, vocabulary and language use	10		