SIT210: Embedded Systems Development

Task 3.1P Particle - Sending data to the web

At some point in time, you would like your devices to share information online, perhaps to cloud services or to be used by other devices or system admins. This task requires you to do just that.

Hardware Required

Particle Photon/Argon
Breadboard, and jumper wires
One sensor (Light, Temperature, etc.)

Software Required

Web IDE

Pre-requisites: You must do the following before this task

1) Complete task 2.1P
2) Research on webhooks, their application, and HTTP requests (POST, GET, PUT).
    a) Some information about webhook can be found here: https://docs.particle.io/guide/tools-and-features/webhooks/

Task Objective

This task will introduce you to the concept of sending data from your Particle device to the web.

Steps:

Note: this task requires you to document your development process (see Q2).

1. Complete a simple circuit board using your Particle device from **one** of the following options:
    a. Read the light level in the room using a light sensor
    b. Read the temperature of the room using a temperature sensor
    c. Or use any other sensor you have to read data.
2. Open Particle Build IDE and write code for your device to read the light/temperature/other sensor data you are collecting into a variable.
3. Create a ThingSpeak account on thingspeak.com
4. Create a new data channel at ThingSpeak, name it appropriately depending on the circuit board and what it is intended to do.
    a. You can use the instructions provided on Particle website: https://docs.particle.io/guide/tools-and-features/webhooks/

5. On Particle Build IDE and update your code to publish your variable's data every 30 seconds.
6. Head to particle Console and create a new integration with details of your webhook.

Task Submission Details

Q1. Provide brief summary (less than two paragraphs) of your understanding of Webhooks and their usage.

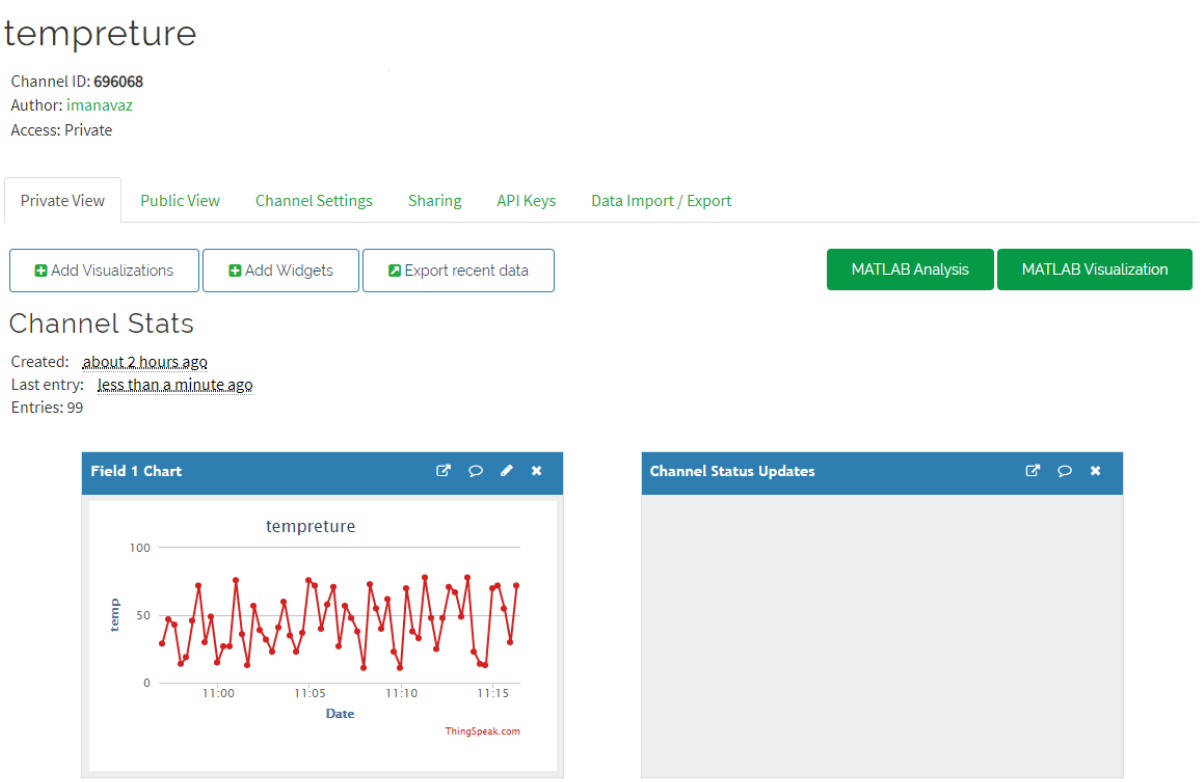
Q2: Describe the steps you have taken to create this application similar to an instruction manual. Use bullet points and be concise when possible. Your instructions should be enough for another person reading them to recreate what you have done (You might as well opt for creating a video)

Q3: Submit the graph of your ThinkSpeak chart over a period of 5 minutes (create some artificial change in the reading if you can, e.g. change the luminosity of the room by turning lights on and off) by taking a screenshot of your thing speak similar to the sample below.

Q4: Create a repository named SIT210-Task3.1P-WebHook on Github. Upload your code to the repository. Include the link to your repository here.

Q5: Describe a real-life usage scenario for your system (less than one paragraph).

Sample chart:



Remember, anytime you submit a task to OnTrack, it is a good practice to check the status of any existing tasks, and the future tasks you are expected to complete. If you have got feedback on previous tasks, you may need to fix and resubmit some of your work. You want to check out why, so that you can learn from this and make it faster and easier to accomplish later work to the required standard.