SIT210: Embedded Device Development

Task 2.1P Particle Photon (Wi-Fi) First name

Blinking Welcome to Particle Photon!

Particle's Photon is part of their full stack of IoT devices. The platform allows to you add IoT functionality, in this case, Wi-Fi connectivity, to a range of sensors and actuators.

In this task, we will try out an introductory set-up, to learn the basic concepts of Particle's Photon Wi-Fi board.

Hardware Required

Particle's Photon Wi-Fi board Micro-USB to USB A cable WiFi-enabled device (laptop, smartphone?)

Software Required Web browser IDE

Pre-requisites: You must do the following before this task Read up on the Particle Guide

https://docs.particle.io/guide/getting-started/examples/photon/

Task Objective

Here are some key steps in software development: Step 1 - Requirements gathering (Find out in detail and analyse the needs of the system you are going to build) Step 2 - Design and build the system Step 3 - Test the system Step 4 - Deliver what you built to the client

(customer) You will be using these steps throughout this unit, for lab tasks as well as projects.

For this task, your tutor/lecturer will be your client. Here are your client's requirements:

- **"We have a Particle's Photon board with an in-built LED light. We need the LED light to be blinking your first name in Morse code."**

Steps:

1. Complete the set up steps on Particle Photo website from step 1 to step 7 using Web IDE (skipping step 5) until 7 (details below). Code Examples: Blink an LED. https://docs.particle.io/guide/getting-started/examples/photon/

a. Read 2. Getting Started. Don't follow the setup process in there, as you have completed task 2.0P Photon.

b. Read 4. Devices Modes.

c. Read through all of 6. Web IDE (Build)

d. Complete 7. Blink a LED

2. Modify your Blink an LED code to repeatedly blink your first name in Morse code. (Morse code look up here: https://morsecode.scphillips.com/morse2.html . Using a long blink for a line and a short blink for a dot).

Task Submission Details

Q1: How would you need to modify the code to blink your last name instead?

I have tried to use modular code, so I only program each unique letter once. To write my last name, I would need to add extra functions for the

missing letters (I already have B, E and N. I would need H, A, M and R for Hamer) to my program. I would then rewrite the loop.

Q2: Discuss on the effectiveness of your code to change and reflect on how you should modify your code to be reusable and modular to adapt quickly to changes in requirements.

I think my code is effective for its purpose. I think I could write a function to input a string and convert into morse code, maybe a challenge for spare time ☺. I would also need to have a function for every letter, number and function in the morse alphabet.

Also after doing the video, I think I could tweak the length of time between letters, and the length of the dots and dashes, to make it easier to comprehend.

Q2: Create a repository named BlinkName on Github. Upload your code to the repository. Include the link to your repository here.

https://github.com/stopkickingtherobots/BlinkName

Q3: Take a five second video of your Arduino board with the LED blinking your first name, and upload it to youtube. Include the link here. Alternatively, if you are on campus, show your working project to your tutor in the lab and get it marked on Doubtfire.

https://youtu.be/GfhTp2_HpWE

Troubleshoot If you cannot set up the Photon, check out the troubleshooting here:

https://docs.particle.io/support/troubleshooting/common-issues/photon/

Most common issue is the firmware is not updated on the Photon.

Remember to submit this to Doubtfire, and check the status of any existing 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 get later work to the required standard.