

SIT210: Embedded Systems Development

Task 2.1P Particle Programing - First Name Blinky

In this task, we will start basic programming with Particle devices.

Please note: While we may refer to particle Photon in the document, the programing and steps are similar for most particle devices.

Hardware Required

Particle's Photon/Argon
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

Task 1.2P.

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 some lab tasks as well as your project.

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

- **"We have a Particle Photon board with an in-built LED light (similarly on other Particle devices). We need the LED light to blink your first name in Morse code."**

Steps:

1. Particle group has provided a nice example on how to write a program to make a Photon blink it's LED on pin D7. Read the tutorial available here:

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

- a. Note that the LED pin could be different in other Particle devices.

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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: Describe the steps required to modify the code to blink your last name instead?

The first step was to look up in a morse code table all the blinking sequences for the letters of my last name. I then had to write lines of code that would articulate to the Argon how to blink the LED. In my code's most basic form, it is merely delays and commands that tell the LED to turn on and off.

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

I have modified the code extensively in a way that can take strings and convert them to morse code signals. The problem of turning letters into morse code signals was broken down into smaller problems, hence why the code has been written modularly. All the user needs to input is a string that contains '*'s and '-'s which will control how the LED blinks on and off.

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

<https://github.com/Goolog/BlinkName>

Q3: Take a five second video of your Photon board with the LED blinking your first name and upload it to youtube. Include the link here.

<https://youtu.be/LIDWdrbWk9w>

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.