YSP Tech, Data, and Computer Science
Checklist

June 10, 2024
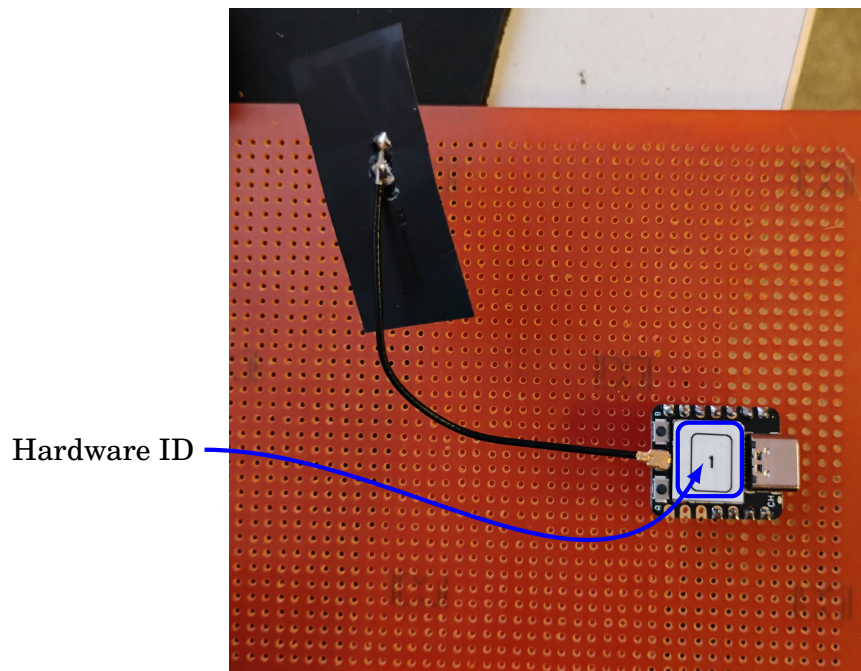
Estimated Time: *30 minutes*
Note: *Texts in red are clickable links.*

1   Hardware and Software Requirements

You will be working in pairs, so make sure each pair has all the hardware and software listed below.

☐ ESP32 with IDs

☐ A working Laptop with Windows/Mac/Linux

☐ Python (version 3.4+)

☐ USB A-C Cable with IDs

☐ LED strip

1.1   Installing Python

If you do not have python installed in your device, you can download and install the official python installer. Follow this link to install official Python on your Operating System (Windows, MacOS, Linux).

You can also access the tutorials for your operating system (OS):

1.1.1   MacOS

1. Install Homebrew, the package manager for MacOS, using the following command in your terminal (See this link). (The $ is not to be typed. It is called a prompt.)

```
$ /bin/bash -c "$(curl -fsSL
https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
```

2. Install python using brew.

```
$ brew install python
```

1.1.2   Windows

Follow the tutorial in this link to install python in Windows. Make sure you select the checkbox **Add python.exe to PATH** to access python from the command line.
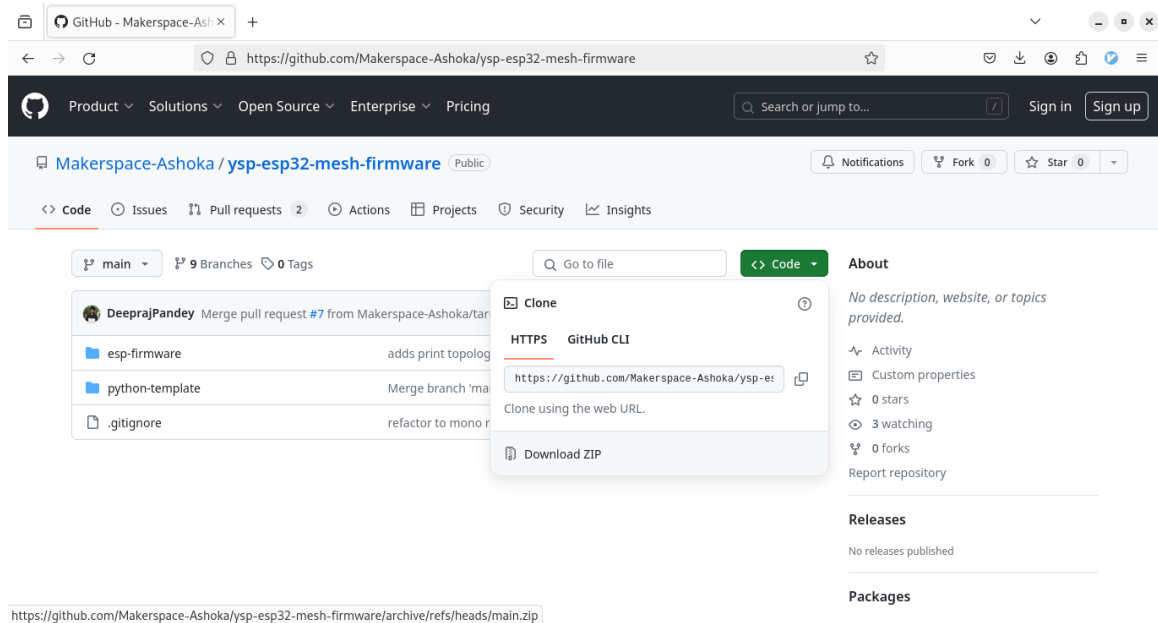
1.1.3   Linux

Python should be preinstalled in most Linux distributions. If not available, you can use package manager (apt, dnf) to install it.

1.2   Programs

As you will be only required to write codes for encryption and decryption (the TAs will guide you on this), we have codes for interfacing the ESPs in the network. Follow the steps to download the code.

1. Go to https://github.com/Makerspace-Ashoka/ysp-esp32-mesh-firmware and download the .zip file.

https://github.com/Makerspace-Ashoka/ysp-esp32-mesh-firmware/archive/refs/heads/main.zip

2. **(Important)** Extract the .zip file.

3. Your directory structure will look like this.

```
ysp-esp32-mesh-firmware
    assets
    esp-firmware
    python-template
        src
            lib
            requirements.txt
            workspace.py
```

You only need to change the `workspace.py` file in this workshop.

1.3   Installing VS Code

We recommend installing VS Code as a text editor. Go to the VS Code website to download and install the latest version. You can find specific instructions for your OS in the documentation.

1. Launch VS Code and use `Open Folder` to load the `ysp-esp32-mesh-firmware` directory.
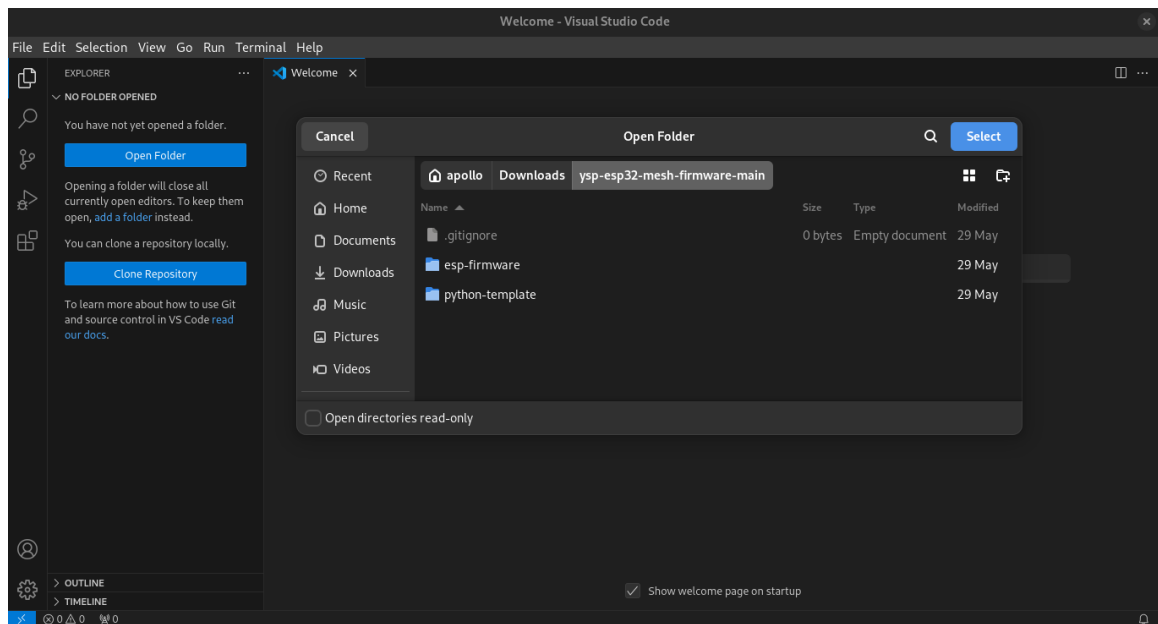
You should be able to see your folder structure on the left panel.

2. Launch Terminal inside VS Code using `Ctrl + `` `. We will now create a python virtual environment to run the code. Follow the README.md on how to create a virtual environment and install the required packages `pyserial` and `colorama`.

Python Extension for VS Code

When you open a python file (.py), VS Code will ask you to install the Python extension. Install the extension as recommended.

You should now be able to run your code using the Run button in VS Code (see image below for reference).
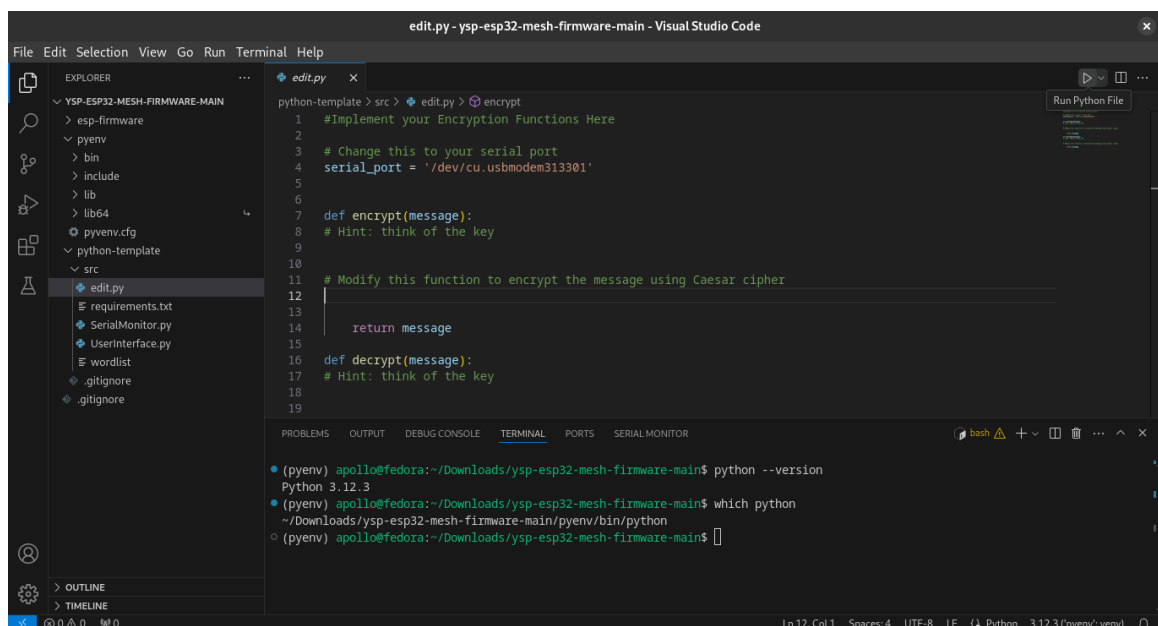
To make sure you are running the python environment just created (`pyenv`), you can see the bottom-right corner in VS Code, which says the environment name, along with python version.