# Project User Documentation

This is a document that explains how to use the Hobby Hub. The user will learn how to use the control application and how to build the project from scratch.

Using this product

If you have access to the smart home devices and are provided with the user control app, you should be able to command all the connected devices using the control application.

Control App
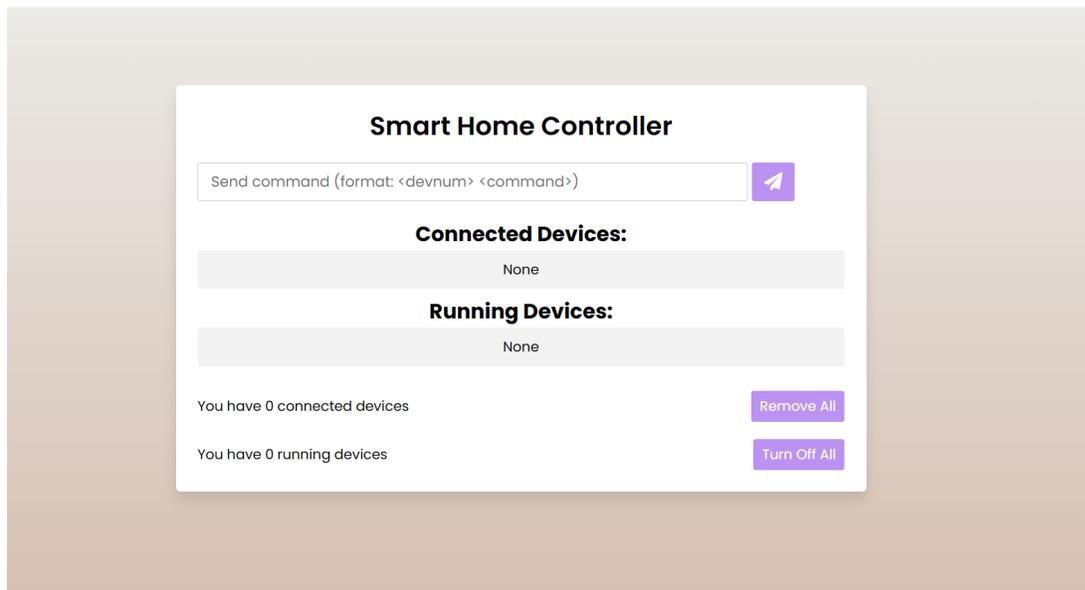
- The controller app enables the user to send commands to any devices connected to the smart home system.
- The user could send commands through the "send command" textbox
    - Commands should be sent in the format of "device_no command"
    - Currently, the only supported commands are "ON" and "OFF"
- If a device is connected, the UI will display it in the list of connected devices.
- If a device is running, the UI will display it in the list of running devices.
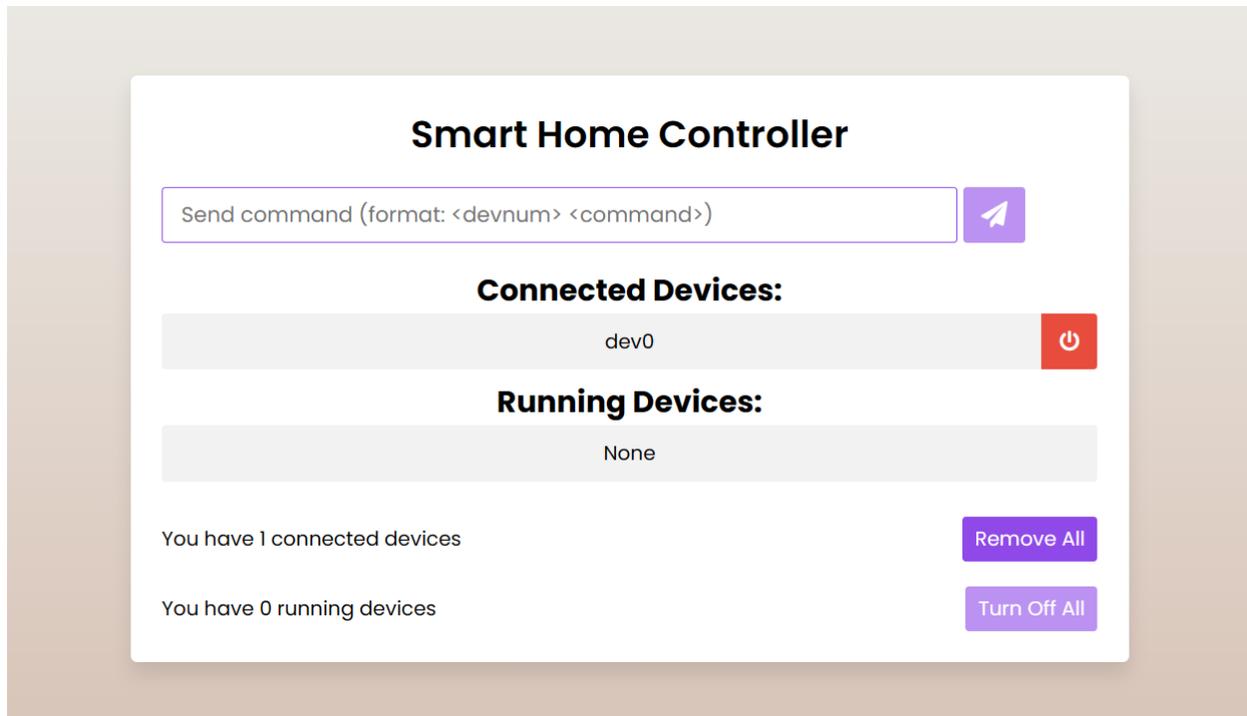
- If there are connected/running devices, an on/off button will show up next to it.
  - Users could turn on or off the device by clicking on the power button.
  - Users could also turn/remove all devices by pressing the remove all or turn off all button.

Building the project yourself

If you want to build the project by yourself from scratch, the code is provided on the github page [Smart Home System](#). You can simply git clone the repository to get access to all the code.

Dependencies

The main dependencies are Python3 and Arduino IDE.

Control App UI

The control app UI code is provided in the directory "user_app_frontend/public".
The frontend code could be hosted locally via running the command "python3 -m http.server" in the directory.

Control App Backend

The control app backend code is provided in the directory "user_app/".
Some python dependencies needed to run the backend code. There is a setup.sh script that the user could run to quickly download all the dependencies (running the command "bash setup.sh").

Smart Plug

The smart plug code is provided in the directory "plug".

This code could be flashed into an esp32 through the Arduino IDE.

To build the actual hardware, refer to the technical documentation ([Project Technical Document](#)).

Technical Reference

The main communication method for all the devices in this project is HTTP and MQTT.

Here are some links to learn more about some of the tools used:

-   Python Flask: https://flask.palletsprojects.com/en/2.3.x/
-   Python Paho MQTT: https://pypi.org/project/paho-mqtt/
-   Arduino MQTT Client: https://github.com/knolleary/pubsubclient