

PLUGSi

The **Modular** Smart power outlet

Begin

PLUGSi is a way that can be used to revolutionize the way we think about power outlets

Introduction - Who We Are

We are 4 undergraduates from the Electronic and Telecommunication Department of the University of Moratuwa. For our Electronic Design Project module, We proposed this Idea and executed it.

Philosophy - modularity

Modularity is a philosophy not used in the current smart power outlet industry. You may see a cube-looking thing. called a “smart power outlet” (which is indeed smart) containing everything inside it (Maybe Alexa, Google Home, timers, Bluetooth Controllers, Wi-Fi controllers) to control a few things. Your Table Lamp, AC, something else. Some are Product Specific, and Some give additional functionality that you’ll never use but you paid extra money for it.

Use Case

Assuming you are a smart plug user, one day your girlfriend comes to your home, and She wants to control the light that is plugged into your smart plug only using Bluetooth. What if your Smart plug does not support that functionality? You have few options. Change your Girlfriend 😊 (be careful) or buy a new smart plug that has Bluetooth support 💰 (may be somewhat expensive).

But with PLUGSi You have to do neither. Because we are giving you another option.

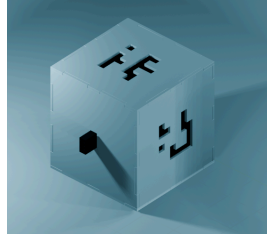
Functionality - base, modules, and apps

PLUGSi consists of 2 main parts. Base and modules (timers module, Wireless module, Wi-Fi modules, Bluetooth modules, IOT-based modules, Alexa Modules, reprogrammable Modules, etc) You can plug modules over the base and modules over other modules, it's your choice. Modules are the ones that add functionalities to the base. Users can *attach detach* and *reattach* as they wish. That other option is if you already have a PLUGSi base. Just buy a Bluetooth module. Save your money and your girlfriend!

We made a prototype for the demonstration - MVP

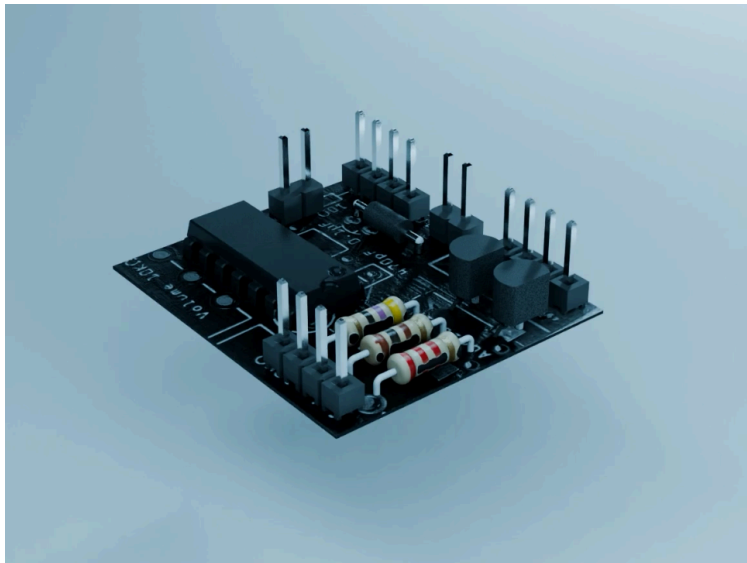


Base

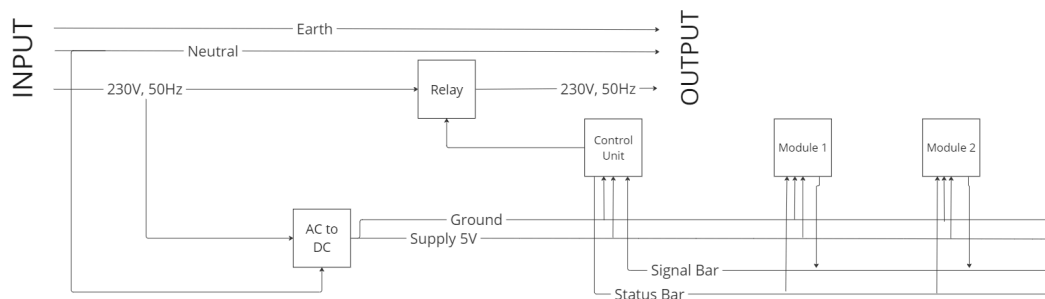


IOT module

Base PCB



Architecture of the product

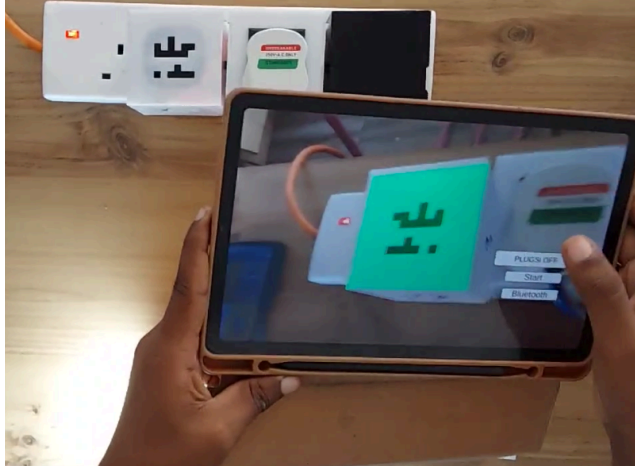


About Modules

For the Bluetooth module, we will provide the users with a Bluetooth app from Play Store.

For the IOT module, we will provide the users with a web dashboard, and an App that gives a brand-new user experience (a Digital twin) by giving them a Virtual representation of the IOT module with Augmented reality.

We made timer modules also (with 5min Fixed timer and timer that we can select the time)



this is for IOT app

(This is not the end product. This is just for the prototyping MVP)

For the IOT part, we are using the standard communication protocol MQTT which is used in the IOT industry. We made a pulse communication protocol that communicates between the Base and Modules from scratch.

For whom did we make it?

Current smart plugs focus on just only smart home systems and automation. Of course, that is one of our targets. And we will give a safe environment to the DIY community so they can develop over our PLUGSi.

You may have seen that there are hundreds of thousands of Videos on YouTube tutorials that teach how to use Arduino-related things, relays and so many things to make your home smart.

If you are a parent you may not allow your child to do those things because there is an issue about the safety of your child. Because the child has to work with an AC line which needs good guidance.

But with PLUGSi we are providing a fully functioning Base. No worries about the AC line, Even a 5-year-old can build and automate their house by buying a Base and Reprogrammable Module. We will provide them with a simple IDE so they can drag and drop the functions and program that module safely and do anything that they like.

And 3rd parties will be able to make modules and then they can be a part of a the PLUGSi ecosystem.

End

To achieve infinite modularity, simplicity, unlimited customizability, and adaptability there is no way other than PLUGSi.

Our Team

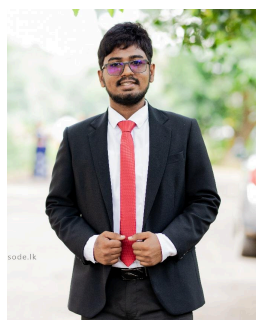
Mihiran



Sanuja



Dinuka



Danidu



Achievements

Finalists at INSL Sri Lanka Business Stage 2024

Semi-Finalists at SLIoT Challenge 2023