Faculty of Engineering and Technology,
SRM Institute of Science and Technology, Kattankulathur, Kancheepuram District, Tamil Nadu

PROJECT "IMPERIUM"

FACULTY INCHARGE

Dr. Alok Kumar Assistant Professor

Department of Physics and Nano Technology

SRM Institute of Science and Technology, Kattankulathur, Kancheepuram District, Tamil Nadu

STUDENT CONTRIBUTORS:

- > RA1911030010008 R M SHREYA
- > RA1911030010009 ARVIND SURESH
- RA1911030010010 MIRZA REHAN
- > RA1911030010011 K. AISHWARYA IYER
- RA1911030010012 ARBIND LOCHAN MISHRA
- RA1911030010013 GAYATRI RAMAKRISHNAN
- > RA1911030010014 GITA ALEKHYA PAUL

SUMMARY

In a digital age, where all devices are connected to the internet, we have many devices in the market which helps us to control them from any part of the world. This is a great initiative to save electricity. But the problem lies in the commercialization of the products. The products, for example the Phillips Hue Smart Bulbs are very costly and also require an additional Hub, often the total cost of setup reaching about ₹12,000! Thus, we present to you our brainchild, "Imperium", a versatile add-on to your switch board or distribution box to convert any plain old and boring electrical socket into an integrated IoT Smart Switchboard! Imperium is an add-on board that can be added to any electrical socket which will transform it to a smart electrical outlet. Imperium will use an Android app integration with a dedicated web server and thus will enable the user to control the power to the electrical sockets directly FROM ANY PART OF THE WORLD! A common guestion may come that why modify an electrical socket? The answer to this is that if we have the electrical socket modified directly then we can make any appliance a smart appliance. Thus, we can practically control any device which is connected to our electrical socket, be it a microwave oven, a mixer grinder or even a TV. Now, the reason our product stands out from the crowd is because of its cost factor. What we want is that our innovation must be accessible to the masses. That is why we have come up with a product which will cost 1/5th of the price of the currently available smart switchboards in the market, whereas not even sacrificing any of its functionality. Moreover, our add-on board is product independent. It can be used to control the power flow on any type of switch or distribution box! "Imperium" will help society move on to the next stage of automation by digitally controlling the electrical consumption. IT HELPS TO KEEP A CHECK ON THE POWER CONSUMPTION AND THE RISING CONCERN OF GLOBAL WARMING BY REDUCING THE AMOUNT OF NATURAL GAS USED IN ELECTRICAL POWER GENERATION.

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WORKFLOW DIAGRAM:

Mobile Application

- •The mobile app will provide the user with a GUI interface and will allow him to monitor and control the states of the different socket power states.
- •As an when the user sends some instructions to the Blynk server running on a local server in his home, he server recieves the web request and proccesses it.

Blynk Server

- •The Blynk server processes the data passe onto it and analyzes the data and formats it into the format which will be readable to the micro-controller.
- •Then, it passes the needed instruction to the micro-controller embedded into the electrical socket from where the data is proccessed by the micro-controller.

NodeMCU

- •The cost-efficiency of our project comes due to this very low-cost and versatile micro-controller we are using. NodeMCU is based on the ESP8266 and has Wi-Fi built-in and has the capabilities to accept and send HTTP Requests.
- •The NodeMCU will recieve the data from the web-server and proccess the data recieved and control the different control mechanisms as metioned below.

Control Mechanism

•The different control mechanisms can be used to let the NodeMCU control higher voltage appliances. Use of relays, reed switches, MOSFETs and transistors can be used to switch higher voltage appliances. The advantage of our product is that it is independent of the control mechanism. We can practically implement any type of control mechanism based on our usage.

THANK YOU.

