HOME AUTOMATION

BY – VAIBHAV BANSAL

PROBLEM STATEMENT

You and your team have to find a real world problem and using your expertize in IOT and engineering, you have to virtually design a system that can solve that problem.

For this challenge, we are developing a Home Automation System. We have divided the project into 2 parts – Voice Controlled electrical appliances and Smart Door Lock.

PROBLEMS

Hardware

I didn’t have enough micro-controllers or other large scale electrical appliances to run in this project.

Google Assistant

Major issue was connecting the nodeMCU with the google assistant.

Blynk

Limited amount of energy balance was provided in the Blynk app project development console for designing the app.

IF YOU ONLY
FOCUS ON THE PROBLEM

YOU MIGHT
MISS THE EASY SOLUTION

SOLUTION

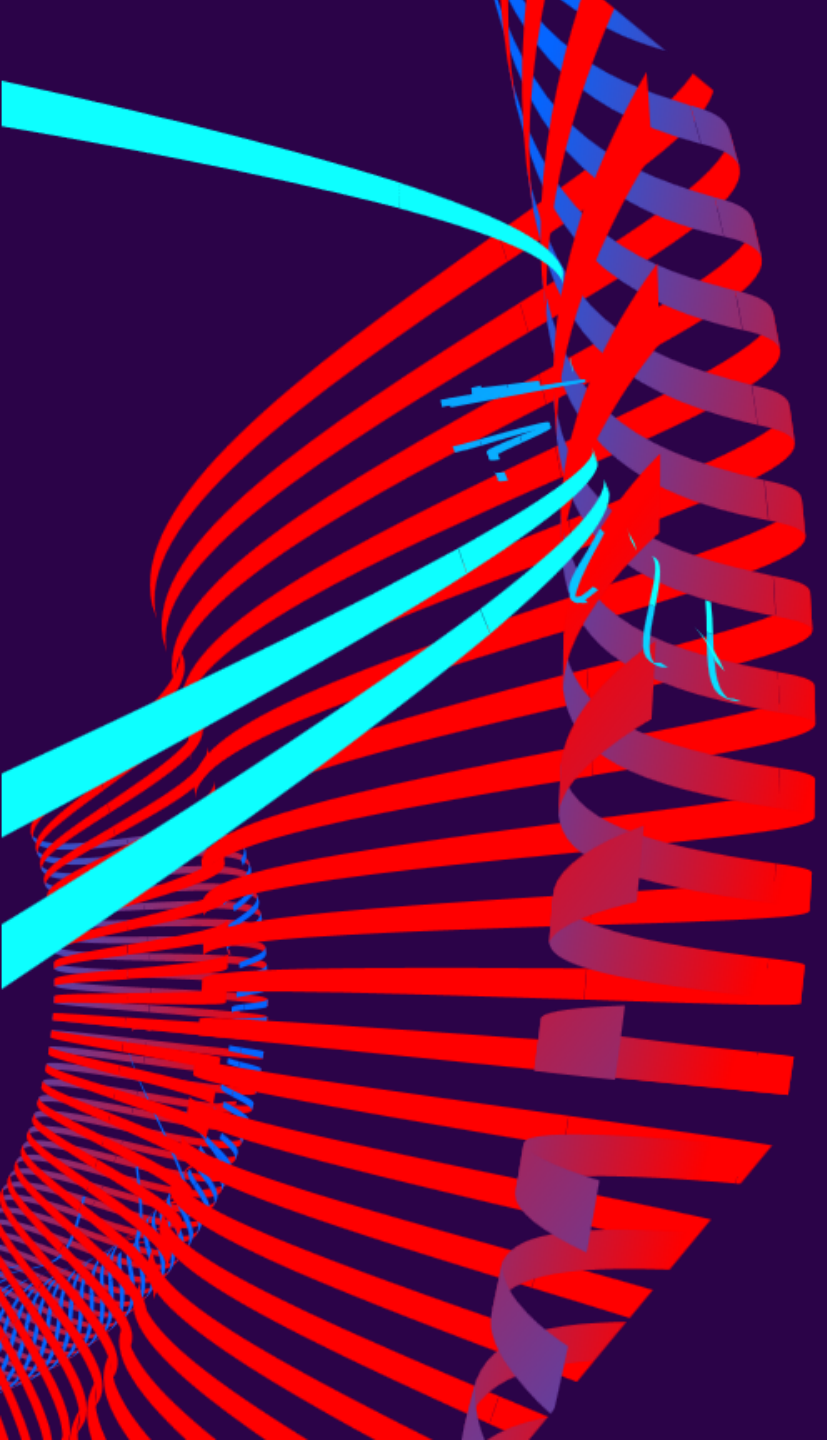
I have used IFTTT and Webhooks to connect NodeMCU to Google Assistant via Blynk console.

IFTTT helped me program the voice commands and connected to Google Assistant.

PROJECT OVERVIEW

WE HAVE DIVIDED THE PROJECT INTO 2 PARTS

- VOICE CONTROLLED HOUSE LIGHTING EFFECTS AS WELL AS OTHER ELECTRICAL APPLIANCES LIKE FAN OR SOMETHING
- SMART DOOR LOCK BASED ON PIN LOCK AS WELL AS RFID TAG READER



VOICE CONTROLLED LIGHTS AND FANS

PROJECT PART-1 MODEL

Accepting

Voice Command is accepted through Google Assistant which is programmed via IFTTT.

Processing

The voice command given to Google Assistant is transferred to IFTTT which redirects the command to webhooks to request Blynk to execute the command.

Microprocessor

As per the command, the microprocessor powers up the appliance that is requested via Blynk.

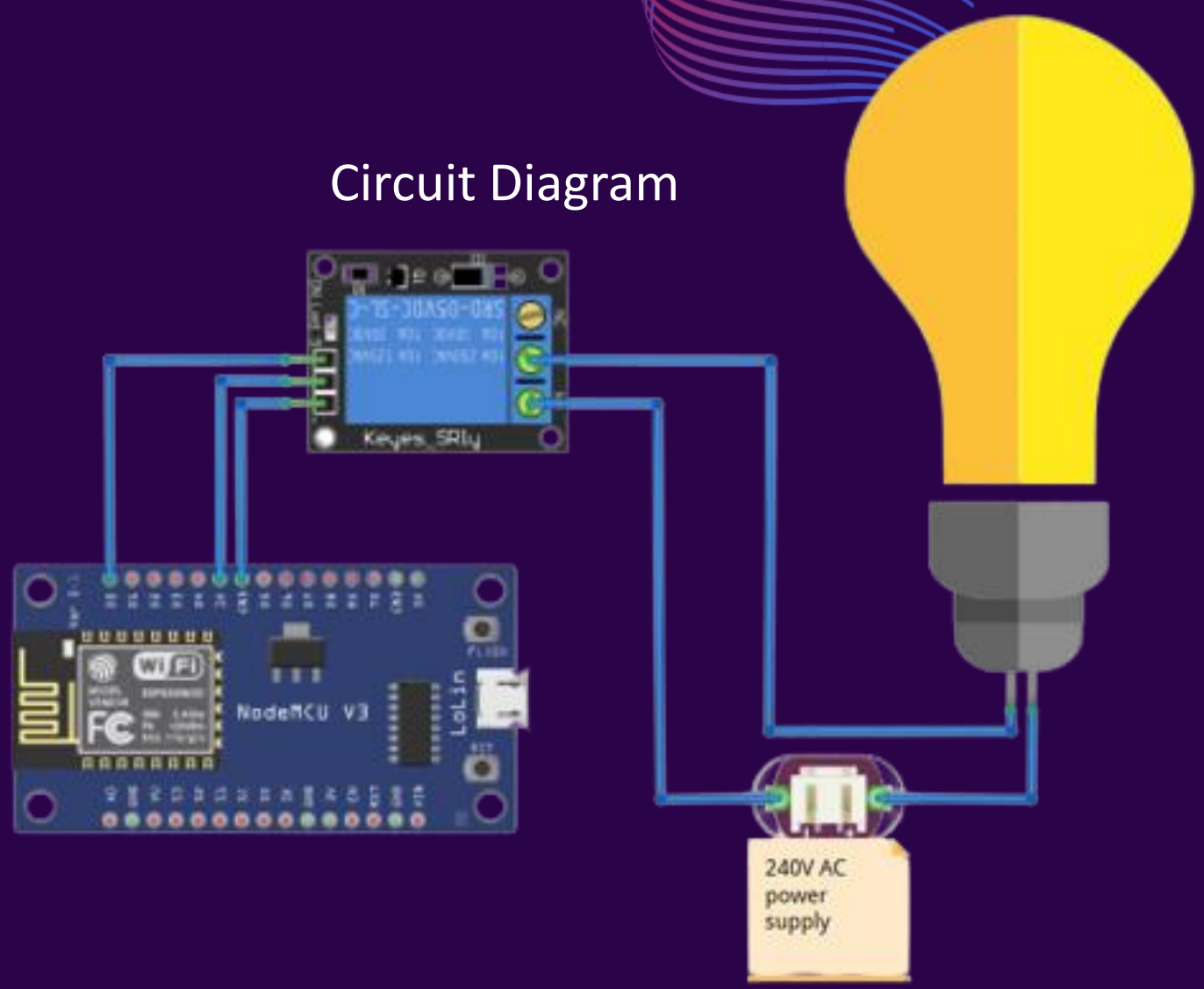
HARDWARE COMPONENTS USED

- 2 NodeMCU
- Breadboard
- LED lights
- RGB LED lights
- Relay Module
- Battery
- Mobile Phone with Blynk installed

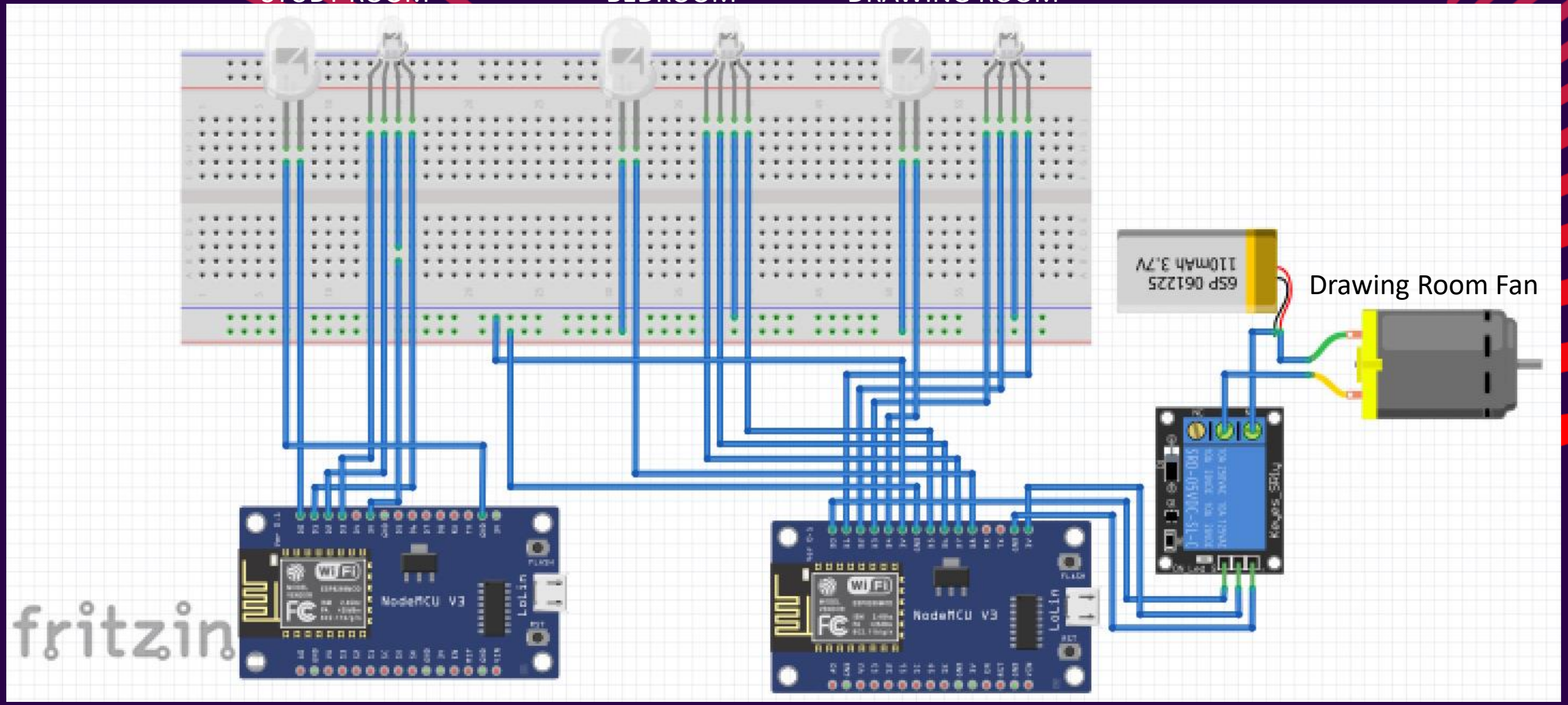
SCALING THE PROJECT

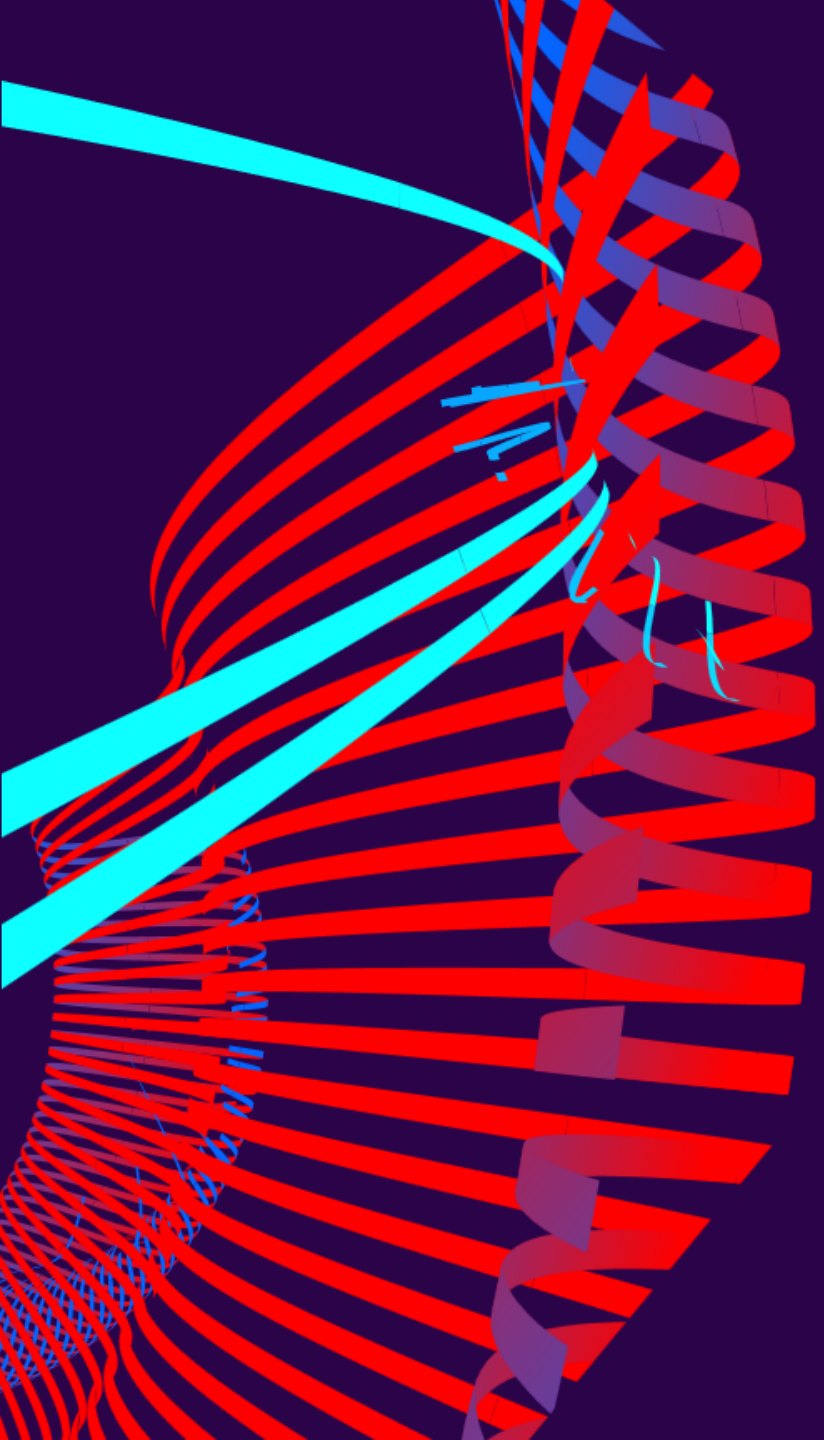
We can scale this project to the whole house i.e. with real LEDs, Bulbs and Fans. What we have to do is depicted in the circuit diagram with only one bulb. If this is done to every bulb of the house, the following project could be used for the whole house.

Circuit Diagram



CIRCUIT IMAGE





SMART DOOR LOCK

PROJECT PART-2 MODEL

Accepting

Password is entered via keypad or by scanning an RFID card.

Microprocessor

Microprocessor processes the input, classifies it, and checks if the password is correct or not.

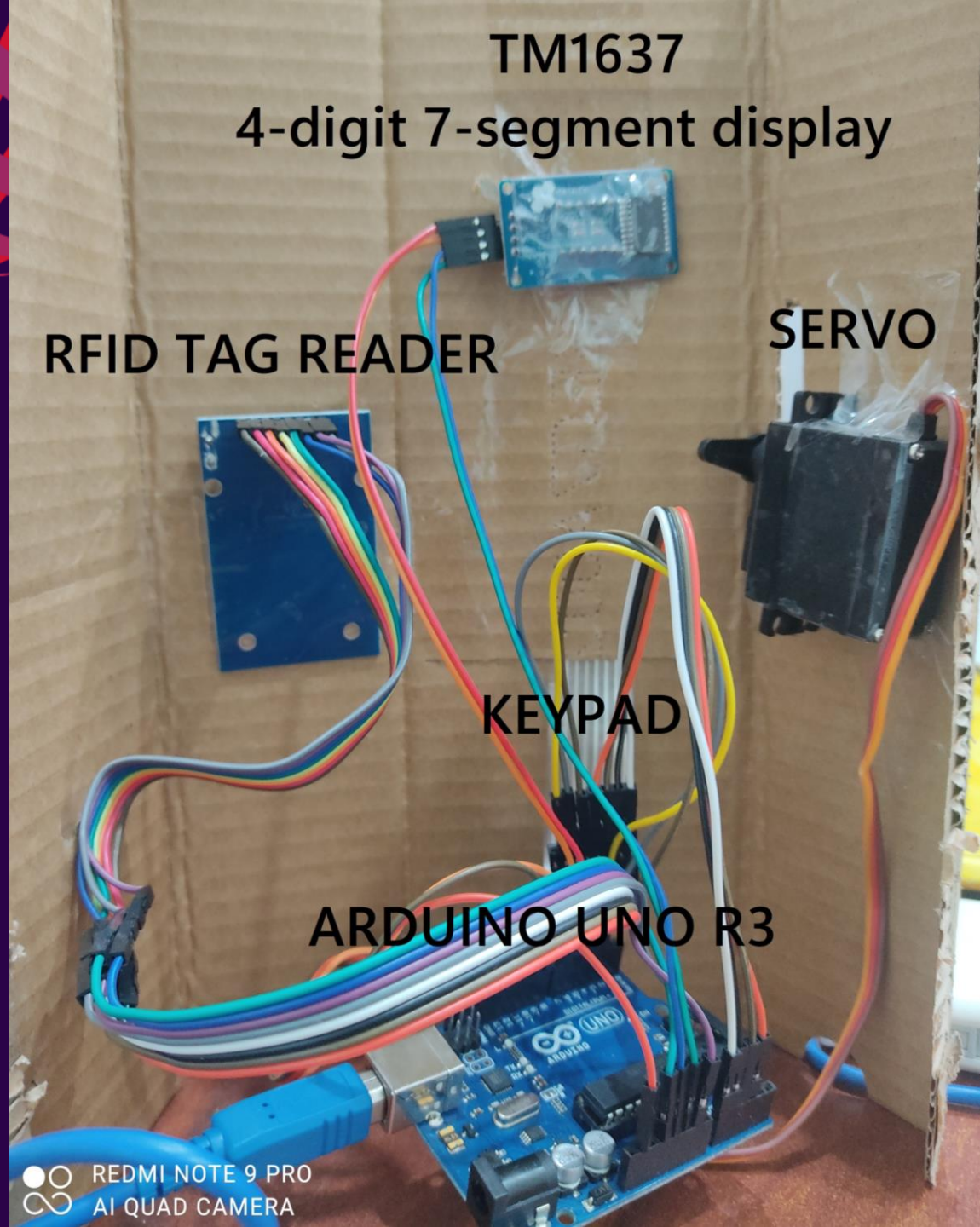
Lock Unlock

If the password is correct, the door is unlocked and after few seconds it locks the door.

HARDWARE COMPONENTS USED

- Arduino UNO R3
- TM1637 4-digit 7-segment Display
- RFID Card Reader
- Keypad
- Metal Gear Servo
- Jumper Wires

CIRCUIT DEVELOPED




Lets see
if this works

WORKING

PART - 1

Intro and working via Blynk –

https://drive.google.com/file/d/1tRnnbyoRIMeGopjUkFHBNV_x1iZuwShQ/view?usp=sharing

Voice Controlled Working -

https://drive.google.com/file/d/1tW94Z8CuUWy4m4vsrU2ilIcQ12KD9aKA/view?usp=sharing

LED Working on 220V power supply -

https://drive.google.com/file/d/1tH-qUb-tvAeeM7TG--FqVTK1LvZZuZhy/view?usp=sharing

PART – 2

Door Lock –

https://drive.google.com/file/d/1tY1TD8PpHQ8TMMFrJVXGBieCukW-Psi6/view?usp=sharing

SUMMARY

This is proper working model of our Home Automation Project. I hope this is a step forward in making Varanasi a Smart City!

THANK YOU

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