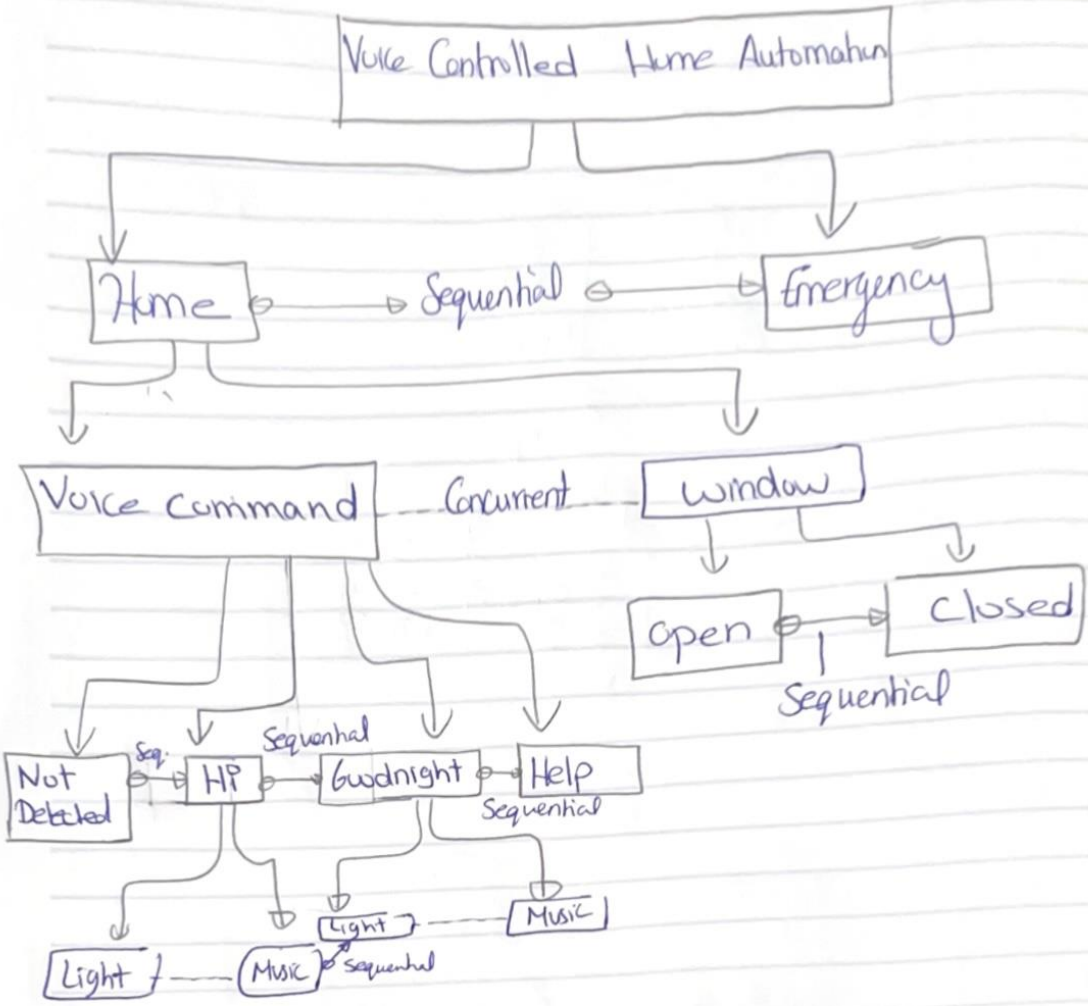
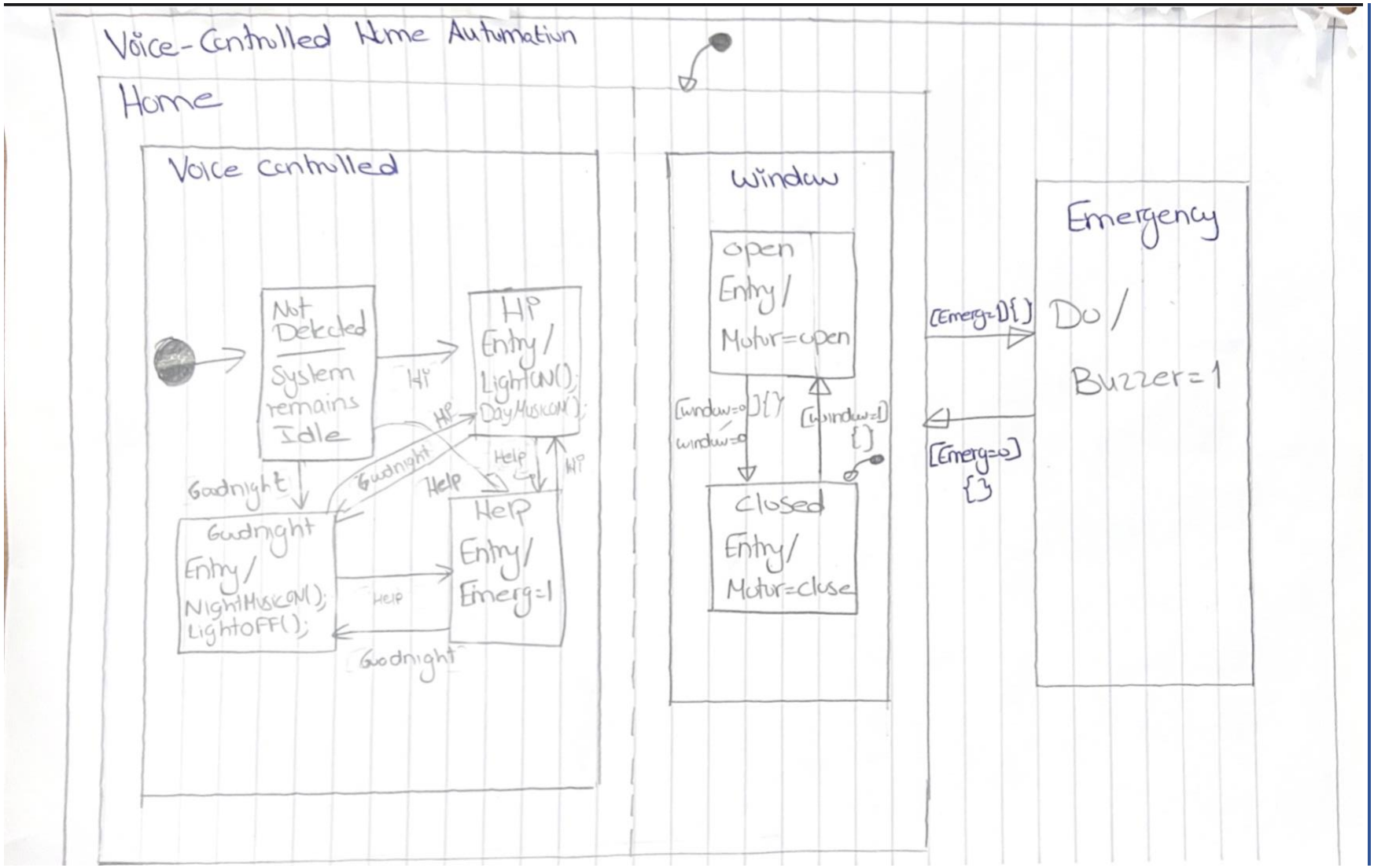
2023

Team - 43

VOICE-CONTROLLED HOME AUTOMATION: CONTROL DEVICES USING VOICE COMMANDS WITH THE HELP OF A VOICE RECOGNITION MODULE


Voice Controlled Home Automation
Home
Sequential
Emergency
Voice command
Concurrent
Window
Open
Closed
Sequential
Not Detected
Seq.
HP
Sequential
Goodnight
Help
Sequential
Light
Music
Light
Music
Sequential


Voice-Controlled Home Automation
Home
Voice controlled
Not Detected
System remains Idle
HP
Entry/
Light ON();
DayMusicON();
Goodnight
Entry/
NightMusicON();
LightOFF();
Help
Entry/
Emerg=1
HP
Goodnight
Help
Goodnight
Window
open
Entry/
Motor=open
[window=0]{}
window=0
[window=1]
{}
closed
Entry/
Motor=close
[Emerg=1]{}
[Emerg=0]
{}
Emergency
Do/
Buzzer=1

Task Description:

- The "Voice-Controlled Home Automation" project is designed to enable users to interact with home devices using voice commands.

Subsystem 1: (concurrent)

- Upon entering the room and issuing the "GOOD MORNING" voice command (Laptop's microphone – the laptop will process the command using voice recognition), the system responds by turning on the light and playing a predetermined song on the laptop's speaker. The voice command "GOODNIGHT" initiates the shutdown sequence. This command triggers the system to turn off the lights and play a designated song to facilitate a soothing atmosphere.

Subsystem 2:

- Additionally, the user can open/close the window shutter (motor) by making a specific gesture (infrared sensor).

⇒ Input Devices
⇒ Output Devices
⇒ **The 2 subsystems will run sequentially**

PS: The laptop will process the voice command using a micropython script and then send the output to the microcontroller over the USB connection port.

Market Survey:

Input Devices:

- Microphone
- Infrared Sensor

Output Devices:

- Servo motor
- Light Bulb
- Speaker