

## **Project Title:**

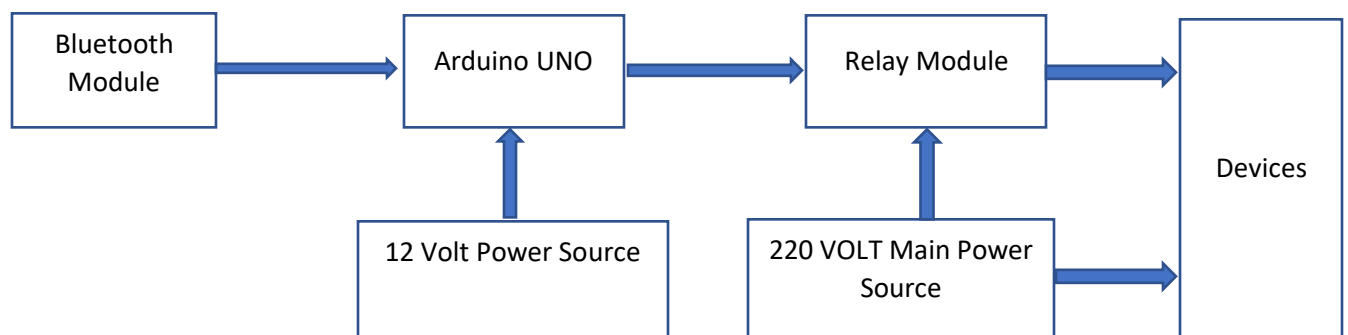
### Home Automation System Using Arduino

## **Project Description:**

The main objective of this project is to develop a home automation system using an Arduino board with Bluetooth being remotely controlled by any Android OS smart phone. In order to achieve this, a Bluetooth module is interfaced to the Arduino board at the receiver end while on the transmitter end, a GUI application on the cell phone sends ON/OFF commands to the receiver where devices are connected. By touching the specified location on the GUI, the devices can be turned ON/OFF remotely through this technology. Another GUI called personal assistant develop in python. The personal assistant works using a python IDE. The python IDE connect with Arduino using port. The user activates the agent using wake up command. The flow of signals is as follows:

1. Voice Input to Python IDE
2. Processing on Python IDE
3. Sending encrypted data to Arduino via PORT.
4. Processing on Arduino UNO
5. Digital signals to relay

## **Block Diagram:**



## Requirements:

### Hardware Required:

1. Arduino UNO
2. Relay module
3. HC 05 Wireless Bluetooth Module
4. Breadboard
5. Jumper Wires
6. Lamp

### Software Required:

1. Arduino IDE
2. PyCharm IDE

### Language:

1. C++
2. Python

### Libraries:

1. **Pytttsx3**: It is a text-to-speech conversion library in Python.
2. **Speech Recognition**: Convert the spoken words into text.
3. **PyAudio**: PyAudio provides Python bindings for PortAudio, the cross-platform audio I/O library. With PyAudio, you can easily use Python to play and record audio on a variety of platforms.
4. **PySerial**: This **module** encapsulates the access for the **serial** port.

### GUI(Graphical User Interface):

1. Make a Personal Assistant and Android App to control Lights and Arduino.
2. Create personal assistant in python using pytttsx3 library (pytttsx3 is a text-to-speech conversion library) and speech recognition library.

3. For creating android app use online application called MIT App Inventor.

### **Circuit Diagram:**

