

HOME AUTOMATION SYSTEM

- **Step 1: Gather Materials**
- **Microcontroller:** ESP8266 or ESP32
- **Relays:** To control the lights and fans
- **Sensors:** (optional) for temperature, motion, etc.
- **IoT Platform:** Blynk or MQTT broker (like Mosquitto)
- **Power Supply:** for the microcontroller and relays
- **Connecting Wires:** For wiring everything up
- **Breadboard:** For prototyping

- **Step 2: Setting Up the Microcontroller**

- 1.Install Arduino IDE:** Download and install the Arduino IDE from the official website.

- 2.Add Board Manager:** Go to File > Preferences and add the URL for ESP8266 or ESP32 board manager.

- 3.Install the Board:** Go to Tools > Board > Boards Manager and install the ESP8266 or ESP32 package.

- 4.Select the Board:** Choose your microcontroller (ESP8266 or ESP32) from the Tools > Board menu.

- **Step 3: Coding the Microcontroller**

- 1. Blynk Setup:**

- 1. Install the Blynk library in Arduino IDE (Sketch > Include Library > Manage Libraries, then search for Blynk).
 - 2. Create a Blynk project in the Blynk app and get the Auth Token.

- **Step 4: Wiring the Circuit**

- Connect the microcontroller to the relay module.
- Connect the relay module to the devices (lights, fans).
- Ensure the power supply is connected properly to the microcontroller and relays.

- **Step 5: Testing and Troubleshooting**

- Upload the code to the microcontroller.
- Use the Blynk app or MQTT client to send commands to the microcontroller.
- Test the connections and ensure the devices respond to the commands.

- **Step 6: Creating the Smartphone or Web Application**

1.For Blynk:

1. Use the Blynk app to create a dashboard.
2. Add widgets (buttons, sliders) to control the devices.
3. Link the widgets to the corresponding virtual pins in your microcontroller code.

2.For MQTT:

1. Use an MQTT client app (like MQTT Dash) or create a web application.
2. For the web application, you can use HTML, CSS, and JavaScript to create a simple interface.
3. Use a library like Paho MQTT to handle MQTT communication in your web application.

- **Step 7: Expanding the System**

- Add more devices (sensors, additional lights, fans).
- Improve the code to include more functionality and automation (scheduling, sensor-triggered actions).
- Feel free to ask if you need more detailed information or help with specific steps. Enjoy building your home automation prototype!