HOME AUTOMATION SYSTEM USING IoT

Internship Task - 2

Internship Organization: CODTECH

College Name: Pravara Rural Engineering College, Loni

Internship Duration: 7th January 2026 to 7th February 2026

Platform Used: Blynk IoT

Abstract

This project presents a Home Automation System developed using Internet of Things (IoT) concepts. The system enables remote control of household appliances such as lights and fans using a smartphone application through the Blynk IoT platform. The project demonstrates how IoT technology can be used to automate and control devices efficiently without physical presence. This implementation focuses on a virtual simulation approach, making it cost-effective and easy to understand.

Objectives

• To understand the working of IoT-based home automation systems.

• To control multiple home appliances remotely using a mobile application.

• To use Blynk IoT platform for real-time device control.

• To demonstrate automation without physical hardware using simulation.

Components and Tools Used

• Blynk IoT Mobile Application

• Blynk Web Dashboard

• Arduino IDE (for code logic simulation)

• Internet Connection

System Architecture

The system consists of a user interface in the form of a mobile application created using the Blynk platform. When the user interacts with the application, commands are sent to the Blynk Cloud. These commands are received by a virtual IoT device which processes the instructions and changes the state of appliances such as lights and fans accordingly.

Working Principle

The user operates virtual buttons in the Blynk mobile application. Each button is mapped to a virtual pin. When a button is toggled, the Blynk server sends the data to the IoT device logic. Based on the received input, the system turns the appliance ON or OFF. This process happens in real time using internet connectivity.

Result

The Home Automation System was successfully designed and tested using the Blynk IoT platform. Multiple devices were controlled remotely through a smartphone interface. The project demonstrates the effectiveness of IoT technology in home automation applications.

Advantages

• Remote access and control of appliances

• User-friendly mobile interface

• Low cost and scalable solution

• Energy-efficient automation

Future Scope

In the future, this system can be extended by integrating real hardware components such as ESP8266 or ESP32. Additional features like voice control, sensor-based automation, scheduling, and MQTT protocol integration can also be implemented to enhance functionality.

Conclusion

This project successfully demonstrates a Home Automation System using IoT principles and the Blynk platform. The system provides an efficient and reliable way to control household appliances remotely. It serves as a strong foundation for understanding real-world IoT applications.