SMART HOME AUTOMATION SYSTEM WITH MALFUNCTION DETECTION

This project focuses on developing a home automation system with problem detection software. The system is designed to monitor household appliances and detect any failures or malfunctions. When an issue is identified, the software informs the user about the failure and provides a reason for it, such as a power issue or mechanical fault. This proactive approach helps users address problems early, improving appliance longevity and ensuring efficient home management.

1 Problem Statement

The problem with current home automation systems is that they primarily focus on controlling and monitoring appliances, without offering robust detection and diagnostic capabilities for appliance failures. Most existing systems only alert users when an appliance is not functioning, without providing detailed information about the cause of the failure. This lack of intelligent problem detection leads to delayed repairs, unnecessary service calls, and increased maintenance costs. This project aims to develop a home automation system that not only detects appliance failures but also informs users about the specific reasons behind the failure, improving the efficiency of home management and reducing downtime for essential household devices.

2 Solution Approach

To address the lack of advanced failure detection in current home automation systems, this project proposes the development of a smart system that incorporates problem detection software. The system will continuously monitor the performance of household appliances and analyze data to identify potential failures or malfunctions. When an issue is detected, the system will notify the user with a detailed explanation of the failure's cause, such as electrical issues, mechanical faults, or sensor malfunctions. By providing early detection and clear diagnostic information, this solution aims to help users take timely action, reduce repair costs, and extend the lifespan of their appliances.

3 Technology Stack

- **Blynk Application.**
- **Interface:** Nodemcu.