Title: Development of a Web-Based System for Monitoring and Controlling Smart Home Devices using Flask

Background: Smart home technology has become increasingly popular, and many homes have multiple smart devices such as security cameras, thermostats, lighting, and entertainment systems. However, managing these devices can be challenging, especially for users with limited technical expertise. Flask is a popular Python web framework that allows developers to build scalable and flexible web applications. It provides powerful tools for routing, handling requests, and rendering templates, making it an ideal choice for building a web-based system for smart home device management.

Research question: Can a web-based system built using Flask improve the management and control of smart home devices compared to existing mobile applications?

Objectives:

To review the literature on smart home technology and web-based systems for device management.
To analyze the user requirements for a web-based smart home device management system.
To design and develop a Flask-based web application for monitoring and controlling smart home devices.
To evaluate the usability and effectiveness of the web application compared to existing mobile applications.
Methodology:
The research will use a mixed-methods approach, combining qualitative and quantitative data collection and analysis. The study will involve three main phases: requirements gathering, design and development, and evaluation. In the first phase, the researcher will conduct interviews and surveys with smart home device users to identify their requirements for a web-based device management system. In the second phase, the researcher will use the requirements gathered to design and develop a Flask-based web application for monitoring and controlling smart home devices. The application will allow users to view device status, change settings, and receive alerts. In the final phase, the researcher will evaluate the usability and effectiveness of the web application compared to existing mobile applications using a user study. The evaluation will include metrics such as task completion time, error rates, and user satisfaction.

Expected outcomes:
The research is expected to produce the following outcomes:

A review of the literature on smart home technology and web-based systems for device management.
A set of user requirements for a web-based smart home device management system.
A Flask-based web application for monitoring and controlling smart home devices.
An evaluation of the usability and effectiveness of the web application compared to existing mobile applications.
A recommendation on the use of web-based systems for smart home device management.
Conclusion:
The research will contribute to the field of smart home technology by exploring the use of web-based systems for device management. The results of the study will be useful for smart home device manufacturers and developers to improve their device management systems and provide a better user experience for smart home device users.