**CQI REPORT**

(SOFTWARE CONSTRUCTION LAB)

**“Smart Home Automation System”**

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| --- | --- |
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# **Project Definition**

For homeowners who wish to control and monitor their household devices remotely or automatically, the Smart Home Automation System is an IoT-based platform that allows users to operate lights, fans, air conditioners, security cameras, and other smart appliances through a centralized mobile or web application. The system supports real-time monitoring, scheduled automation, and voice command integration. Unlike traditional manual control systems, homeowners who use the Smart Home Automation System will not need to be physically present to operate their appliances, which will enhance convenience, improve energy efficiency, and increase the overall security and comfort of their living environment.

# **Vision Statement**

**For** homeowners and residents  
**Who** want a convenient, secure, and energy-efficient way to manage their home environment  
**The** Smart Home Automation System  
**Is** a centralized home automation platform  
**That** allows remote and automated control of lights, climate, appliances, and security through mobile or voice interface  
**Unlike** traditional home setups where each device must be operated manually or locally  
**Our product** integrates all home systems into a single, user-friendly interface with intelligent automation and real-time alerts for improved lifestyle, safety, and efficiency.

Or

**For** homeowners and residents **who** want a convenient, secure, and energy-efficient way to manage their home environment, **the** Smart Home Automation System **is** a centralized home automation platform **that** allows remote and automated control of lights, climate, appliances, and security through a mobile or voice interface. **Unlike** traditional home setups where each device must be operated manually or locally, **our product** integrates all home systems into a single, user-friendly interface with intelligent automation and real-time alerts for improved lifestyle, safety, and efficiency.

# **Functional Requirements**

* Users should be able to turn appliances (lights, fans, AC, etc.) on/off remotely via mobile or web app.
* Real-time monitoring of home status (temperature, door locks, lights, etc.).
* Automated scheduling of devices based on user-defined conditions.
* Notification and alert system for motion detection, fire, gas leak, or intrusion.
* Support for multiple user accounts with permission levels.
* Voice command integration (e.g., Alexa, Google Assistant).
* Data logging for usage analytics.

# **Non-Functional Requirements**

* **Performance**: The system should respond to commands within 1 second and support at least 100 devices simultaneously.
* **Security**: Must support user authentication, data encryption, and secure communication channels.
* **Usability**: Interface should be user-friendly, requiring minimal technical knowledge.
* **Reliability**: System should maintain 99.9% uptime and provide failover handling for device disconnection.
* **Scalability**: Easily expandable to accommodate additional devices or rooms.
* **Maintainability**: Modular code structure to allow easy updates and bug fixes.
* **Compatibility**: Should work across multiple platforms (Android, iOS, web browsers).

# **UML DIAGRAMS:**

## **Context Diagram:**

A black screen with white text

AI-generated content may be incorrect.

## **Sequence Diagram**

A screenshot of a computer

AI-generated content may be incorrect.

## **Use Case Diagram:**

A screen shot of a cell phone

AI-generated content may be incorrect.

## **ER Diagram**

A diagram of a computer flowchart

AI-generated content may be incorrect.

**LOW FIDELITY SKETCHES**

A sketch of a wireframe

AI-generated content may be incorrect.A sketch of a computer screen

AI-generated content may be incorrect.

A sketch of a phone

AI-generated content may be incorrect.

**HIGH FIDELITY SKETCHES**

A screenshot of a device

AI-generated content may be incorrect.A screenshot of a phone

AI-generated content may be incorrect.A screenshot of a bed lamp

AI-generated content may be incorrect.