Stakeholder Analysis

Stakeholder	Role	Needs
Homeowners	End Users	Control and monitor smart devices easily and securely.
Developers	Implementation Team	Clear documentation, scalable architecture, and maintainable code.
IoT Device Manufacturers	Hardware Providers	Ensure compatibility and seamless integration with the dashboard.

User Stories & Use Cases

1. **User Story:** As a homeowner, I want to turn my smart lights on/off remotely so that I can manage my home efficiently.
    - **Use Case:** User logs into the dashboard → Selects a device → Clicks the toggle button → Device state updates instantly.
2. **User Story:** As an admin, I want to monitor all connected devices to ensure everything is functioning correctly.
    - **Use Case:** Admin accesses the dashboard → Views all connected devices → Receives real-time status updates.
3. **User Story:** As a user, I want to schedule my smart devices to operate at specific times to automate daily routines.
    - **Use Case:** User selects a device → Sets a schedule (e.g., turn on at 7 PM) → System executes automation.

Functional Requirements

1. User authentication and authorization.
2. Real-time device monitoring and control via WebSockets.
3. Role-based access control (User/Admin).
4. Event logging and activity history tracking.
5. Responsive UI for Desktop.

Non-Functional Requirements

1. **Performance:** System should handle at least 100 concurrent users with a response time under 200ms.
2. **Security:** Implement end-to-end encryption and role-based access control.
3. **Usability:** UI should be intuitive and easy to use with minimal training.
4. **Reliability:** System uptime should be at least 99.5% with minimal downtime.
5. **Scalability:** The architecture should support easy integration of new IoT devices and features.
