

Software Requirements Specification (SRS): IoT Device Application

1. Introduction

1.1 Purpose

This Software Requirements Specification (SRS) provides an outline of requirements for a sample IoT Device Application that monitors and controls smart devices remotely.

1.2 Scope

The application allows users to visualize real-time data from IoT sensors and send control commands to actuators connected through the IoT ecosystem.

1.3 Definitions, Acronyms, and Abbreviations

- **IoT** - Internet of Things
- **SRS** - Software Requirements Specification
- **API** - Application Programming Interface

1.4 References

[1] IEEE Std 830-1998: IEEE Recommended Practice for Software Requirements Specifications

2. Overall Description

2.1 Product Perspective

The IoT Device Application is a standalone system that interfaces with smart devices via an IoT cloud platform.

2.2 Product Functions

- Monitor real-time sensor data
- Visualize device statuses
- Send control and configuration commands
- Receive alerts and notifications

2.3 User Classes and Characteristics

- **End User:** Monitors and controls devices
- **Administrator:** Configures devices and manages access

2.4 Operating Environment

- Web Application (Browsers: Chrome, Firefox, Edge)
- Mobile Application (Android 8.0+ / iOS 12+)

3. Specific Requirements

1. The system shall allow users to register and authenticate with a username and password.
2. The system shall display a dashboard with a list of connected IoT devices.
3. The application shall show real-time sensor data, including temperature, humidity, and motion.
4. The user shall be able to send ON/OFF commands to smart actuators.
5. The system shall log all device events for a minimum of 30 days.
6. The application shall alert users via notifications for critical events such as threshold breaches.

4. External Interface Requirements

4.1 Hardware Interfaces

- IoT Sensors (e.g., DHT22, PIR Motion Sensor)
- IoT Actuators (e.g., Smart Plug, Relay Module)

4.2 Software Interfaces

Interface	Description
REST API	Device data retrieval, configuration, and control
WebSocket API	Real-time data streaming

4.3 Communications Interfaces

- Wi-Fi (802.11 b/g/n)
- MQTT Protocol for device communication

5. Non-functional Requirements

- Response time for sensor data: < 2 seconds
- System availability: 99.5% uptime
- User data privacy: GDPR compliant
- System scalability: Up to 10,000 devices

6. Appendix

- Sample Device JSON Payload
- Glossary