Software Requirements Specification

for

MINNAL: Connecting Lines

Version 1.1 approved

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1 Purpose

Electricity consumers face a lot of problems regarding electricity in their day-to-day life. Among all these problems the inability to connect to the electricity board due to busy network lines is a major concern. The purpose of the Project "MINNAL: Connecting Lines Version 1.0" is to make a system where the data about the consumer will be saved only once and a single click can connect them to the electricity board authorities. The project acts as an intermediate between electricity consumers and the electricity board authorities. The project mainly deals with the servicing requests of transformers in case of any compliant.

1.2 Document Conventions

This document follows IEEE format. Bold-faced text has been used to emphasize section and sub-section headings.

1.3 Intended Audience and Reading Suggestions

The document is intended for all the stakeholders, consumers, electricity board authorities and the developers –designers, coders, testers and maintainers. The reader is assumed to have basic knowledge of Mobile OS, databases and user accounting along with knowledge and understanding of DFDs and Use-case diagrams.

1.4 Product Scope

"Connecting Lines"
It is a platform through which consumers can easily connect with the authority in case of electricity complaints. Sometimes it is hard for the consumers to connect the board authorities in case of any transformer or post complaint due to busy network lines. This project makes it easy to connect the board with just a click. Mostly when a consumer wants to file a complaint online to the board, it makes them to fill the form from scratch which is time consuming. This project makes the consumer to fill in the consumer details only once and it will be saved and used for future reference. There is no limit of adding consumers to this application. Hence, it is scalable. It will be a better way of organizing and connecting consumers to the board.

1.5 References

[1] Addala,Sriashika. (2019)."SRS - Software Requirements Specification for SNAPCHAT". 10.13140/RG.2.2.33860.24965.
Available:https://www.researchgate.net/publication/344668443_SRS_-_Software_Requirements_Specification_for_SNAPCHAT. [Accessed: 31 March 2023].

2. Overall Description

2.1 Product Perspective

This project is aimed to help the consumers to contact the authorities easily without any time delay. Consumers face a lot of problems when they want to register a complaint to the electricity board. Though consumers can contact the KSEB through the telephone, they face issues when there is a busy network line. Also, when a consumer wants to file a complaint online to the board, it makes them to fill the form from scratch which is time consuming. This project makes the consumer to fill in the consumer details only once and it will be saved and used for future reference.

2.2 Product Functions

The project acts as an intermediate between electricity consumers and the electricity board authorities.
- ➢ It stores consumers' primary details.
- ➢ Provides a single touch connecting button.
- ➢ Send and receive notifications.
- ➢ Separate user interface for both consumer and authority.
- ➢ Better complaint area visibility on authority's end.
- ➢ View status of complaint.

2.3 User Classes and Characteristics

The user classes for which the product is intended are:
- **Administrator**
  The administrator is the super user and has complete control over the activities that can be performed. The administrator can remove any user.

- **Consumer:**
  These are the ordinary people who consume electricity. They are the ones affected in case of power disruption.

- **Board:**
  These include the authorities at KSEB who are responsible for supplying electricity. They view the complaints and take necessary action to resolve the issue. They set the issue to 'resolved' once it has been taken care of.

2.4 Operating Environment

Software Requirements
- Operating System: either Android or Windows11 or Windows 8.1,10 with emulator
- Database : Google cloud platform

2.5 Design and Implementation Constraints

- The main constraint would be checking the genuineness of the issue reported which is not always possible, there can be risks involved.
- The app should be accessible from different types of client devices such as desktops, laptops, tablets, and smartphones.
- The app should be compatible with different operating systems
- Should adapt to different screen sizes and resolutions.
- Compatibility and stability.

2.6 Assumptions and Dependencies

- No Multilingual Support
- Depends on the availability of network connectivity and stability

3. External Interface Requirements

3.1 User Interfaces

Consumer:

Input Requirements:

Registering with the primary details of the consumer such as consumer number, post number, transformer number will be accepted at the time of registration. Details once taken will be used for the future reference .Report button to send information regarding the issue.

Output Requirements:

Status of the issue reported. Displaying of alert messages sent by the Board.

Board:

Input Requirements:

Send alert messages and Issue resolved status.

Output Requirements:

Altogether display of the addresses of issues reported by the consumers.

3.2 Software Interfaces

- The consumer details will be connected to a database backend via Firebase which will be accepted at the time of registration.

- The app works on all android platforms and Windows OS with the help of emulator or in Windows version 11.

- On the side of Consumers, Issue report notification will be sent to the Board.

- The Board will be able to send alert messages and Issue resolved status to the consumer side.

- Consumer details will be shared with the board.

3.3 Communications Interfaces

- User Interfaces:

  The app should have a user-friendly interface that allows consumers to interact with the system easily.

- Network Interfaces:

  A stable network connection is must for the proper working and sharing of the issues. The Network should be secure, reliable and comply with IP rules.

- Communication Protocols:

  Notification or alert messages will be sent from both the consumer and the board regarding issues.

4. System Features

4.1 Register and Login

4.1.1 Description and Priority

This feature allows the users to create an account in the system. To be able to register a complaint user must have an account and must be logged into it. This feature enlists the user's details in the database.
Also, the KSEB authorities has also been provided a separate login so they could view the database providing consumers details such as location, type of issue.

4.1.2 Stimulus/Response Sequences

Consumer can access the login by clicking onto the login button. The system then prompts the user to fill out first name, last name, address, email address, post number, consumer number, mobile number and their password. Location will be set as per the post number and the addressed given by the consumer at the time of registration. User successfully initiates the

login procedures. Afterwards the system validates the user's data and creates a new account for the user.

4.1.3 Functional Requirements

REQ-1: Button to register or log in must be available
REQ-2: A table in the database for all users.

4.2 Report Issues

4.2.1 Description and Priority

This feature enables the consumers to report issues in their area. User can just click on the report button to register the complaint and can provide details on the issue which will be sent to the KSEB authorities. Highest Priority will be set according to time of report that is, in First in First Out order.

4.2.2 Stimulus/Response Sequences

When the user clicks on register an issue button the user will be provided with text area to fill out the details of the issue. Thus, the consumer can fill out the type and severity of the issue.

4.2.3 Functional Requirements

REQ-1: A button to take the user to the page to fill out the details of the issue.
REQ-2: A button to submit the issue.

4.3 Receive Notification about Consumer Issues

4.3.1 Description and Priority

This feature enables the KSEB authorities to receive notification about issues registered by the consumer. The KSEB authorities can view the details of issue.

4.3.2 Stimulus/Response Sequences

When the user clicks on submit an issue button the KSEB authorities will get notification regarding the details of the issue.

4.3.3 Functional Requirements

REQ-1: A button to submit the details of the issue.

4.4 Send or receive Alert Messages

4.4.1 Description and Priority

This feature enables the KSEB authorities to send alert messages like upcoming power failures. The consumers can receive these alert messages. KSEB will receive issues based on the time of report.

4.4.2 Stimulus/Response Sequences

When the authorities click on alert button the alert messages are sent to consumers.

And the consumers can view the alert messages on the dashboard under the notification tab.

4.4.3 Functional Requirements

REQ-1: KSEB authorities have button to send alert messages.
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4.5 Check Whether the Issue is Resolved

4.5.1 Description and Priority

This feature enables the consumers to check the status of the issues. The authorities can update the status of the issue.

4.5.2 Stimulus/Response Sequences

When the consumer clicks the button they are provided with the status of issue.

4.5.3 Functional Requirements

REQ-1: consumers have a button to get the status of the issue.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- The system should respond to user actions within short period of time.
- The system should support at least 100 concurrent users.
- The system should be able to handle data sets with up to 10,000 users and 100,000 lab reservations.

5.2 Safety Requirements

- The system should prevent unauthorized access to sensitive user and lab data.
- The system should have a backup and disaster recovery plan to ensure data and system availability in case of failures or disasters.
- The system should adhere to relevant safety regulations and standards for lab management.

5.3 Security Requirements

- The system should use strong encryption algorithms to protect sensitive user and lab data during transmission and storage.
- The system should enforce strict password policies and implement measures to prevent password guessing and brute-force attacks.
- The system should log all user actions and provide audit trails for security and compliance purposes.

5.4 Software Quality Attributes

- The system should be modular and maintainable, with a clear separation of concerns and well-defined APIs.
- The system should be scalable and extensible, allowing for the easy addition of new features and modules.
- The system should adhere to relevant coding standards and best practices for software development

Appendix A: Glossary

IEEE   : Institute of Electrical and Electronics Engineers

DFD   : Data Flow Diagrams

KSEB : Kerala State Electricity Board

DBMS : Database Management System

REQ   : Requirement

API   : Application Program Interface

OS   : Operating System

IP   : Internet Protocol