**“FOOL PROOF LINE CLEARING SYSTEM”**

Project Report On

Submitted in partial fulfillment of the requirement

For the award of the degree of Bachelor of Engineering in

# Computer Science and Engineering

Submitted to



# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

**Belagavi, Karnataka, 590 018**

Submitted By

**ANIL M. MERWA 2KE17CS402**

**SAGAR F. HONNABINDAGI 2KE16CS040**

**SWAROOP MOGALI 2KE16CS050**

**KULDEEP K. KALAL 2KE16CS403**

Under the Guidance of

**Mr. Kiran B. Malagi**

Assistant Professor, Dept. of CSE, KLEIT, Hubballi.

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

(NBA Accredited)

**K. L. E. SOCIETY’S**

## K. L. E. INSTITUTE OF TECHNOLOGY,

**Gokul, Hubballi-580 030 2019-2020**

A Project Report On

**“FOOL PROOF LINE CLEARING SYSTEM”**

Submitted in partial fulfillment of the requirements for the award of the degree of Bachelor of Engineering In

**Computer Science and Engineering**

Submitted to



# Visvesvaraya Technological University

## Belagavi, Karnataka, 590 018

Under the Guidance of

## Mr. Kiran B. Malagi

Assistant Professor, Dept. of CSE, KLEIT, Hubballi.

**Submitted by**

**ANIL M. MERWA 2KE17CS402**

**SAGAR F. HONNABINDAGI 2KE16CS040**

|  |  |
| --- | --- |
| **SWAROOP MOGALI** | **2KE16CS050** |
| **KULDEEP K. KALAL** | **2KE16CS403** |

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

(NBA Accredited)

 **K. L. E. SOCIETY’S**

## K. L. E. INSTITUTE OF TECHNOLOGY,

**Gokul, Hubballi-580 030**

**(2019-2020)**

**K. L. E. SOCIETY’S**

K. L. E. INSTITUTE OF TECHNOLOGY

## Department of Computer Science and Engineering

### CERTIFICATE

Certified that the project work entitled **“FOOL PROOF LINE CLEARING**



**SYSTEM”** is a bonafide work carried out by **Anil M. Merwa (2KE17CS402), S ag a r F. Hon nabin da gi (2KE16CS040), Swaroop Mogali (2KE16CS050)**

**and Kuldeep K. Kalal (2K16CS403),** in partial fulfillment for the award of degree of **Bachelor of Engineering** in **VIII Semester, Computer Science and Engineering** of **Visvesvaraya Technological University, Belagavi,** during the year **2019-20**. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the department library. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the said degree.

(**Mr. Kiran B. Malagi) (Dr. Yerriswamy T) (Dr. B. S. Anami)**

**Guide HOD Principal**

**Name of the Examiners Signature with Date**

**1.**

**2.**

### DECLARATION

We**,** Anil M. Merwa (2KE17CS402), Sagar F. Honnabindagi (2KE16CS040), Swaroop Mogali (2KE16CS050) and Kuldeep K. Kalal (2KE16CS403), students of VIII Semester B.E., K.L.E. Institute of Technology, Hubballi, hereby declare that the project work has been carried out by us and submitted in partial fulfillment of the requirements for the VIII Semester degree of **Bachelor of Engineering in Computer Science and Engineering** of Visvesvaraya Technological University, Belagavi during academic year 2019-2020.

Date:

Place: Hubballi

Anil M. Merwa

Sagar F. Honnabindagi

Swaroop Mogali

Kuldeep K. Kalal

### ACKNOWLEDGEMENT

The project report on **“Fool Proof Line Clearing System”** is the outcome of guidance, moral support and devotion bestowed on us throughout our work. For this we acknowledge and express our profound sense of gratitude and thanks to everybody who have been a source of inspiration during the project preparation.

First and foremost, we offer our sincere phrases of thanks with innate humility to our **Principal Dr. B. S. Anami** who has been a constant source of support and encouragement. We would like to thank our **Dean of Academics Dr. Sharad Joshi** for his constant support and guidance. We feel deeply indebted to our **Guide Mr. Kiran B. Malagi and** **H.O.D, Dr. Yerriswamy T.** for the right help provided from the time of inception till date. We would take this opportunity to acknowledge our **Coordinator Dr. Rajesh Yakkundimath,** who has helped us in every aspect of our project work.

Last but not the least, we would like to thank our parents, friends & well-wishers who have helped us in this work.

Anil M. Merwa

Sagar F. Honnabindagi

Swaroop Mogali

Kuldeep K. Kalal

### ABSTRACT

Fool Proof Line Clearing System is our project which provides an app-based communication to different personnel involved in line clearing system of electric power distribution. The aim of the project is to provide an efficient method of communication for people involved in line clearing system which is a very risky job and involves very precise techniques and works to be carried out. The main objective is to implement all the required functionalities in an android application with the necessary database and interface and host in the server for its working.

By different studies, we find that the communication and safety procedures being followed in the line clearing system are still manually carried out. This possesses a possible threat to the personnel involved in the job. There are no procedures implemented with the help of software-based solution, the companies have not yet opted any IT technology to address their issues and thus there is a need to implement a solution which solves the problem in a better way. This motivated us to take up the problem and project on line clearing system which provides an app-based communication for different sections of our domain and which also focuses mainly on the standards and safety measures involved during different perspectives.

We collected the data required for the app by visiting the substation associated with our project. The app is developed in the Android Studio and programming language used is java. The back end involves python language and the framework is flask, database is MySQL and the application is hosted in python anywhere server.

The application is tested with different test methods such as unit testing, module testing, system and subsystem testing, acceptance testing. Different test cases are carried out in the application to explore possible errors in the code or working of it.

Finally, to conclude the project in brief, it meets the required objectives. The app is developed in a very simple approach and no complexity is involved. Our experience has been very fruitful. We gained good knowledge and practical experience by working on this project.

|  |  |  |  |
| --- | --- | --- | --- |
| **CONTENTS**    **SI No. Description** |  |  | **Page No.** |
| **1. Introduction** |  |  | 01 |
| 1.1. Electric Power Distribution |  |  | 01 |
| 1.1.1. Substation |  |  | 03 |
| 1.1.2. Elements of Substation |  |  | 04 |
| 1.2. Line Clearing System |  |  | 05 |
| 1.3. Developments in Android Technology |  |  | 06 |
| 1.4. Android Architecture |  |  | 08 |
| 1.4.1. Android Studio |  |  | 11 |
| 1.4.2. Android User Interface and Navigation |  |  | 12 |
| 1.5. Python |  |  | 13 |
| 1.5.1. Flask |  |  | 13 |
| 1.5.2. Python Anywhere |  |  | 18 |
| 1.6. Literature Survey |  |  | 19 |
| 1.7. Motivation and Problem Definition |  |  | 20 |
| 1.8. Objectives Fulfilled |  |  | 20 |
| 1.9. Scope and Limitations |  |  | 21 |
| 1.10. Program and Course Outcomes in the Project |  |  | 21 |
| 1.11. Organization of the Report |  |  | 23 |
| **2. Methodology** |  |  | 25 |
| 2.1. Data Collection |  |  | 25 |
| 2.2. Working Method |  |  | 27 |
| 2.3. System Requirements and Software Details |  |  | 29 |
| **3. System Design** |  |  | 31 |
| 3.1. Use Case Diagram |  |  | 31 |
| 3.2. Sequence Diagrams |  |  | 32 |
| 3.2.1. Admin Login and Adding Employee |  |  | 32 |
| 3.2.2. Admin Adding Feeder |  |  | 32 |
| 3.2.3. Section Officer Request to turn Off Feeder |  |  | 33 |
| 3.2.4. Section Officer Request to turn On Feeder |  |  | 34 |
| 3.3. Code Snippets |  |  | 35 |
| 3.4. Database Tables |  |  | 38 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **4. Testing** |  |  |  |  |  |  | 40 |
| 4.1. Testing Objective |  |  |  |  |  |  | 40 |
| 4.2. Testing Strategies |  |  |  |  |  |  | 40 |
| 4.3. Testing Method Used |  |  |  |  |  |  | 41 |
| 4.3.1 Unit Testing |  |  |  |  |  |  | 41 |
| 4.3.2. Module Testing |  |  |  |  |  |  | 41 |
| 4.3.3. Subsystem Testing |  |  |  |  |  |  | 41 |
| 4.3.4. System Testing |  |  |  |  |  |  | 42 |
| 4.3.5. Acceptance Testing |  |  |  |  |  |  | 42 |
| 4.4. Test Cases |  |  |  |  |  |  | 42 |
| **5. Snapshots** |  |  |  |  |  |  | 45 |
| **6. Conclusion and Future Scope** |  |  |  |  |  |  | 54 |
| 6.1. Conclusion |  |  |  |  |  |  | 54 |
| 6.2. Future Scope |  |  |  |  |  |  | 54 |
| **Bibliography** |  |  |  |  |  |  | 56 |

|  |  |  |
| --- | --- | --- |
| **LIST OF FIGURES**    **Fig No. Description** | | **Page No.** |
| 1.1 | Current Distribution System | 02 |
| 1.2 | Image of Substation | 03 |
| 1.3 | Pictorial Representation of Line Clearing System | 05 |
| 1.4 | Android Application Stack | 06 |
| 1.5 | Android Architecture | 10 |
| 1.6 | Android Notification | 12 |
| 1.7 | Android Toast | 12 |
| 2.1 | Feeder | 25 |
| 2.2 | Electrical Component | 26 |
| 2.3 | Feeder Component | 26 |
| 2.4 | Abstract Working of Line Clearing System | 27 |
| 3.1 | Use Case Diagram | 31 |
| 3.2 | Sequence Diagram for Admin Login and Adding Employee | 32 |
| 3.3 | Sequence Diagram for Admin Adding Feeder | 33 |
| 3.4 | Sequence Diagram for SO request to turn off Feeder | 33 |
| 3.5 | Sequence Diagram for SO request to turn on Feeder | 34 |
| 5.1 | Login Screen | 45 |
| 5.2 | Admin Screen | 45 |
| 5.3 | Add Employee | 46 |
| 5.4 | Add Feeder | 46 |
| 5.5 | Feeders list | 47 |
| 5.6 | Employee’s list | 47 |
| 5.7 | SO1 Screen | 48 |
| 5.8 | SO1 Feeder’s Screen | 48 |
| 5.9 | SO2 Feeder Screen | 49 |
| 5.10 | Operator Screen | 49 |
| 5.11 | AEE Screen | 50 |
| 5.12 | Operator Feeder turn off Screen | 50 |
| 5.13 | SO Request List | 51 |
| 5.14 | SO Request Toast Message | 51 |
| 5.15 | SO Secret Key Screen | 52 |
| 5.16 | SSO Secret Key Screen | 52 |
| 5.17 | SSO Request list with Key | 53 |

|  |  |  |  |
| --- | --- | --- | --- |
| **LIST OF TABLES**    **Tb No. Description** | |  | **Page No.** |
| 1.1 | Project Addressing the PSOs |  | 23 |
| 2.1 | Basic System Requirements for Android Studio |  | 29 |
| 3.1 | Database Tables |  | 38 |
| 3.2 | Employee Table |  | 38 |
| 3.3 | Feeders Table |  | 38 |
| 3.4 | TaskTickets Table |  | 39 |
| 4.1 | Login Testing |  | 42 |
| 4.2 | Adding Employee |  | 43 |
| 4.3 | Phone Number Validation |  | 44 |
| 4.4 Secret Key Validation | |  | 44 |