

# **“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), Sagar F. Honnabindagi (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)**  
**Guide**

**(Dr. Yerriswamy T)**  
**HOD**

**(Dr. B. S. Anami)**  
**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

<b>SI No.</b>	<b>Description</b>	<b>Page No.</b>
<b>1.</b>	<b>Introduction</b>	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
<b>2.</b>	<b>Methodology</b>	25
2.1.	Data Collection	25
2.2.	Working Method	27
2.3.	System Requirements and Software Details	29
<b>3.</b>	<b>System Design</b>	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

<b>4. Testing</b>	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
<b>5. Snapshots</b>	45
<b>6. Conclusion and Future Scope</b>	54
6.1. Conclusion	54
6.2. Future Scope	54
 <b>Bibliography</b>	 56



## LIST OF FIGURES

<b>Fig No.</b>	<b>Description</b>	<b>Page No.</b>
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

<b>Tb No.</b>	<b>Description</b>	<b>Page No.</b>
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