BLINDGUARD: AN ANDROID APPS FOR HELPING BLIND PEOPLE

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Nazmun Nessa Moon, Assistant Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

Our project titled “BlindGuard: An Android Apps for helping Blind people” is an android app for security of Blind person. Using this APP will make it easier for blind people to walk and communication with parents. Our app can be used by any blind person and their guardian. This will improve the quality of life of the blind person. This app will use a smart stick by which the blind person will be notified in advance of any obstacles in front of him or her on the way. Through location tracking, his parents will know where he is. She will easily find everything she needs and it will be easy for her to maintain contact. Can read any text. Any questions that this app asks through the blind person will be answered. It will show the best way to his destination. Emergency calls can be made. In addition, this app can store the database and all the information needed by its guardians. It also reduces time. We use java and SDK for front-end design and firebase for back-end design. We also use firebase as our main database. This application is very user friendly. After finishing all the tasks and test process this application proved to be working.

TABLE OF CONTENTS

CONTENTS	PAGE
Board of examiners	i
Declaration	ii
Acknowledgements	iii
Abstract	iv
Table of contents	v-vii
List of figures	viii
List of tables	ix

CHAPTER	PAGE NO
CHAPTER 1: INTRODUCTION	**1-3**
1.1 Introduction	1
1.2 Motivation	1
1.3 Objectives	2
1.4 Expected Outcomes	2
1.5 Report Layout	3
CHAPTER 2: BACKGROUND STUDY	**4-5**
2.1 Introduction	4
2.2 Related Work	4
2.3 Comparative Studies	4

2.4 Scope of Problems 5

2.5 Challenges 5

CHAPTER 3: REQUIRMENT SPECIFICATION 6-12

3.1 Business Process Modeling 6

3.2 Requirement Collection and Analysis 6

3.3 Use Case Modeling 7

3.4 Logical Data Model 12

3.5 Design Requirements 12

CHAPTER 4: DESIGN SPECIFICATION 14-17

4.1 Front-end Design 13

4.2 Back-end Design 13

4.3 Interaction Design and UX 15

4.4 Implementation Requirements 16

4.4.1 Android Studio 16

4.4.2 The Emulator 16

4.4.3 Android SDK 16

4.4.4 Firebase 16

CHAPTER 5: IMPLEMENTATION AND TESTING 18-28

5.1 Implementation of Database 17

5.2 Implementation of Front-end Design 18

5.3 Implementation of Interaction 26

5.4 Testing Implementation 26

5.5 Test Results and Reports 28

CHAPTER 6: CONCLUSION AND FUTURE SCOPE **29**

6.1 Discussion and Conclusion 29

6.2 Future Scope 29

REFERENCES **29**

APPENDIX **30**

Appendix A: Project Reflection 30

Appendix B: Related Diagrams 30

PLAGIARISM REPORT **31**

LIST OF FIGURES

FIGURES	PAGE NO
Figure 3.1: Business Process Model	6
Figure 3.2: Use Case Model	7
Figure 4.1: User List	14
Figure 4.2: Database Creation	15
Figure 5.1:Blind People Information	17
Figure 5.2: User Login & Registration	18
Figure 5.3: Home Page	19
Figure 5.4: Search Object	
Figure 5.5: Tensor flow Architecture	20
Figure 5.6: Question to Answer	
Figure 5.7: Dialogue flow Agent Architecture	21
Figure 5.8: Location search page	22
Figure 5.9 :Image to Read text	22
Figure 5.10:Tensor flow Architecture	23
Figure 5.11: Home page	24
Figure 5.12: User Login And Home page	25
Figure 5.13: Blind User List And Blind Movement History	25
Figure: Plagiarism Report	31

LIST OF TABLE

TABLE **PAGE**

Table 5.1: Test Case 28

CHAPTER 1

INTRODUCTION

1.1 Introduction

Vision is the most significant piece of human physiology as 83% of data person gets from the earth is by means of sight. The 2011 measurements by the World Health Organization (WHO) assesses that there are 285 billion individuals in the world with visual debilitation, 39 billion of which are visually impaired and 246 with low vision.

By and by, dazzle individuals utilize a white stick as an instrument for guiding them when they move or walk. Here, we build up an instrument which can fill in as a visually impaired stick being more effective and accommodating than the traditional one. The primary point of this task is to distinguish the impediment before the electronic stick and giving the alert. The framework encourages visually impaired individuals to explore freely with no outside assistance by methods for loquacious help.

1.2 Motivation

We the people living in the society with the same color, same hair, same name but sometimes with physical difficulties like as blind disorder. Despite of blind disorder they have the same ability as a normal human being. But their life of journey is very critical. They pass through the day with so many difficulties. Sometimes their life become a burden to their family and society. Eventually we see helpless blind people on the road and those people are physically fit but because of blindness they do not have the ability to move around easily. In this circumstance in the name of humanity and from the bottom of our hearts we deeply feel sorry for them. But in the present time all I mean is that “Era of technology” we have the ability to contribute and add some advantage in their life by the help of “Technology”. If we could add little help towards them, it will help them make their life easier and they could also make an impact to our society.

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1.3 Objective

Design and build a working prototype of a system that will help visually impaired person to sense the obstacle in front of them by sending a vibration from the system.

1. To Implement Blind Navigation System through Internet of Things (IOT)

2. To help the blind people immediately by using the "Blind assistant" app about the location of the blind people.

3. To rescue blind people instantly from any critical condition.

4. To help blind people for finding out obstacles while walking.

5. To detect and warn about endanger environment.

6. To make it easier for the users to walk without human help.

7. To assuring a safer environment for the blind people.

1.4 Expected Outcome

Using this app, a blind man can easily find out about his location. The app will know how to get to its destination. If there are any holes or obstacles in front of the route, you will get a signal in advance. There will be emergency calls through this app, and through location tracking, blind people's families will know where they are. Also the name of any object can be read and books can be read through this app

1.5 Report Layout

Chapter 1: Introduction

In this chapter we will discuss about introduction, objectives, motivation and the expected outcome of our project.

Chapter 2: Background study

Chapter 2 contains the works related with our app, comparative studies and the challenges we have to face to implement this app.

Chapter 3: Requirement specification

In chapter 3 we will discuss about requirement specification such as business process modeling, requirement analysis and modeling, logical data model and design requirements.

Chapter 4: Design specification

Front-end design, back-end design interaction design and UX and implementation requirements are described in this section.

Chapter 5: Implementation and testing

In chapter 5 we discuss about the implementation of database, implementation of front-end design, implementation of interaction, testing implementation and test results and reports.

Chapter 6: Conclusion and future scope

The subject to describe in chapter 6 are conclusion and the future scope of our project

CHAPTER 2

BACKGROUND STUDY

2.1 Introduction

An Android app connects the blind person and his or her family with information sharing. This will ease the anxiety of everyone in the family and make it easier for the blind. This app is designed to facilitate the communication of the blind people, so that he/she can walk alone and his/her family can easily track him. This app was designed to find out where the person is or if the person is in danger. The blind person can find everything he needs, he has the arrangement and in that he does not have to be dependent on anyone else.

2.2 Related Works

There is some android app almost similar with our app but these have many differences with our app. Some apps are:

Smart blind stick: it is a smart stick that will provide some necessary information [1]. Using this stick helps the blind person to walk properly. Blind location tracking: through this app, a blind person will be able to find out where he is knowing where he is by tracking location [2]. Smart blind book- through this app, the blind person can read any book [3]. If the blind person wants to read the name of the book, he will read it through this app.

2.3 Comparative Studies

Blind Smart Stick This app will give a blind person some information to guide him in the right direction and he will use a smart stick. However, in our ATP the blind person will be given all directions on how to go. Also signal in advance if any obstacles are encountered on the way.

We will have two login pages on the APP. The rest is for parents for a blind person. That way parents will know where he is. Blind location tracking this app, only the blind person can know where he is, but through our app, location tracking will allow his family and people to know how he is.

2.4 Scope of the problem

It’s an android app, so if the Blind person or the Guardian does not have an android phone or if they do not know how to use an android phone it will be no effective for them. This application should register the blind person and his / her guardian and both of them must have this internet connection.

2.5 Challenges

Implementing this project, we face some challenges. These are-

1. The main challenges is the language barrier. Because most of the people in our country do not know English.
2. We use English to develop this app.
3. The app user connected by using internet. So they must have a internet connection.
4. The next challenge is to teach blind people how to use this app.
5. Use a suitable database that store all the information and give security.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

BPM or Business Process Modeling is a process of constructing a structural view of a system or process. It includes some process, starts and symbol, condition as like a flow chart. In our system we construct a BPM model which shows how to send the “Blind Person” information to the “Guardian”. Figure 3.1 shows business process modeling.

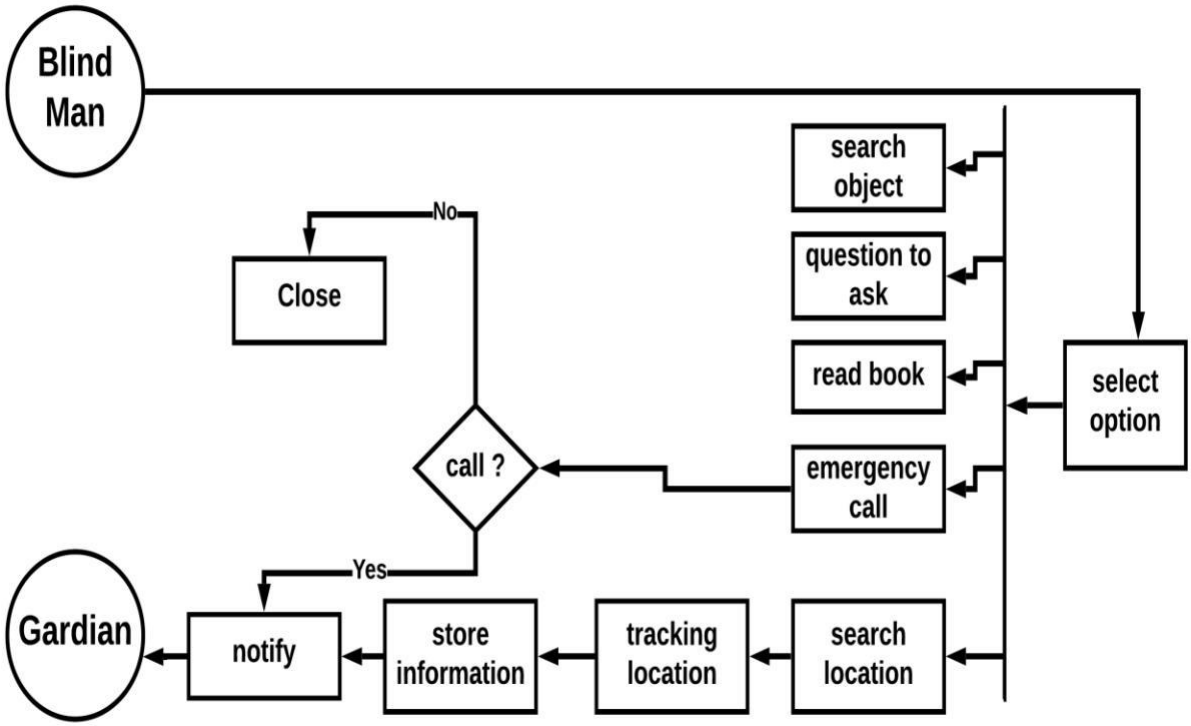


Figure 3.1: Business Process Model

3.2 Requirement Collection and Analysis

Requirement collection and analysis are very important term to develop a system or any kind of android application. It meets the goal of the user and the admin. As our application is concerned with the requirement of the Blind People, Guardian and the admin so, we went to them and tried to find out what are their requirements for this app. They all suggested to develop a simple app which they can use conveniently. To maintain the information of the “Guardian” and the “Blind People” this app will provide them a great service. And they also think that it will be a great process if they send their information to the “Guardian” despite of going there.

3.3 Use Case Modeling

A use case model is a graphic description of the interactions among the elements of a system.

A use case is a methodology used in system analysis to identify, clarify and organizing system

requirements.

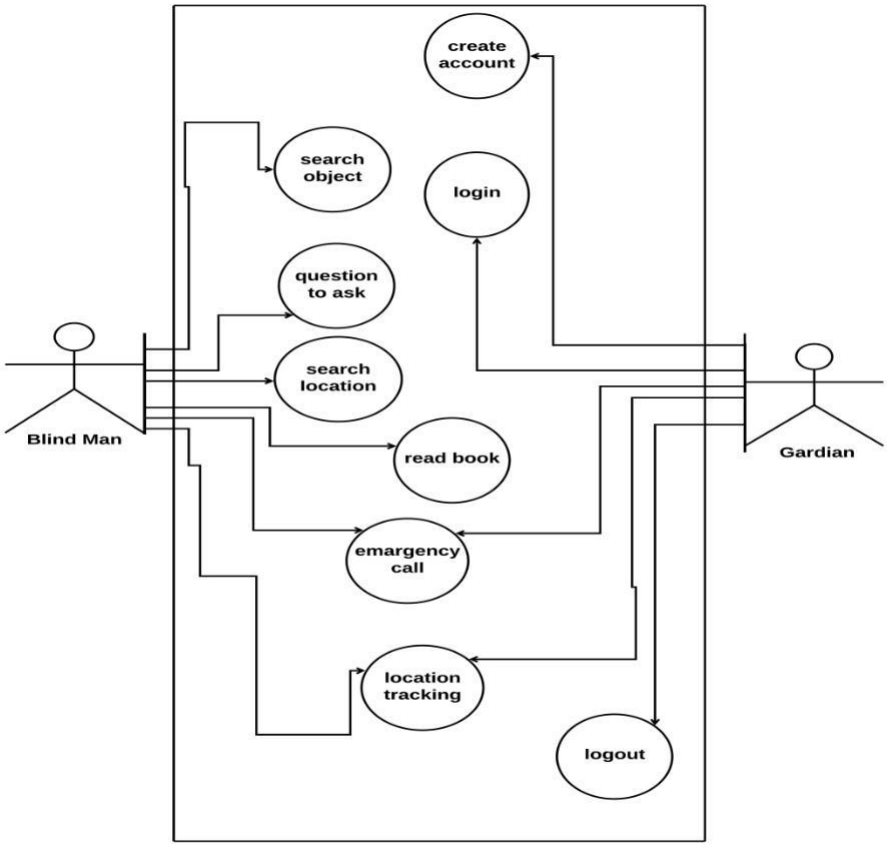


Figure 3.2: Use Case Model

3.2: Use Case Model

Use Case: Admin Registration
Actor: Admin
Precondition: None

Primary Path:

1. Enter the name

2. Enter email address

3. Set a password

Alternate Path:

1. Enter valid email or password

Use Case: Admin Sign In

Actor: Admin

Precondition: Registration

Primary Path:

1. Enter Email

2. Enter Password

3. Click on “Sign in” button

Alternate Path:

1. Email or Password is incorrect

Use Case: Receive information

Actor: Admin

Precondition: Provide key

Primary Path:

1. Verify information

Alternate Path:

1. Information is not Received

Use Case: Store information

Actor: Admin

Precondition: Information received

Primary Path:

1. Check the accuracy
2. Manage database

Alternate path:

1. Inform the “Guardian”

Use case: Admin sign out

Actor: Admin

Precondition: Sign In

Primary Path:

1. Click on “Sign Out” button

Alternate Path:

1. None

Use Case: Guardian Registration

Actor: Guardian

Precondition: None

Primary Path:

1. Enter the name
2. Enter email address
3. Set a password

Alternate Path:

1. Enter valid email or password

Use Case: Guardian Sign In

Actor: Guardian

Precondition: Registration

Primary Path:

1. Enter Email
2. Enter Password
3. Click on “Sign in” button

Alternate Path:

1. Email or Password is incorrect

Use Case: Guardian Create Account

Actor: Guardian

Precondition: Sign In

Primary Path:

1. Enter Name
2. Enter a key
3. Enter password

Alternate Path:

1. Use valid key or password

Use Case: Verify and Send Information

Actor: Guardian

Precondition: Sign in as Blind Person

Primary Path:

1. Enter Blind Person key
2. Verify information
3. Send information

Alternate Path:

1. Enter a valid Blind Person key

Use case: Guardian sign out

Actor: Guardian

Precondition: Sign In

Primary Path:

1. Click on “Sign Out” button

Alternate Path:

1. None

Use Case: Blind Person Registration

Actor: Blind Person

Precondition: None

Primary Path:

1. Enter the name
2. Enter email address
3. Set a password

Alternate Path:

1. Enter valid email or password

Use Case: Blind Person Sign In

Actor: Blind Person

Precondition: Blind Person

Primary Path:

1. Enter Email
2. Enter Password

3. Click on “Sign in” button

Alternate Path:

1. Email or Password is incorrect
2. **Use case:** Blind Person Sign Out

Actor: Blind Person

Precondition: Sign In

Primary Path:

1. Click on “Sign Out” button

Alternate Path:

1. Null

3.4 Logical Data Model

Our project’s logical data model has relational table named Admin, Guardian, Blind Person. Here, we can describe how these entities are connected with each other.

3.5 Design Requirement

A well designed android app is a pleasure to use. Our app provides service to the Blind Person and Guardian and the government to maintain security in an area. Though the users of our app are the “Blind People” and the “Guardian” so, we try to make the interface of the app convenient to the user. Well design of an android app is very essential but we should concentrate on the output design of the app first. So simplifying this app by making user interface simple is our primary responsibility.

CHAPTER 4

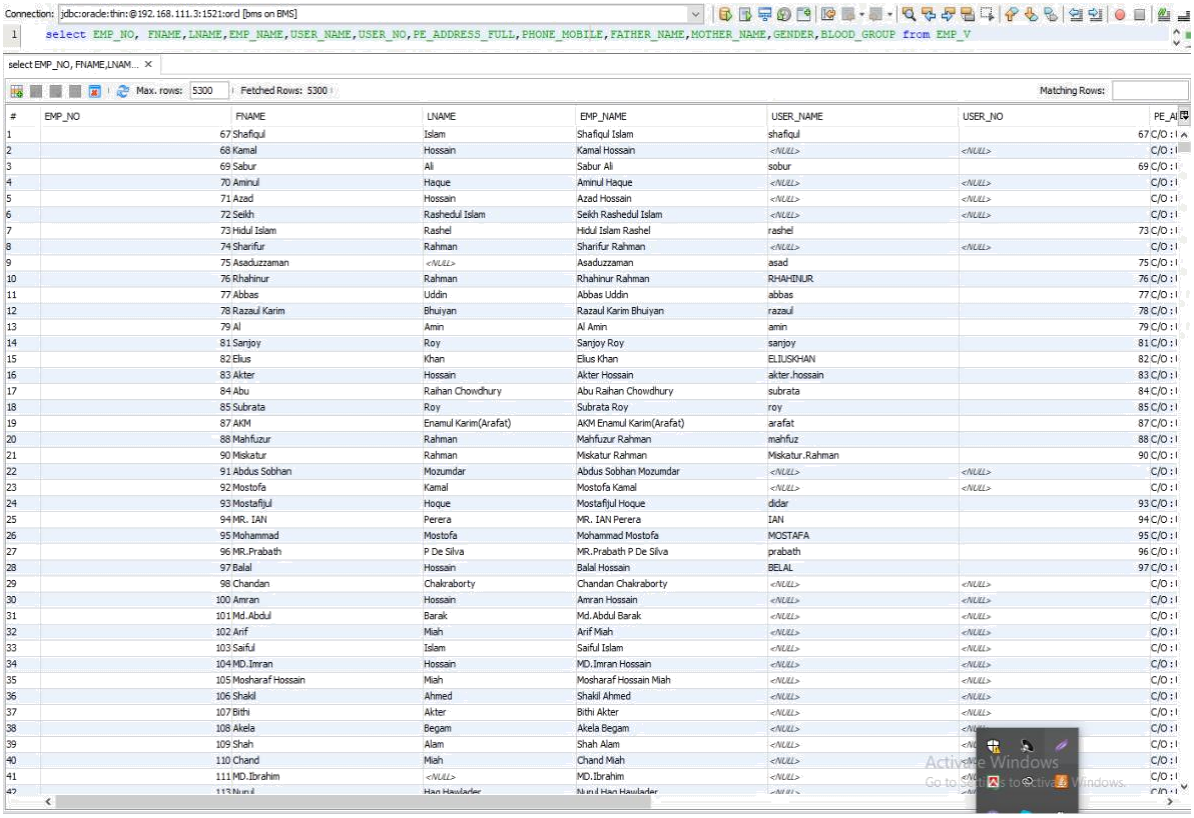
DESIGN SPECIFICATION

4.1 Front-end Design

Front page of an android application must draw the attention of the user. To make our application attractive to the user we use some Graphical User Interface (GUI). We design our project with easily understandable GUI so that, the user can easily access the app. On the front page we simply use a registration option and a sign in option. To sign in this app the user must complete the registration first.

4.2 Back-end Design

Back end design is only seen by the programmer. How will the application interact with the user is implemented in the back end? User cannot interact with the back end design. As our project maintain the information sent by the landlord to the police station via landlord so, we need to create a database to store this information. We also provide the unique id of the user. We use firebase to create the database. The following figures describes how we designed the back end of our project. Figure 4.1 shows the back end design for the user. This authentication function shows all the users who registered in the database by using our app. When a user signs in this app, a database is automatically generated for the user.



```
Connection: jdbc:oracle:thin:@192.168.111.3:1521:ord [bms on BMS]
1  select EMP_NO, FNAME,LNAME,EMP_NAME,USER_NAME,USER_NO,PE_ADDRESS_FULL,PHONE_MOBILE,FATHER_NAME,MOTHER_NAME,GENDER,BLOOD_GROUP from EMP_V
```

select EMP_NO, FNAME,LNAM... ×

Max. rows: 5300 Fetched Rows: 5300 Matching Rows:

#	EMP_NO	FNAME	LNAME	EMP_NAME	USER_NAME	USER_NO	PE_AI
1	67	Shafiqul	Islam	Shafiqul Islam	shafiqul	67	C/O : I
2	68	Kamal	Hossain	Kamal Hossain	<NULL>	<NULL>	C/O : I
3	69	Sabur	Ali	Sabur Ali	sobur	69	C/O : I
4	70	Aminul	Haque	Aminul Haque	<NULL>	<NULL>	C/O : I
5	71	Azad	Hossain	Azad Hossain	<NULL>	<NULL>	C/O : I
6	72	Seikh	Rashedul Islam	Seikh Rashedul Islam	<NULL>	<NULL>	C/O : I
7	73	Hidul Islam	Rashel	Hidul Islam Rashel	rashel	73	C/O : I
8	74	Sharifur	Rahman	Sharifur Rahman	<NULL>	<NULL>	C/O : I
9	75	Asaduzzaman	<NULL>	Asaduzzaman	asad	75	C/O : I
10	76	Rhahinur	Rahman	Rhahinur Rahman	RHAHINUR	76	C/O : I
11	77	Abbas	Uddin	Abbas Uddin	abbas	77	C/O : I
12	78	Razaul Karim	Bhuiyan	Razaul Karim Bhuiyan	razaul	78	C/O : I
13	79	Al	Amin	Al Amin	amin	79	C/O : I
14	81	Sanjoy	Roy	Sanjoy Roy	sanjoy	81	C/O : I
15	82	Elius	Khan	Elius Khan	ELIUSKHAN	82	C/O : I
16	83	Akter	Hossain	Akter Hossain	akter.hossain	83	C/O : I
17	84	Abu	Raihan Chowdhury	Abu Raihan Chowdhury	subrata	84	C/O : I
18	85	Subrata	Roy	Subrata Roy	roy	85	C/O : I
19	87	AKM	Enamul Karim(Arafat)	AKM Enamul Karim(Arafat)	arafat	87	C/O : I
20	88	Mahfuzur	Rahman	Mahfuzur Rahman	mahfuz	88	C/O : I
21	90	Miskatur	Rahman	Miskatur Rahman	Miskatur.Rahman	90	C/O : I
22	91	Abdus Sobhan	Mozumdar	Abdus Sobhan Mozumdar	<NULL>	<NULL>	C/O : I
23	92	Mostofa	Kamal	Mostofa Kamal	<NULL>	<NULL>	C/O : I
24	93	Mostafijul	Hoque	Mostafijul Hoque	didar	93	C/O : I
25	94	MR. IAN	Perera	MR. IAN Perera	IAN	94	C/O : I
26	95	Mohammad	Mostofa	Mohammad Mostofa	MOSTAFA	95	C/O : I
27	96	MR.Prabath	P De Silva	MR.Prabath P De Silva	prabath	96	C/O : I
28	97	Balal	Hossain	Balal Hossain	BELAL	97	C/O : I
29	98	Chandan	Chakraborty	Chandan Chakraborty	<NULL>	<NULL>	C/O : I
30	100	Amran	Hossain	Amran Hossain	<NULL>	<NULL>	C/O : I
31	101	Md.Abdul	Barak	Md.Abdul Barak	<NULL>	<NULL>	C/O : I
32	102	Arif	Miah	Arif Miah	<NULL>	<NULL>	C/O : I
33	103	Saiful	Islam	Saiful Islam	<NULL>	<NULL>	C/O : I
34	104	MD.Imran	Hossain	MD.Imran Hossain	<NULL>	<NULL>	C/O : I
35	105	Mosharaf Hossain	Miah	Mosharaf Hossain Miah	<NULL>	<NULL>	C/O : I
36	106	Shakil	Ahmed	Shakil Ahmed	<NULL>	<NULL>	C/O : I
37	107	Bithi	Akter	Bithi Akter	<NULL>	<NULL>	C/O : I
38	108	Akela	Begam	Akela Begam	<NULL>	<NULL>	C/O : I
39	109	Shah	Alam	Shah Alam	<NULL>	<NULL>	C/O : I
40	110	Chand	Miah	Chand Miah	<NULL>	<NULL>	C/O : I
41	111	MD.Ibrahim	<NULL>	MD.Ibrahim	<NULL>	<NULL>	C/O : I
42	113	Nurul	Haq Hawlader	Nurul Haq Hawlader	<NULL>	<NULL>	C/O : I

Activate Windows
Go to Settings to activate Windows.

Figure 4.1: User List

Figure 4.2 shows all the sub database we create in our project. All the sub database contains different types of information of the user. It provides the personal unique key for each user by which the information of individuals is managed.

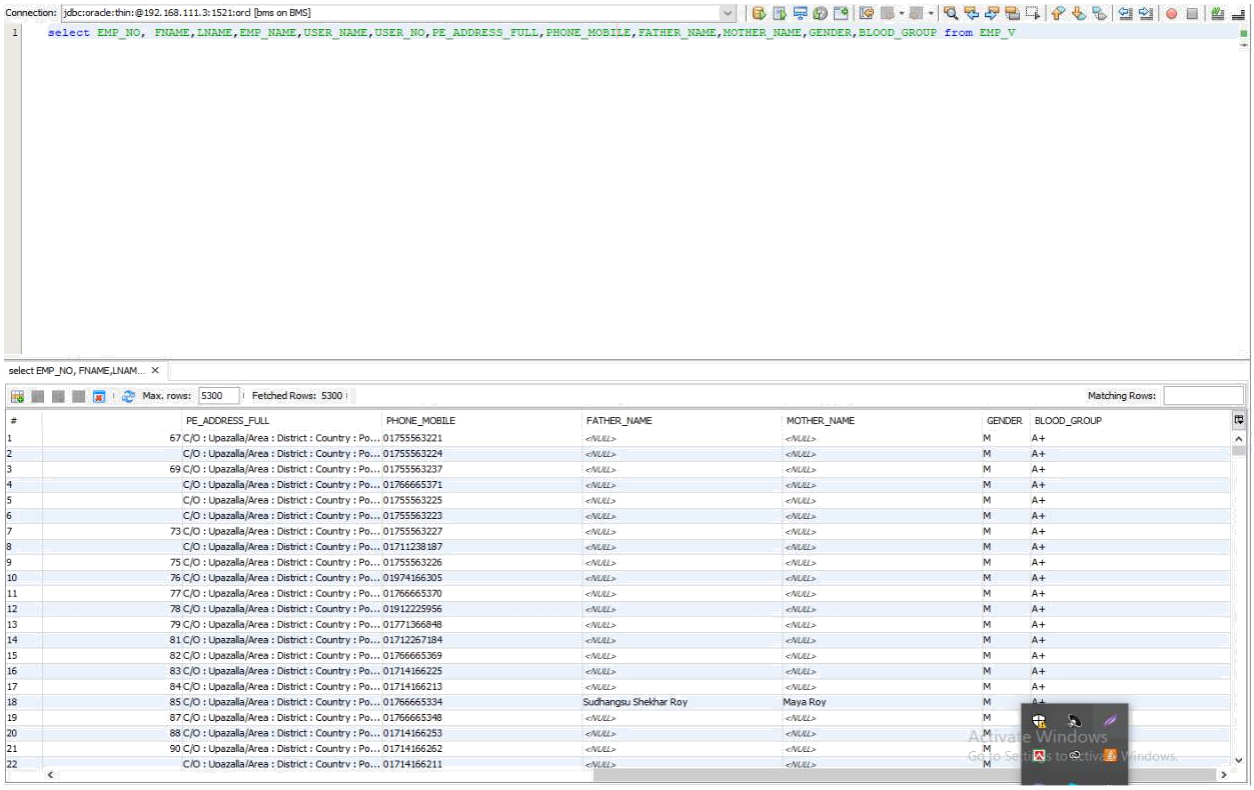


Figure 4.2: Database Creation

4.3 Interaction Design and UX

Interaction design describes the relationship between the application and the user. How much an android application will popular among the user that depends on the interaction of the app with the user. If the app is convenient to use and it provides a great outcome to the user, then it will gain popularity. Experience is very essential for interaction design. Because mainly the user experiences focus on the experience between the user and the application. From this experience we tried to make the most of the features of our app that can interact with the user. Though ours is a security based android app so we tried to provide great security to them by using the registration option which required valid email id and password of the user. UX design or user experience design is the most challenging part for a programmer. Always the need to focus on the experience of user of using android app and how they satisfy with a product. We pay attention on this sector and tried to implement an application that has satisfactory interface which should be accepted by the user.

4.4 Implementation Requirement

To implement a project, we need different types of tools, components, and software. We also need some tools and component to implement our project. Ours is an android based application project so we used android based design tools and components to implement our application. Here is a short description of the tools and components that required to implement our application.

4.4.1 Android Studio

Android studio is a popular platform to implement any kind of android application. It provides the great features to the programmer to implement an android app.it provides almost all the components and tools and frameworks for developing android app easily and quickly. We use android studio as our application IDE. It's an open source platform so, programmer prefers android studio to develop various types of android application.

4.4.2 Emulator

Emulator enables to run an application on a physical device in which the application is not implemented. It runs the same code in the device based on actual device. Emulator helps us to use this in different version of android phone.

4.4.3 Android SDK

SDK is very essential tool to develop an android application. It contains all the design and component libraries for development and the simulator to test the application. We use java development kit in the java platform with the SDK.

4.4.4 Firebase

Fire base is the most popular real time database. We need a database to store the information of the user. We use firebase as the main database of our application to store and maintain the information of the user. We also had to maintain the security of the personal information of the tenant. It synchronizes the data in real time to every connected user in the application. If we build an app that has a cross platform with iOS, Android, JavaScript SDKs, all of the user use the real time database instance and the user will automatically receive with the newest data by firebase.

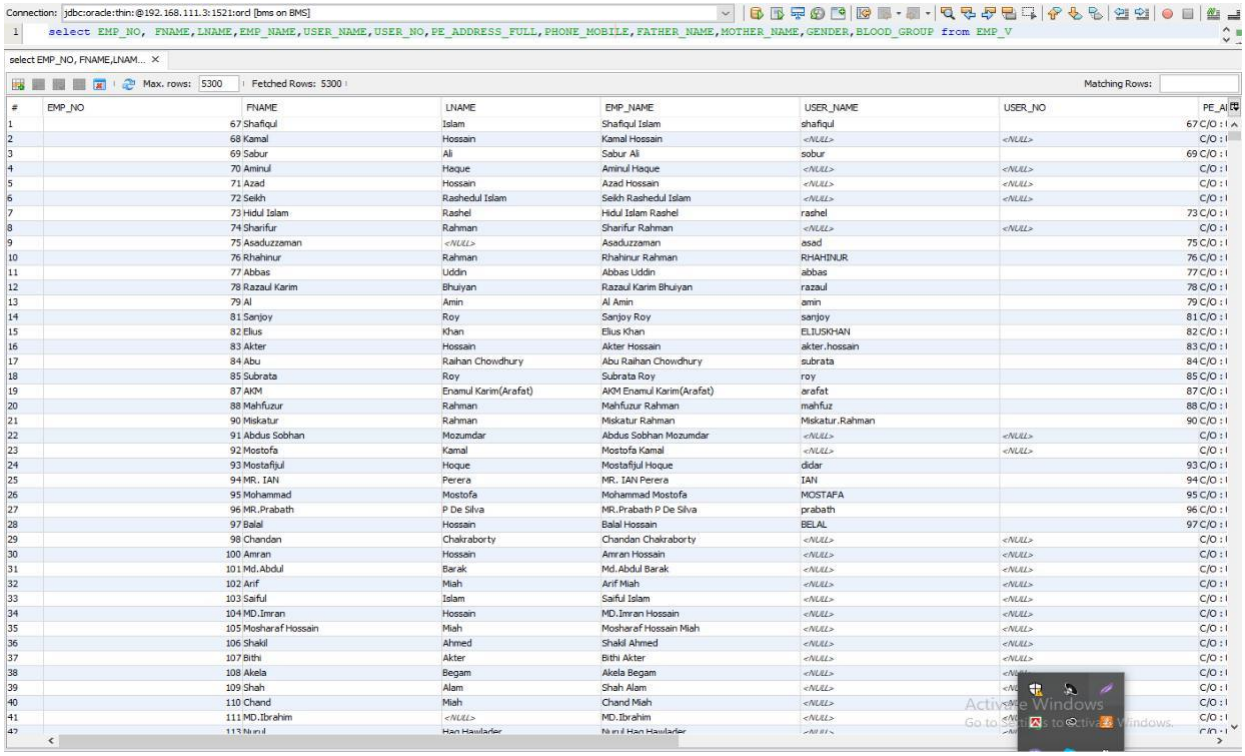
CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

In this section we describe how we implemented our database. As we described in the previous chapter that we use firebase as our main database. Fire base is a real time database so there is no need to use SQL query to perform the action. Fire base also has some other features like hosting, crash reporting, cloud storage authentication, hosting and so on. How we use firebase to maintain our data is described below with proper diagram. To store information in the database the user has to register and sign in. To sign in at the farther time if the user does not provide the valid user id or password then he cannot sign in.

The user of our app are Blind People and the Guardian. All the registered users have their own user table with unique user id. The information is stored in each unique table through the unique id. When a user sign in the database gives a unique id.



#	EMP_NO	FNAME	LNAME	EMP_NAME	USER_NAME	USER_NO	PE_AI
1	67	Shafiqul	Islam	Shafiqul Islam	shafiqul		67 C/O : I
2	68	Kamal	Hossain	Kamal Hossain	<NULL>	<NULL>	C/O : I
3	69	Sabur	Ali	Sabur Ali	sobur		69 C/O : I
4	70	Aminul	Haque	Aminul Haque	<NULL>	<NULL>	C/O : I
5	71	Azad	Hossain	Azad Hossain	<NULL>	<NULL>	C/O : I
6	72	Seikh	Rashedul Islam	Seikh Rashedul Islam	<NULL>	<NULL>	C/O : I
7	73	Hidul Islam	Rashel	Hidul Islam Rashel	rashel		73 C/O : I
8	74	Sharifur	Rahman	Sharifur Rahman	<NULL>	<NULL>	C/O : I
9	75	Asaduzzaman	<NULL>	Asaduzzaman	asad		75 C/O : I
10	76	Rhahinur	Rahman	Rhahinur Rahman	RHAHINUR		76 C/O : I
11	77	Abbas	Uddin	Abbas Uddin	abbas		77 C/O : I
12	78	Razaul Karim	Bhuiyan	Razaul Karim Bhuiyan	razaul		78 C/O : I
13	79	Al	Amin	Al Amin	amin		79 C/O : I
14	81	Sanjoy	Roy	Sanjoy Roy	sanjoy		81 C/O : I
15	82	Elius	Khan	Elius Khan	ELIUSKHAN		82 C/O : I
16	83	Akter	Hossain	Akter Hossain	akter.hossain		83 C/O : I
17	84	Abu	Raihan Chowdhury	Abu Raihan Chowdhury	subrata		84 C/O : I
18	85	Subrata	Roy	Subrata Roy	roy		85 C/O : I
19	87	AKM	Enamul Karim(Arafat)	AKM Enamul Karim(Arafat)	arafat		87 C/O : I
20	88	Mahfuzur	Rahman	Mahfuzur Rahman	mahfuz		88 C/O : I
21	90	Miskatur	Rahman	Miskatur Rahman	Miskatur.Rahman		90 C/O : I
22	91	Abdus Sobhan	Mozumdar	Abdus Sobhan Mozumdar	<NULL>	<NULL>	C/O : I
23	92	Mostofa	Kamal	Mostofa Kamal	<NULL>	<NULL>	C/O : I
24	93	Mostafijul	Hoque	Mostafijul Hoque	didar		93 C/O : I
25	94	MR. IAN	Perera	MR. IAN Perera	IAN		94 C/O : I
26	95	Mohammad	Mostofa	Mohammad Mostofa	MOSTAFA		95 C/O : I
27	96	MR.Prabath	P De Silva	MR.Prabath P De Silva	prabath		96 C/O : I
28	97	Balal	Hossain	Balal Hossain	BELAL		97 C/O : I
29	98	Chandan	Chakraborty	Chandan Chakraborty	<NULL>	<NULL>	C/O : I
30	100	Amran	Hossain	Amran Hossain	<NULL>	<NULL>	C/O : I
31	101	Md.Abdul	Barak	Md.Abdul Barak	<NULL>	<NULL>	C/O : I
32	102	Arif	Miah	Arif Miah	<NULL>	<NULL>	C/O : I
33	103	Saiful	Islam	Saiful Islam	<NULL>	<NULL>	C/O : I
34	104	MD.Imran	Hossain	MD.Imran Hossain	<NULL>	<NULL>	C/O : I
35	105	Mosharaf Hossain	Miah	Mosharaf Hossain Miah	<NULL>	<NULL>	C/O : I
36	106	Shakil	Ahmed	Shakil Ahmed	<NULL>	<NULL>	C/O : I
37	107	Bithi	Akter	Bithi Akter	<NULL>	<NULL>	C/O : I
38	108	Akela	Begam	Akela Begam	<NULL>	<NULL>	C/O : I
39	109	Shah	Alam	Shah Alam	<NULL>	<NULL>	C/O : I
40	110	Chand	Miah	Chand Miah	<NULL>	<NULL>	C/O : I
41	111	MD.Ibrahim	<NULL>	MD.Ibrahim	<NULL>	<NULL>	C/O : I
42	113	Nurul	Han Hawlader	Nurul Han Hawlader	<NULL>	<NULL>	C/O : I

Figure 5.1: Blind People Information

5.2 Implementation of Front-end Design

Only the front end design is visible to the user. So it should affectionate to look at. It also should be user friendly and convenient to use. We already have said that the user of our app are Blind People, Guardian. At the first page of our app we arrange registration and sign in option. Figure 5.2 shows how we implement the front-end of our app.

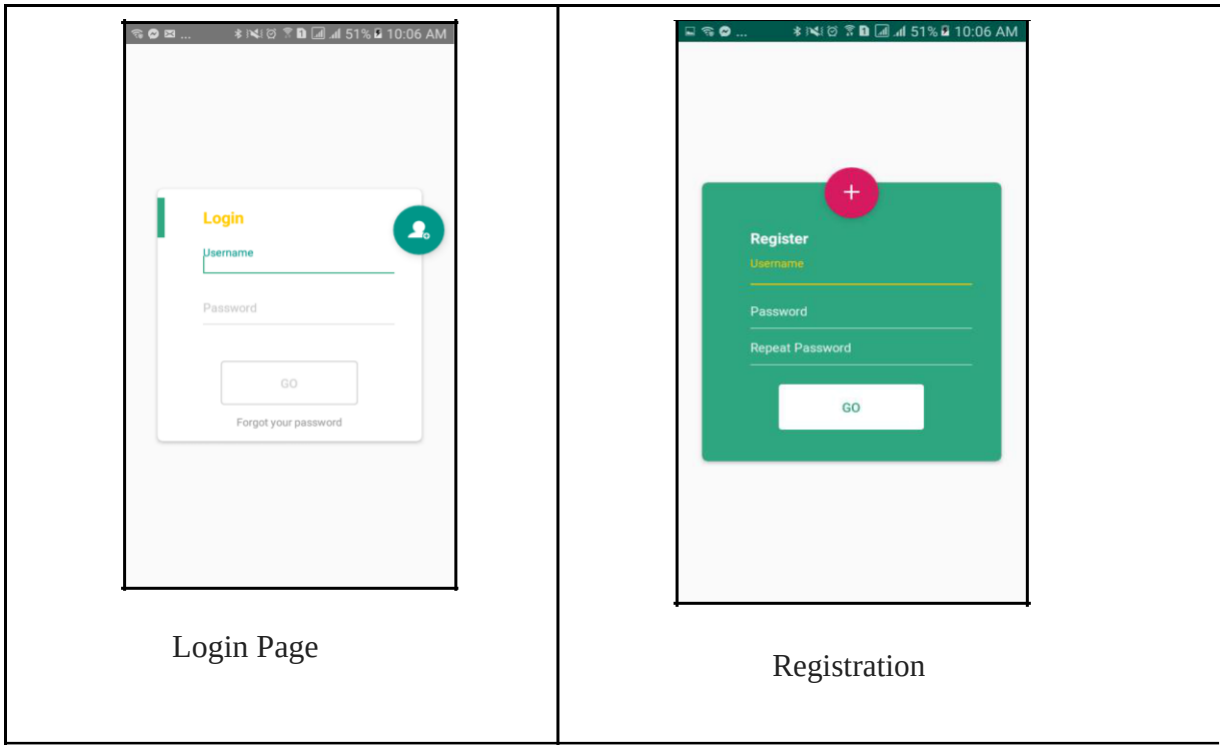


Figure 5.2: User Login & Registration

If any user wants to use our app at first, he or she needs to register using register option. After clicking on the register option the following page will appear to the user. In figure we can see how a user complete the registration to use our app. User can registrar into the app by using name, email and password. After registration the user can sign in into the app as a Blind Person, Guardian and they have provided their email address and password here. Figure 5.2 shows user sign in option.

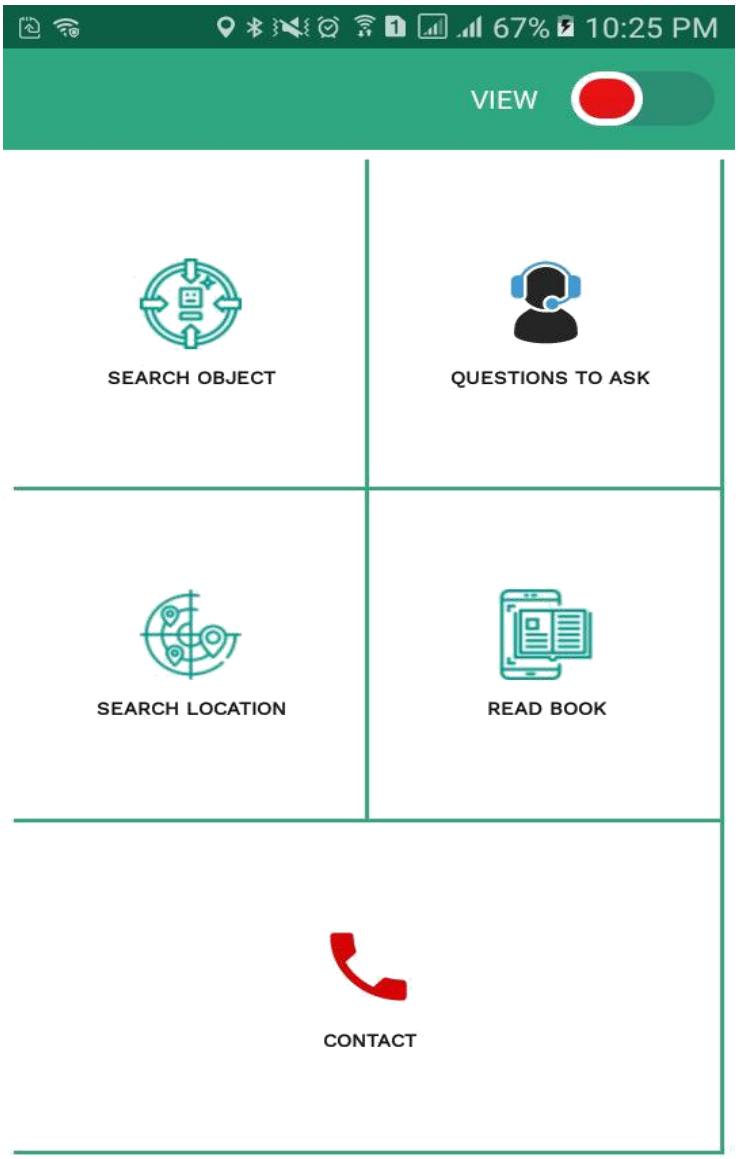
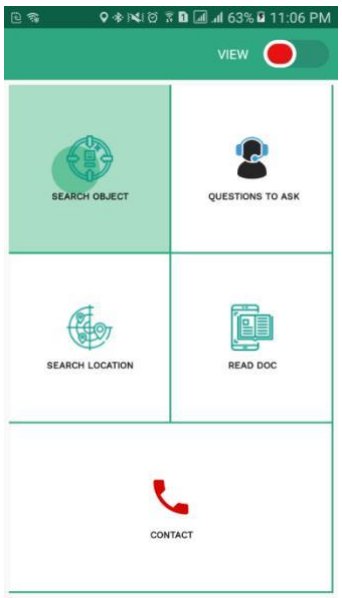


Figure 5.3: Home page

When our user login the app they will find out some feature at “Home Page” like as Search Object, Question to Ask, Search Location, Read Book, Emergency Dial, View Port which is shown in figure 5.3.

Search Object: - Whenever a blind person wants to find out an object near about them they have to click or long press on the button and hold the camera and after that a voice reply will tell them what the object is which is shown in figure 5.4.



Home Page

Search Object

Figure 5.4: Search Object

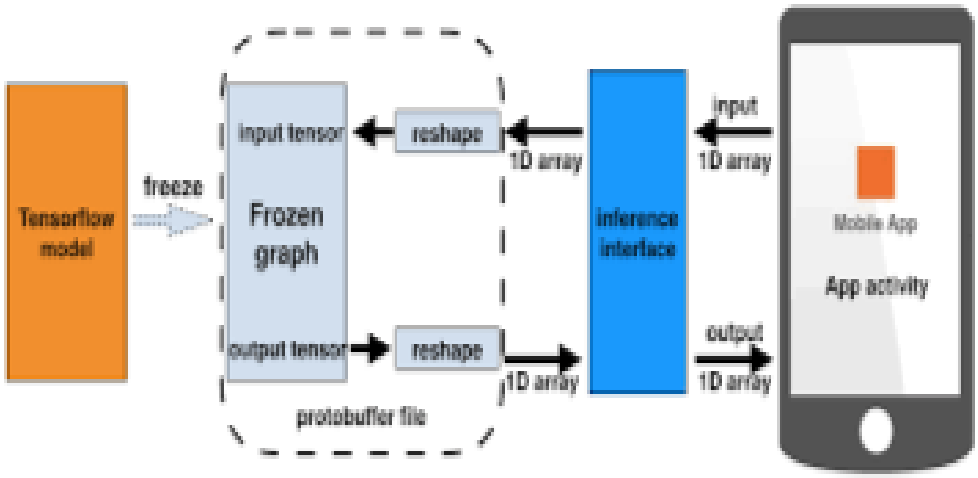
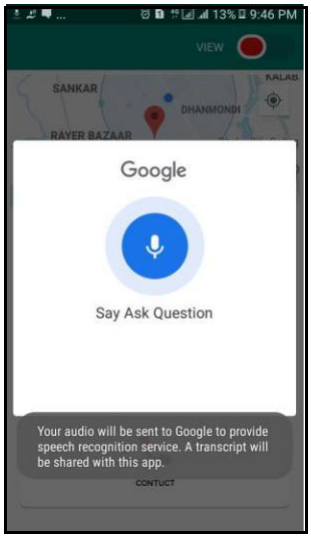


Figure 5.5: Tensor flow Architecture

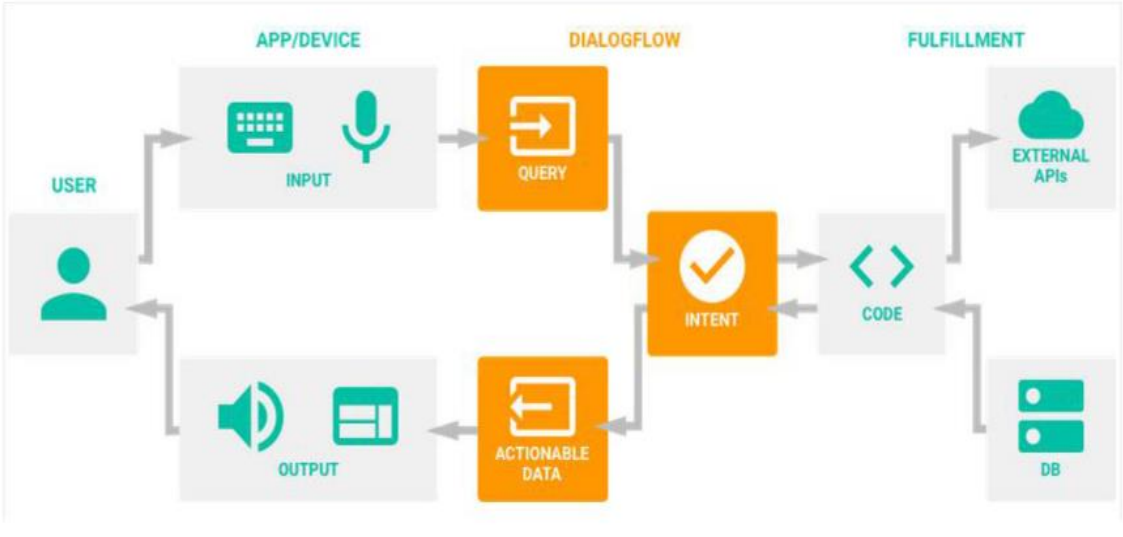
Question to Ask: - To find out blind person's required quarry the apps will provide the answer of that quarry.

Home Page



Question to Answer

Figure 5.6: Question to Answer



Architecture

Figure 5.7: Dialogueflow Agent Architecture

Search Location: To find out a location just have to ask a location name and that will reply with location details 5.6

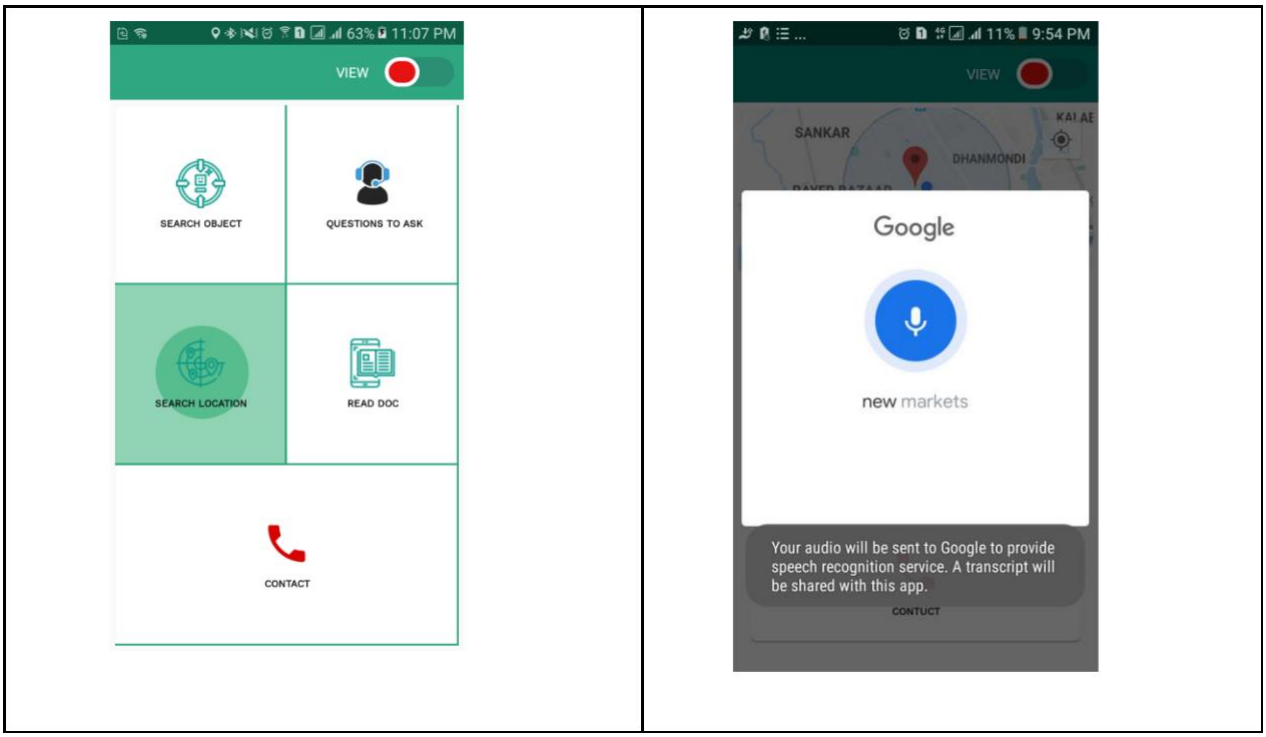


Figure 5.8: Location search page

Read Document: To read a text user have to go to option and hold the camera over the text then apps 5.9 will automatically reply with voice command.

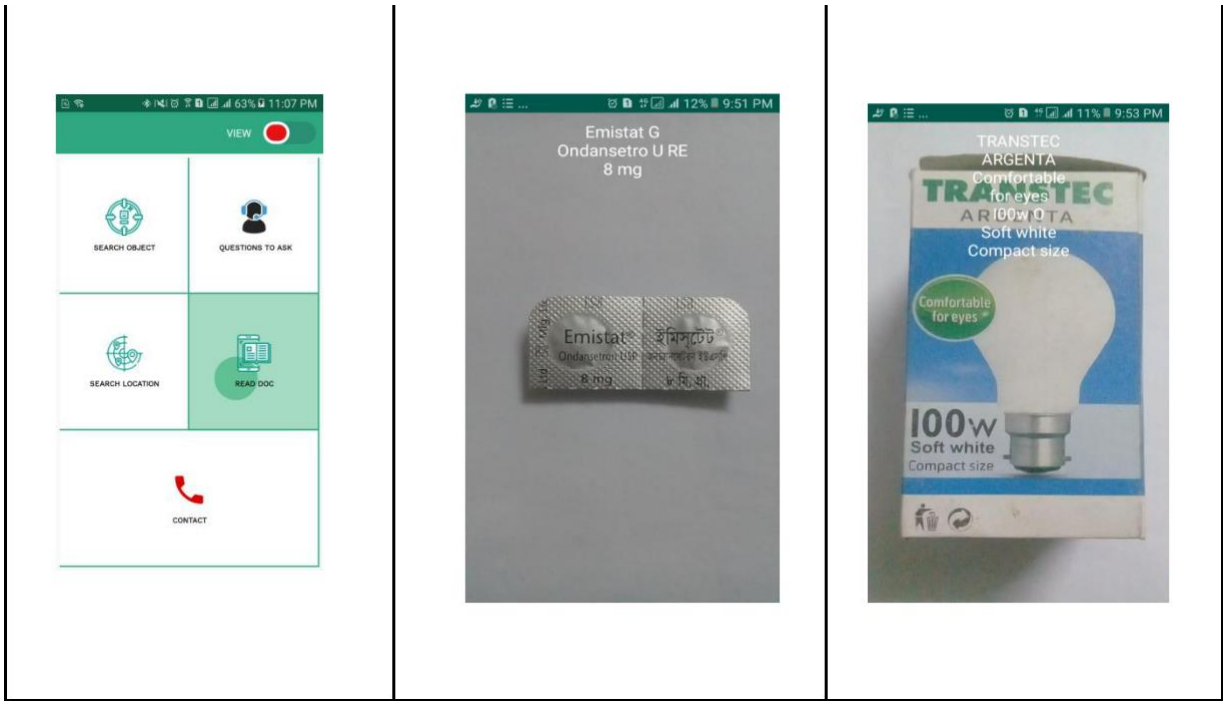


Figure 5.9: Image to Read text

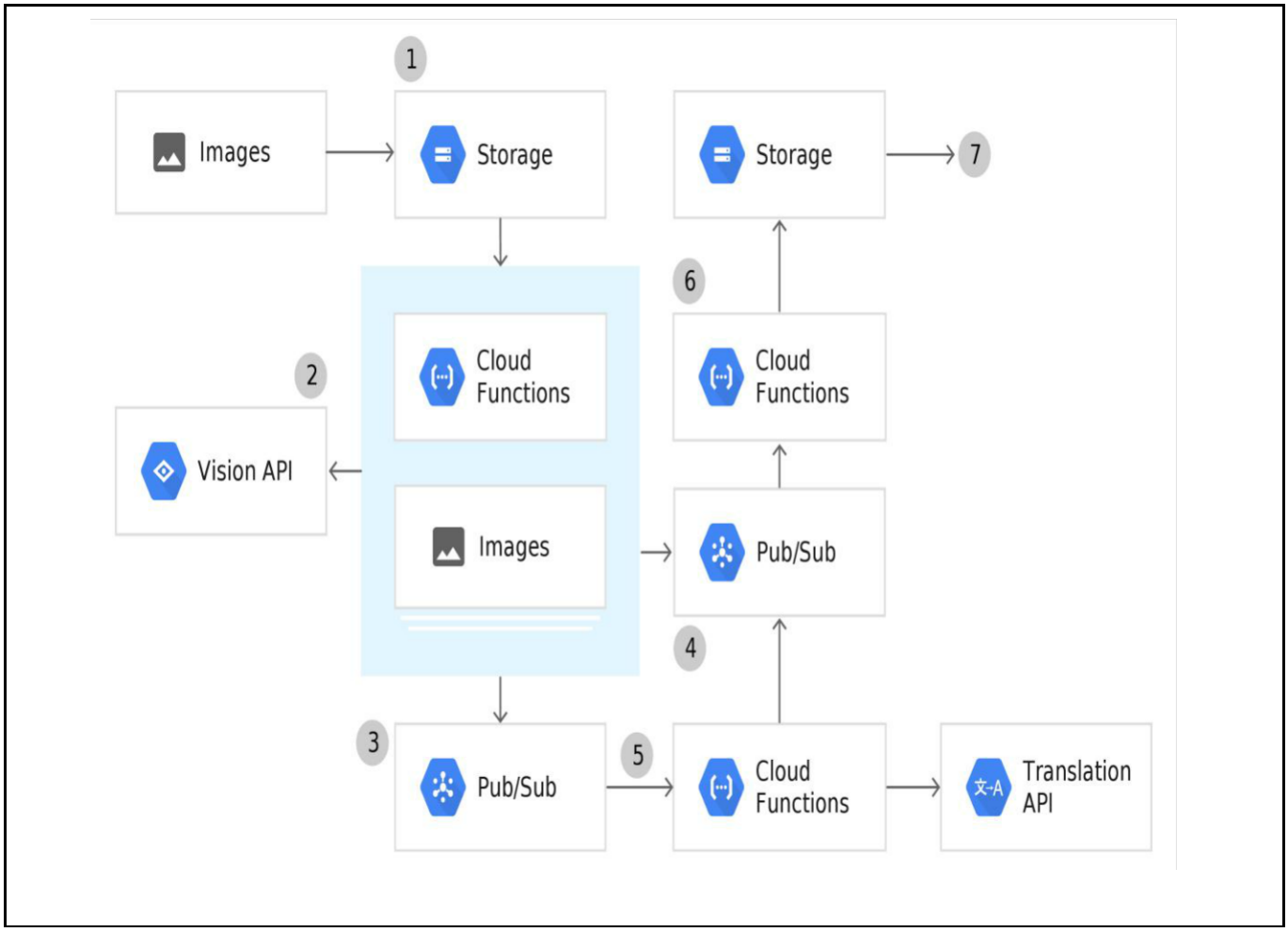


Figure 5.10: Tensor flow Architecture

Emergency Dial: If a user wants to contract with their immediate help hand they have to just press or voice command for emergency dial option.

View Port: To change a view port option just have to toggle to slide. which is shown in figure 5.11.

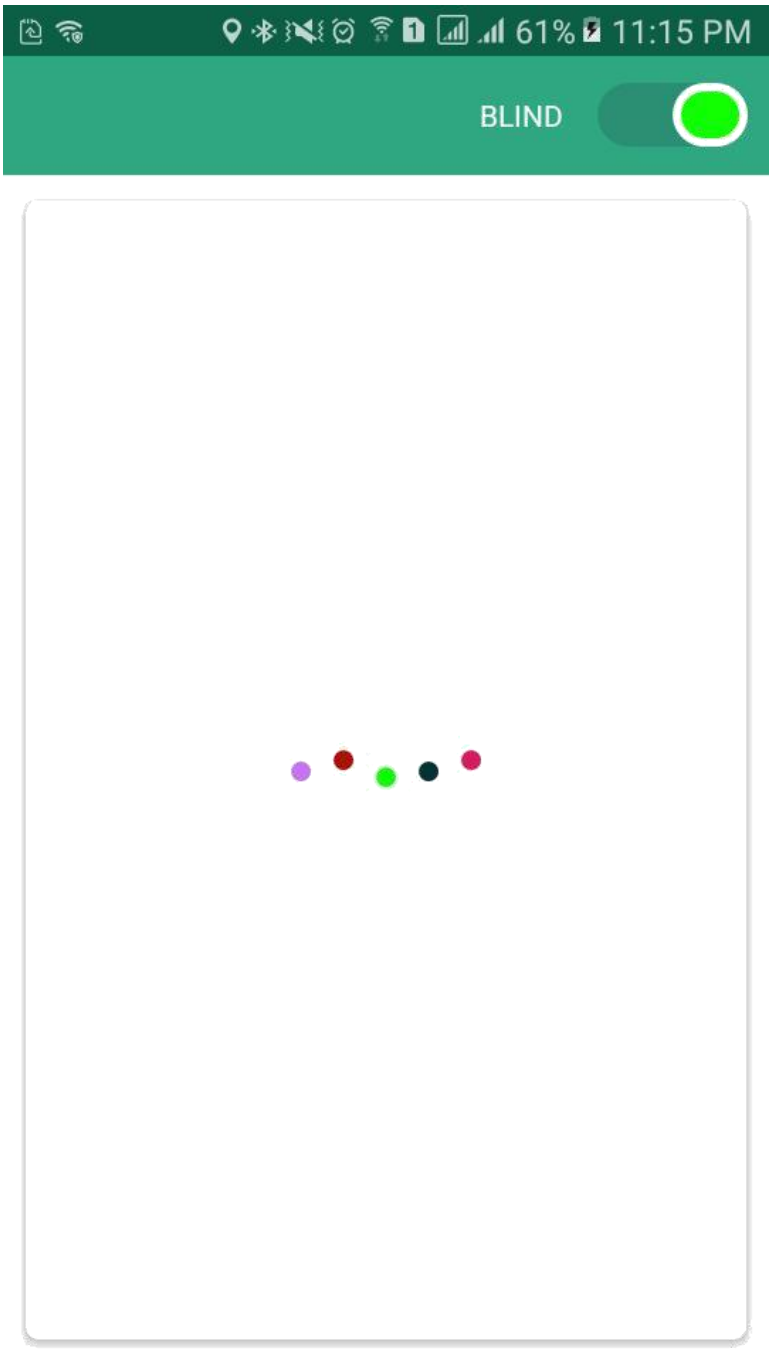


Figure 5.11: Home page

Gordian feature: When a guardian wants to find out their blind people in real time tracking they could use some of the features like as “Real Time Movement”, “Blind List’’, “Current Position” which is shown in figure 5.12.

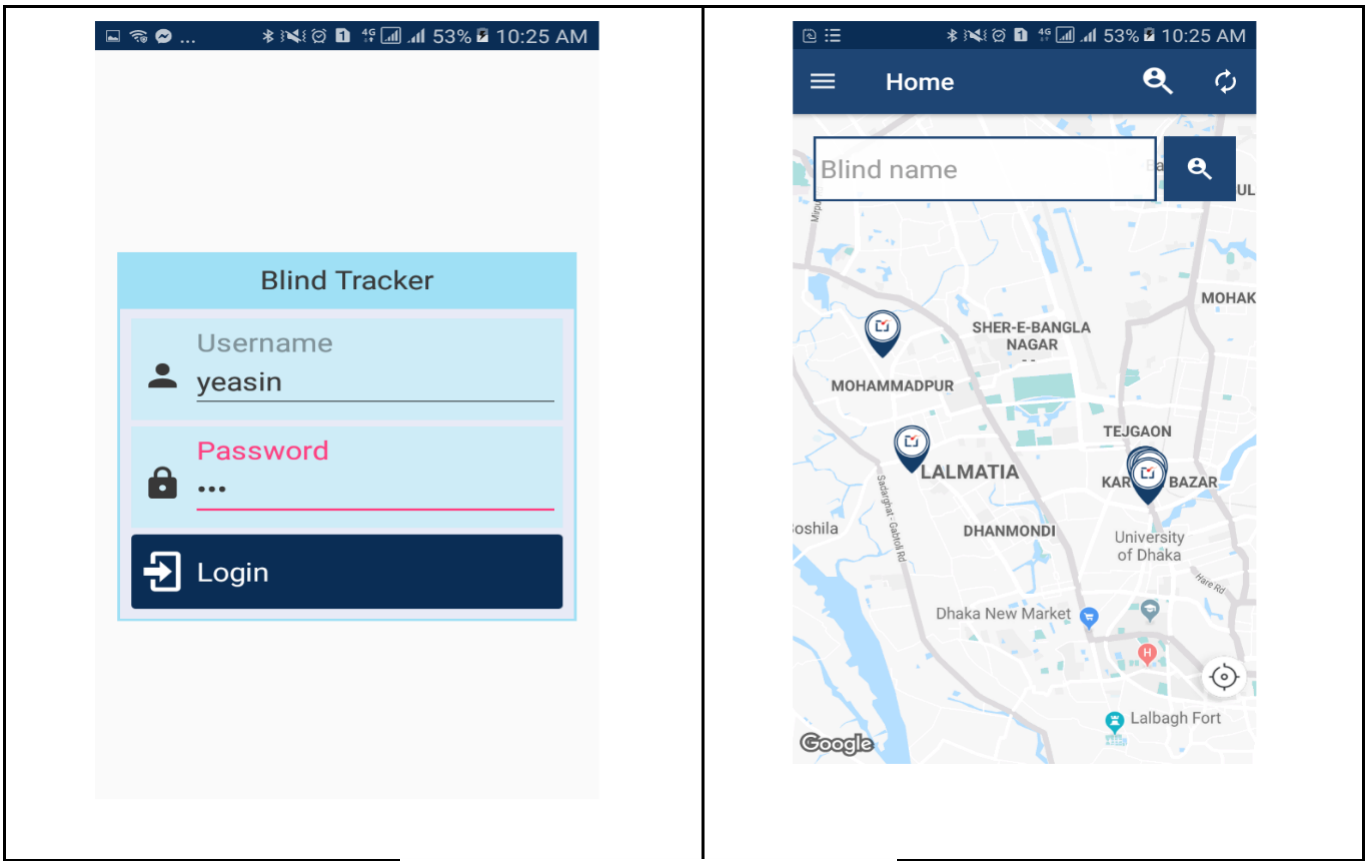


Fig 5.12:- User Login And Home page

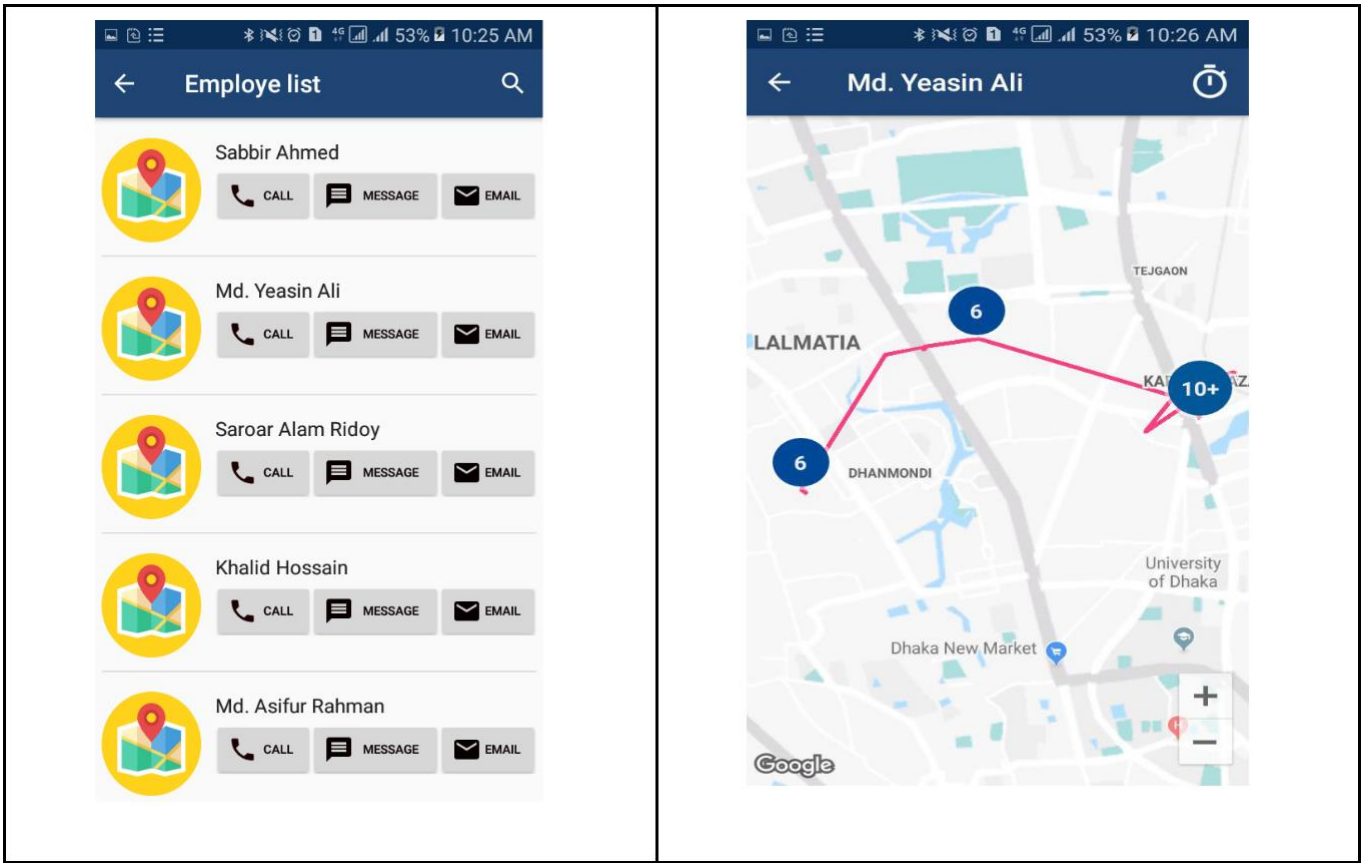


Figure 5.13: Blind User List And Blind Movement History

5.3 Implementation of Interaction

We implement our app for the user. Interaction makes a system attractive and popular to the user. So it's very important to interact with the user so that it can meet their needs. To interact with the user, we try to make our app simple and easily usable. We implement our app with responsive UI for better user experience. To implement an easy interface, we use easily understandable icons, text and button option. Our app is successfully implemented with necessary equipment that can easily interact with the user. It has an impressive interaction with the user.

5.4 Testing implementation

Our goal is to design a series of test cases that have a high likelihood of finding errors. To uncover the errors software techniques are used. This technique provides systematic guidance for designing test that

1. Exercise the internal logic of software components and

2. Exercise the input and output domains of the program to uncover errors in program function, behavior and performance.

Table 5.1: Test case shows the following test case has been done for several time to detect errors.

SL.No	Test Case Id	Test Case Name	Test Case Description	Step	Expected Result	Actual Result	Test Case Status Pass/Fail

1	Login Blind	Validate login	To verify that login name on login page	Enter the login name and password and click Sign in button	Login successful or an error massage ”Failed Sign in” must be shown	Login success	Pass
2	Login Gardian	Validate login	To verify that login name on login page	Enter the login name and password and click Sign in button	Login successful or an error massage ”Failed Sign in” must be shown	Login success-ful	Pass
3	Password	Validate Password	To verify that password on login page	Enter password and login name and click Sign in Button	An error message” password invalid” must be displayed	Password is invalid	Fail
4	Sign Out	Sign out from the system	To log out from the account	Click on the Sign out button	Sign out from the system	Sign out Successful	Pass

5.5 Test Result and Reports

Test Reports represent the result of the test in a formal way. Report contains the data which we evaluated in a professional and organized manner. Report describes the operating condition and shows the result with test objectives. By analyzing the testing report we can say whether the app is ready to use or not. In table 5.1 we describe the test case no, test case id, test case description, step of the test case, expected result and what is the actual result is and the test case status which can be pass or fail. Using these criteria, we took several number of tests and got the accurate result. The accuracy is 100%. So, we can say that our app is error free and user acceptable.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

In the present world each and every life is very important and especially these blind people. So on this above thought our app is implemented to maintain information about the people and to make life easier for them. So it will render a great effort to the government and the people. People can serve their personal information by using their android phone. It will also save their time. Using our app government can easily maintain all the information at a time in a single database. If the user feels free to use our app and accept our work in a cordial heart, then the implementation of the application will be successful.

6.2Future Scope

We cannot implement some important features in our app in the present time. But our efforts won't stop. We want to add some more features that will bring benefit to the “Blind People” and the “Guardian”. The main field user of our app is the “Blind People” and the “Guardian”. This app also gives service to them for communication.

1. Automatic Voice Recognition System.
2. All features will be in “Bangla Language”.
3. UI will be friendly and Interactive.
4. Face Recognition System.
5. Road Lane and Vehicle Tracking.

REFERENCES:

[1] blind assistant, https://play.google.com/store/apps/details?id=phone.science.blindassistanttest, May 31, 2016

[2] blind tool, https://play.google.com/store/apps/details?id=the.blindtool, January 1, 2016

APPENDIX

Appendix A: Project Reflection

We started our journey from Fall 2018 to implement this android application. We tried to make a user friendly interface of our project. The main feature of our project is to “Real Time Tracking” “Object Detection” “Text Reading” “Question Answer” “Search Location” “Emergency Dial”. It’s very essential to keep the information of the “Blind People” to the “Guardian”. New-a-days people are more likely to use the smartphone in their practical life. This app provides them a service in practical life. To implement this application first, we build a model of our application then we implement our app step by step. After a long journey and hard work finally we able to reach our goal.

Our app provides service both of the “Blind People “and the “Guardian”. It also reduces the time and the use of paper. Information can also be stored in a single database which helps to reduce data redundancy. We believe that our application will be a positive and effective for users.

Appendix B: Related Diagrams

To implement our proposed application at first we build a model of our app. We use some diagrams and use case model to analyze how we can implement our app. The first diagram we create a use case diagram. From the use case diagram, we can know about user of our app and what is their activity in the app. In our “Blind Guard” app there are two users. They are “Blind People”, “Guardian”. We also use business process model which acts as a flow chart. In this section we describe the activity of the user and how they interact with the system. We implement our application using android studio and Oracle. In this section we add some diagrams from the user interface and back-end. Figure

Figure: Plagiarism Report