

**Development of an Android Application for
Online Service Booking System**

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This Report Presented in Partial Fulfillment of the Requirements for
the Degree of Bachelor of Science in Computer Science and Engineering.

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APPROVAL

This Project titled “**Development of an Android Application for online service Booking System**”, submitted by **Shuvajit Sarkar 151-15-4886, Sharifur Rahman 151-15-4707 and Mohammad Saiful Islam 151-15-4706** to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree BSC in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 10th December 2018.

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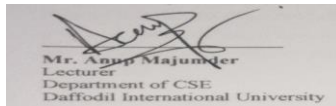
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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Anup Majumder, Lecturer, Department of CSE** at Daffodil International University. We also declare that neither our project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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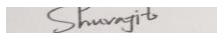
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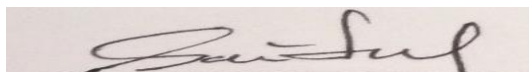
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ABSTRACT

Our project is on “**Development of an Android Application for online service Booking System**”. This is an android based application. This application needs an android device to run and this application is a community platform there have four features those are To-Let, Car, Free space, Tutor. This application is more user friendly and that user can easily find out the features what they need by their smart phone. In the development of this application the most essential elements were computer, an android device and an android application development tool. The development of this application is described in the project report. Using this application user will also get lot of facilities. After development session of this application we have tested it by different user and found it to be a well build application which works perfectly.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Activities in our daily life are decided by the use of internet. Internet changes our daily life. We expend lots of time on the web. Internet, refresh our lives very easy and simple. The internet gives us effective information, data, knowledge for the personal, social and economic development and it's up to us to utilize our time on the web in an originaive manner. The internet is a great revolution in information technology.

For the revolution of internet, we design and build an application that advertises the information on public demand. This application that can help a user to find **TO-LET, CAR, FREE SPACE, TUTOR** and properties easily without physical going. Its create user friendly that helps user to getting valid information. Besides this, this application is very unique application.

1.2 Background

As we have stated before, keeping in mind the goodwill of our people we have decided to build an application that will provide proper advertisement information. **Following the idea we build an useful application which contains are To-Let, Car, Free-Space, Tutor.**

Using the To-Let portion, The Landlord can post To-Let and Tenant can see those post or find and booking their desired residence.

Using the Car portion, The Car Company or owner of car can post their car for rent about details and seeker or searcher or app user can easily see the post and booking or contacting or rent facilities properly.

Using Free Space portion, The Landlord can post their properties or Free-space for rent and tenant or buyer can see the post and contact Landlord.

Using Tutor portion, Teacher can post his qualification and students or parents see the teacher's qualification and contact.

1.3 Motivation

Our project motivation is to developing a online based android apps Which is helpful for people. We saw that, many people want house for rent. But they had suffer many difficulties to search a sweet home or flat for rent. Even when we are admitted in our varsity , we had suffer this problem also. Because many of us, came from other area outside of Dhaka. They need house or room for rent. They faces problems because they don't know about Dhaka city and it's local area.[1].

There is no such a platform where they can know information about those area, house or flat etc for rent. They use to saw many advertising 'to-let' in the wall or bill board etc. They have to spend much time for it. We also observed many social working apps but we could not find this type of proper app which is helpful or clear specifications for people to find a House, flat, car or free-space for rent. On the other hand, house or flat owners need people for giving rent.

That's why, we think if there is a platform where people can post and see much information about houses and local area for rent. Besides this Tutor and Car rent and Free- space is also very necessary things at this moment so that, we feel that and development this application.

1.4 Problem Statement

Lack of proper use of internet may lead toward poor facilities, a bunch of trouble losses of valuable time. In case of the people of our country, because of not having proper knowledge about the use of internet, they are going door to door to view the properties physically.

1.5 Project Objective

- To take rent and give rent all kinds of rentable things.
- To build a smart city service application
- To full-fill expectation.
- To save money and Time.
- To try to minimize the rent problem.
- To best solution for both sides advertiser and rent seekers.
- To best deal on Tutor facilities in city.

1.6 Project Scope

- Providing information regarding To-Let, Car, Free Space and Tutor.
- Designing a database for storing related data.
- Get location/address of the advertisement using the map.
- Establishing a CALL plan via GSM module.

CHAPTER 2

BACKGROUND

2.1 Introduction

We work on the area of Rent BD like To-Let, Car, Free-Space, Tutor. An emergency people has to need tutor also may have to need To-let and people need to find it by their physical instance. We have decided to do some work on this area to solve the problem and tried to make it less time consuming.

We came to know that, there are many types of to-let such as family, student, sublet and etc also have male tutor and female tutor and details about rent car and free space that includes office, shop and Institute etc . So, by using this application user will be able to find out them by category wise.

2.2 Related Works

There has been a couple of works in the past regarding BD Advertising. For example, there are some applications named:

2.2.1 Flatmate: Roommate, Sublet, To-let in Bangladesh

“Flatemate: Roommate, Sublet, To-let in Bangladesh application only contains Roommate, To-let and sublet [2].



Figure 2.2.1: Flatemate: Roommate, Sub-let, To-let in Bangladesh

2.2.2 Car Rent: Rent-A-Car Bangladesh- ALL Rent a car Nearby

Rent-A-Car Bangladesh contains only map view with current location, nearby agents and about Rent- a- car agent and contact or dynamic booking option.[3].

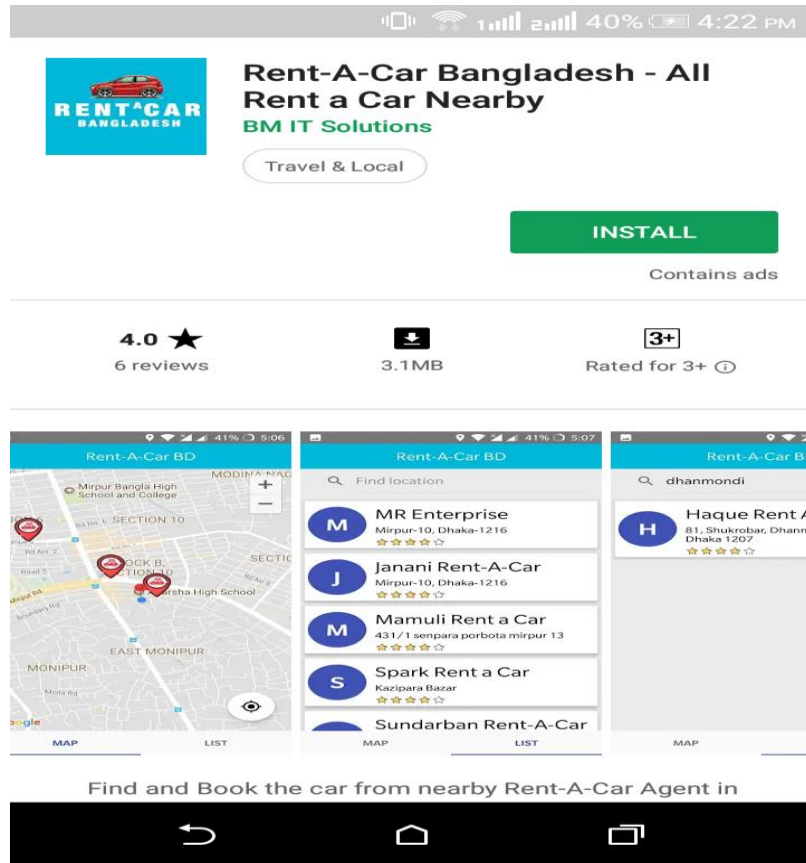


Figure 2.2.2: Rent-A-Car Bangladesh- ALL Rent a car Nearby

2.2.3 Tutor Finder: "Tutor Finder" application only contain the tutor or student information. Tutor Finder is an app where user can find tutors/students[4].This application is absolutely free and no need to create an account. Just install and start searching.

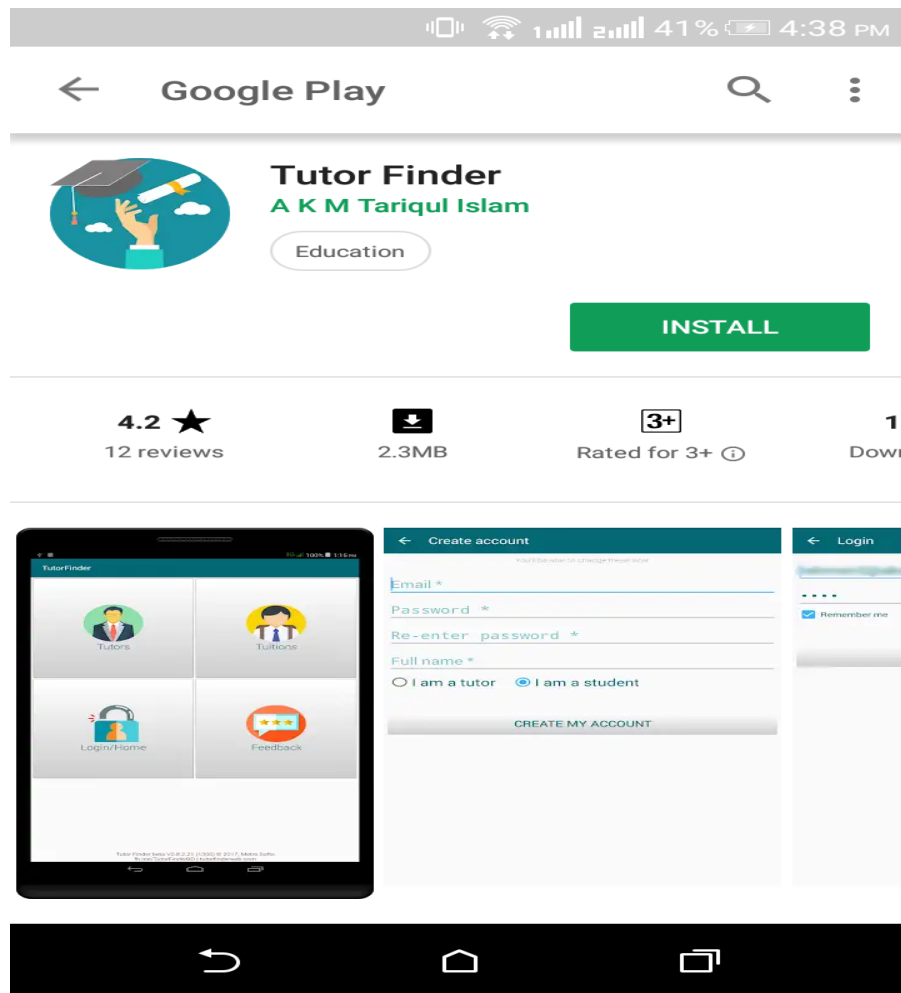


Figure 2.2.3: Tutor Finder

2.2.4 Bproperty: Bangladesh Property

“Bproperty: Bangladesh Property” application only contains flat and land for buy and sale [5].

Bproperty.com is the largest real estate market place in Bangladesh. Being an e-commerce property portal, we cater to the needs of those seeking real estate services, with a promise to deliver a high class service and make the house hunting and renting / buying process easier than ever. By offering the easiest platform enabling you to consume property content in the comfort of their own surroundings, this enables anyone to buy, rent or sell properties in Bangladesh.

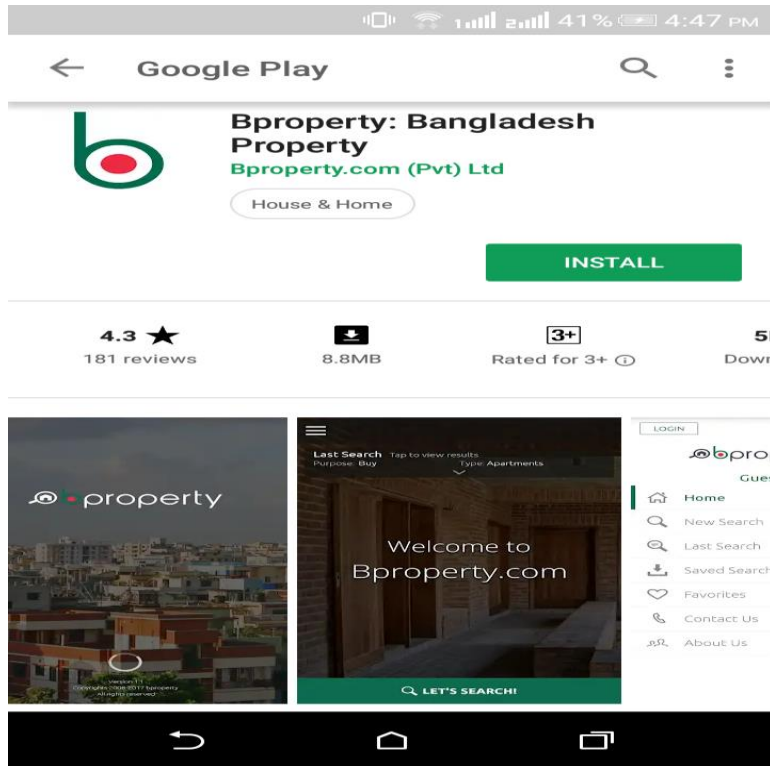


Figure 2.2.4: Bproperty: Bangladesh Property

2.3 Comparative Studies

There are some existing application which have some limitations. Most of the applications have some problem. Different applications contain different features but there is no app which contain all features in one application. Such as Bproperty, Rent-A-Car Bangladesh- ALL Rent a car Nearby, Tutor Finder and Flatmate.

But In one application we provide lots of feature such as To-Let, Car, Free-Space and Tutor .On the other hand our application also allows the Google map to track the location, adding multiple picture option for all part, clear advertisement list, lots of search option, Booking option Like option, Engage tutor option, clear contact option like email, phone call, sms and lots of attractive features in one application that is clearly unique application.

2.4 Challenges

Interactive Application : One important thing in a software project is its Interactions. Mobile devices offer many high-quality features with high quality sensors. So, creating interactions is time consuming and can be very complex in design phase.

Keeping the Application simple and clear: If the app is very complex and user cannot recognize how it works, then the user will be frustrated and will give a negative review about the application. So the functions of the app should be very clear.

Mobile Content Management: The importance of mobile application content is growing day by day because increasing number of smart phone. So, including rich content such as images, animations is important. On the other hand, in our app such functions like as attendance, results are important.

Dealing with the different screen devices: Users may have many different screen devices. So our challenge is to handle the design of the application as it may vary for different devices.

Maintaining the connection with the user: Mobile application market is dynamic because of high number of innovations. So connection with the users is very important.

Performance: One of the important challenge is to design well performing and bug free application which needs minimum charge of battery.

CHAPTER 3

Requirement Specification

3.1 Use Case Diagram: A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.[6].



Figure 3.1: Use Case Diagram of Rent BD.com

3.2 Use case narrative for User

3.2.1 To-Let

Use case: To-Let

Actor: User

Pre-condition:

- Android OS based handset
- Turn on Location
- Internet Connection

Scenario :

- User can see all kinds of To-Let like family, student, employee, sub-let
- .User can see the information of To-Let.
- User can see the shortest path of To-Let from current location via google map.

Alternative Scenario : If user does not turn on location/GPS, turn on. Check the Internet connection, if user not connected.

Post-condition: Application will be running without an error.

3.2.2 Car

Use case: Car

Actor: User

Pre-condition:

- Android OS based handset.
- Turn on Location.
- Internet Connection.

Scenario :

- User can see the information of Car
- User can see the shortest path of Car from current location via Google map

Alternative Scenario: If user does not turn on location/GPS, turn on. Check the Internet connection, if user not connected.

Post-condition: Application will be running without an error.

3.2.3 Free Space

Use case: Free Space

Actor: user

Pre-condition:

- Android OS based handset.
- Turn on Location.
- Internet Connection.

Scenario:

- User can see the information of Free Space.
- User can see the shortest path of Free space from current location via google map.

Alternative Scenario: If user does not turn on location/GPS, turn on. Check the Internet connection, if user not connected .

Post-condition: Application will be running without an error.

3.2.4 Tutor

Use case: Tutor

Actor: user

Pre-condition:

- Android OS based handset.
- Turn on Location.
- Internet Connection.

Scenario:

- User can see the information of Male Tutor, Female Tutor.
- User can find nearest Tutor via google map.

Alternative Scenario: If user does not turn on location/GPS, turn on. Check the Internet connection, if user not connected.

Post-condition: Application will be running without an error.

3.2.5 Network Connectivity

Use case: Connectivity

Actor: user

Pre-condition:

- Android OS based handset.

Scenario:

- User can see the network connectivity.
- User can connect the network wifi or mobile data.

Post-condition: Application will be running without an error.

3.2.6 Create Account

Use case: Sign In

Actor: user

Pre-condition:

- Android OS based handset.
- Internet Connection.

Scenario:

- User can create account by Email or Phone number for post ad .
- .User can insert, update and delete their ad.

Alternative Scenario: If user does not turn on location/GPS, turn on. Check the Internet connection, if user not connected.

Post-condition: Application will be running without an error.

3.2.7 Contact Us

Use case: Contact Us

Actor: User

Pre-condition:

- None

Scenario:

- User can know about application.

Alternative Scenario: None.

Post-condition: None.

3.3 Business Process Modeling (BPM)

Business process modeling (BPM) is the activity of representing processes of an enterprise, so that the current process may be analyzed, improved, and automated[7]. The term 'business model' is thus used for a broad range of informal and formal descriptions to represent core aspects of including purpose, operational processes and policies.

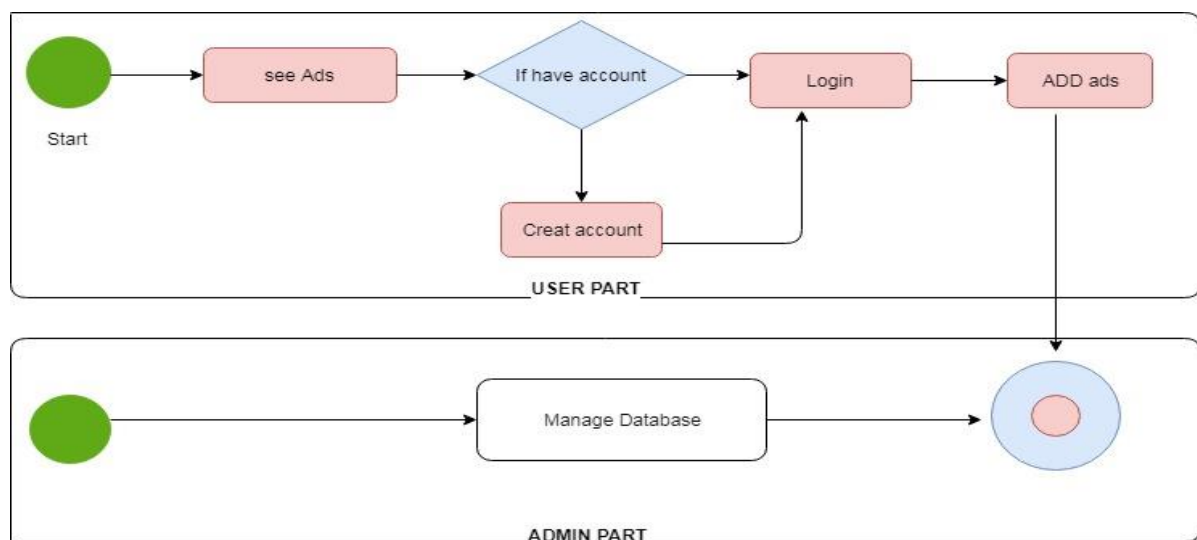


Figure 3.3: Business Process Modeling (BPM)

3.4 Data Flow Diagram

A DFD shows what kind of information will be input to and output from the system, how the data will advance through the system, and where the data will be stored. It does not show information about process timing or whether processes will operate in sequence or in parallel, unlike a

traditional structured flowchart which focuses on control flow, or a UML activity workflow diagram, which presents both control and data flows as a unified model[8].

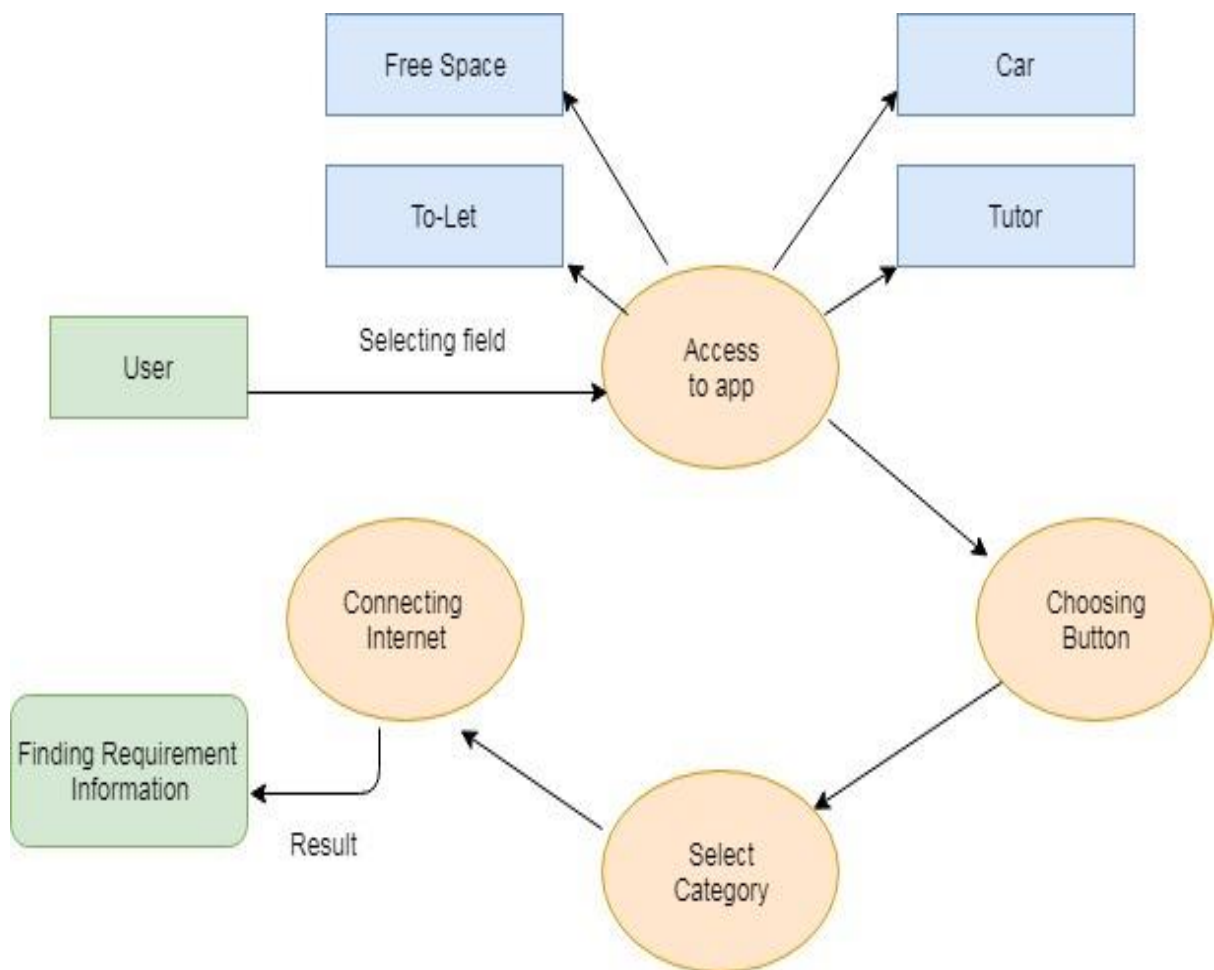


Figure 3.4: Data Flow Diagram of the System

3.5 Non-functional Requirement

- Help text will be provided in English.
- The process of using the application will always be available.
- There is no user limit for browsing the application.
- This application can be used only on android OS.
- During browsing through the application system responses should be no more than 1second.
- Only register user can modify the information of the application.

3.6 Usability requirement

- An android OS based handset (Android version 4.2 - 7.0) with internet connection and GPS support.
- The interface of the application is suitable even for the color-blind people.
- Anyone who knows Bengali or English can use this application.

CHAPTER 4

Design Specification

4.1 System Architecture

System architecture shows the structure and behavior of a system, how the system works and how it interacts with users [9]. The following figure 4.1 shows System Architecture.

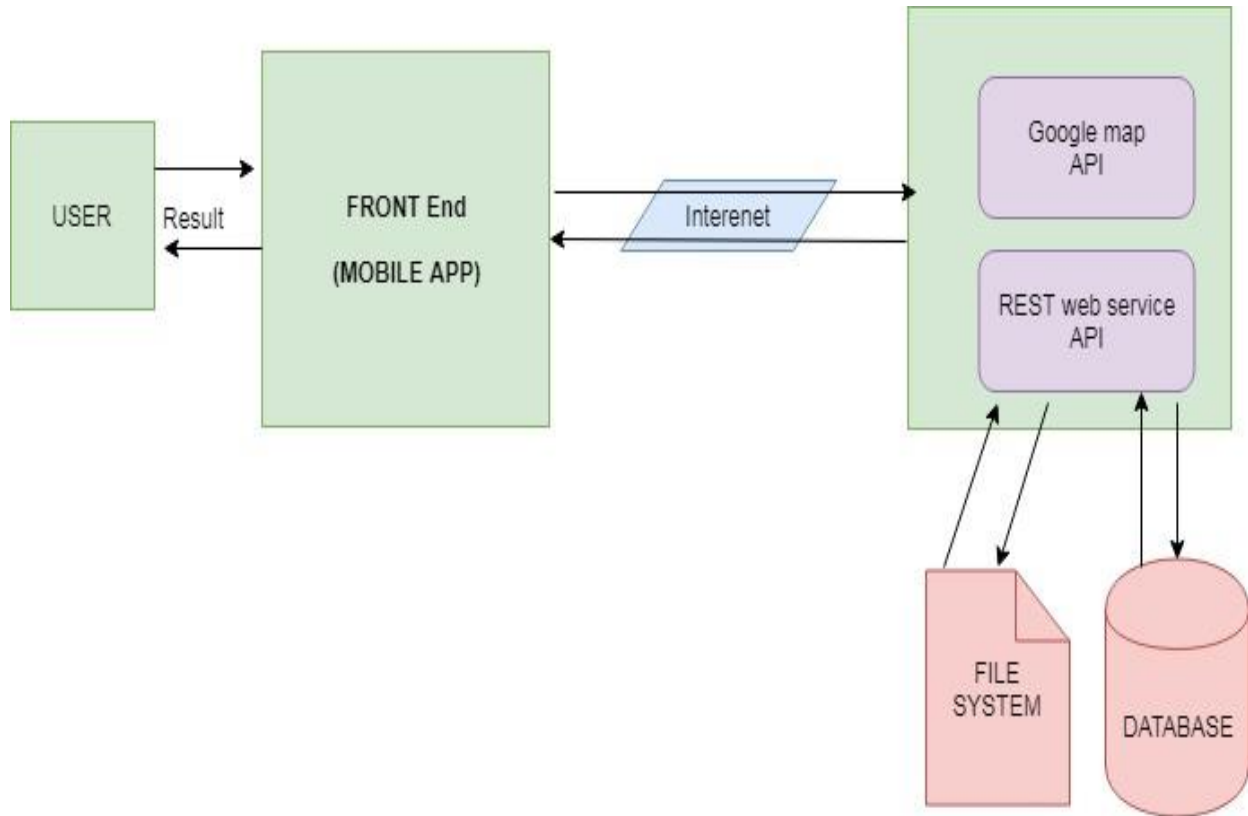


Figure 4.1: System Architecture

4.2 Database Design

Database design is a process which can add data or delete data by user .In our developed application we use firebase database to control our data flow. Under below we shows some pictures of our database in figure (4.2), (4.3), (4.4).

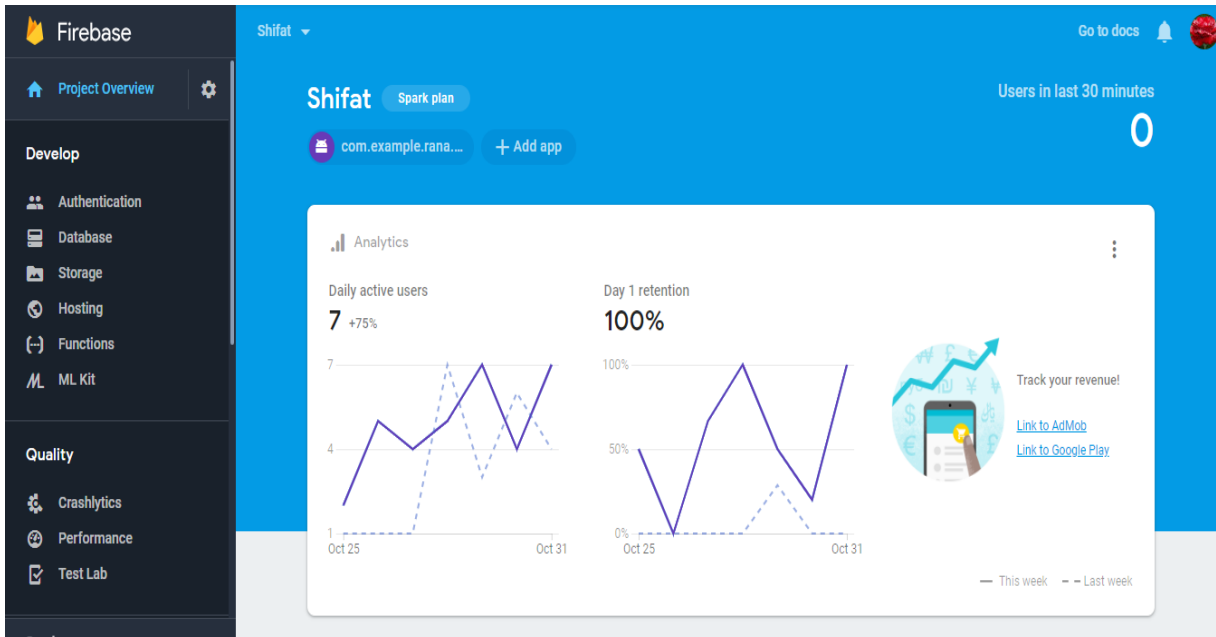


Figure 4.2.1: Overview of Firebase Database for Android App

Identifier	Providers	Created	Signed in	User UID ↑
pias11@gmail.com	✉	Oct 29, 2018	Oct 29, 2018	2eeyDqkGFgW47DqIpRzQeYhgkbi1
shuvajit@gmail.com	✉	Nov 1, 2018	Nov 1, 2018	BJW5VsdZKqPCvLCfG6LI5zidut82
shhshshshz@gmail.com	✉	Oct 28, 2018	Oct 28, 2018	IHGynBN2M0PwEvOqYFLmK07lg...
gsggsggs@gmail.com	✉	Oct 29, 2018	Oct 29, 2018	MscI3gcq7abJBM5e3nXhLM92xG...
shuvajit15-4886@diu.edu.bd	✉	Oct 29, 2018	Nov 1, 2018	Q7RBW6zR9TbWeBmEDGeA2lcHX...
ibrahim.ibrahim@gmail.com	✉	Oct 31, 2018	Oct 31, 2018	drs9c0e3mihiz0shcw6oDSLt3xr1
vzgbhhshzhz@gmail.com	✉	Oct 28, 2018	Oct 28, 2018	oEV495PnsmMcJuecwaDI66aqxA...
sojib.sojib@gmail.com	✉	Oct 31, 2018	Oct 31, 2018	rBZRcmMmJwRzC4Pldk4S0T2
vzsvvzh@gmail.com	✉	Oct 31, 2018	Oct 31, 2018	ueFicbe8itaQ00eARI4LPOI4sxF3

Figure 4.2.2: Database Design for Android App (Part1)

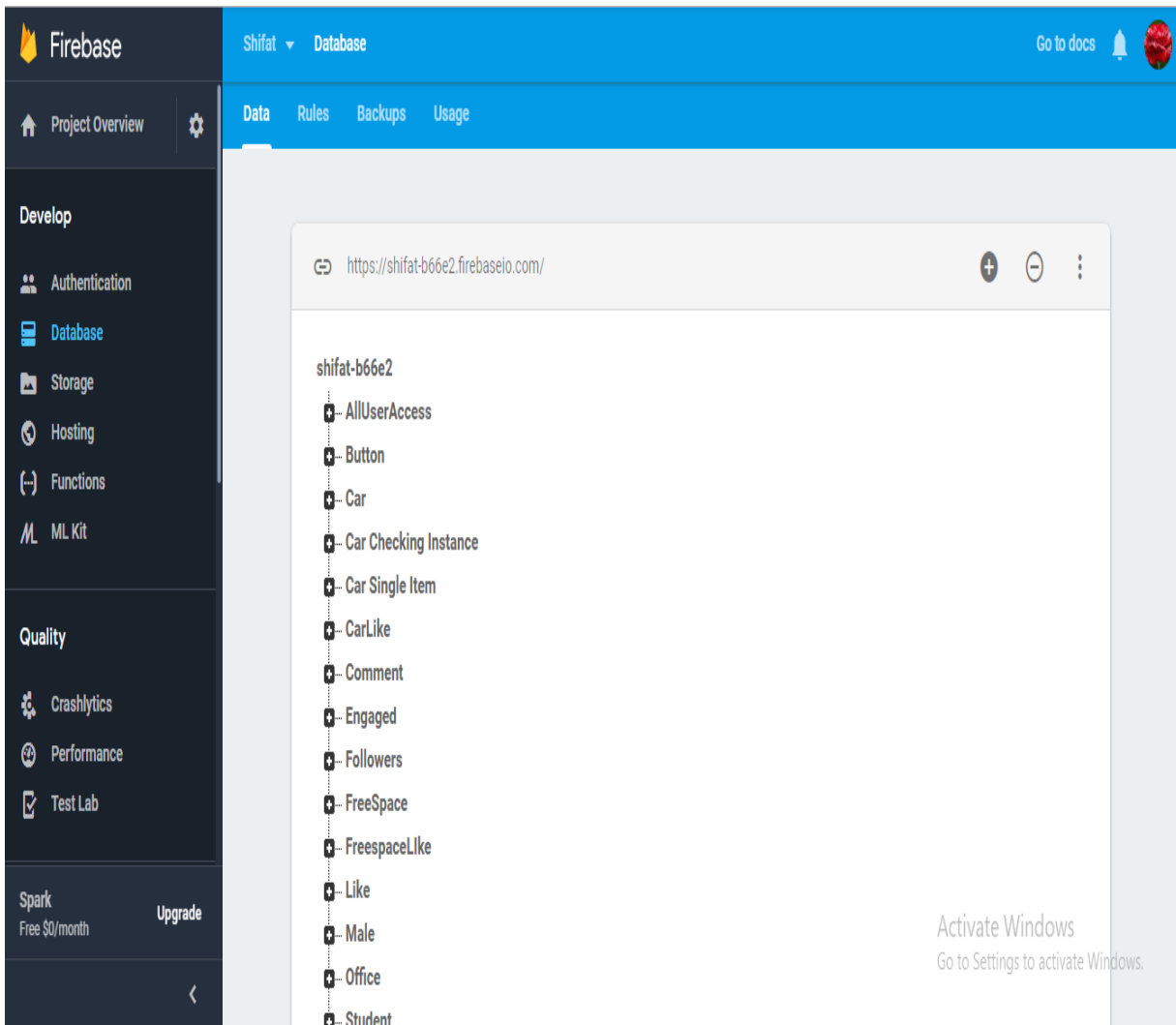


Figure 4.2.3: Database Design for Android App (Part2)

4.3 E-R Diagram

E-R diagram is used to show data connectivity. It shows the relation between user and the system. People use data and maintain those things. By using E-R diagram, people can easily explain it and understand the process of the system. Users use some entity to easily find their connectivity and relation between each entity. Underneath is an E-R diagram in figure (4.5) showing their connection with each other. [10].

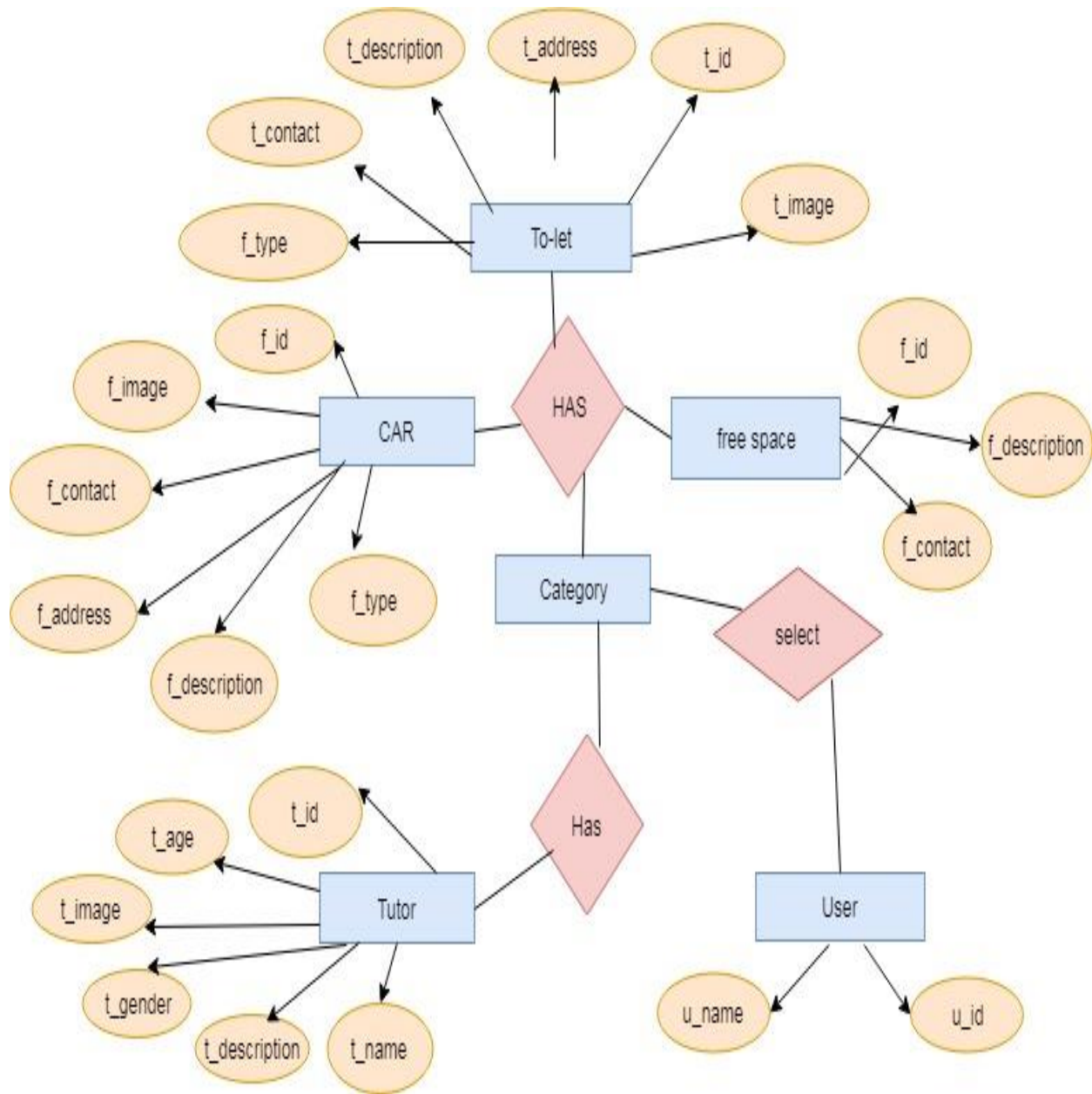


Figure 4.3: E-R Diagram of RentBD.com.

4.4 UI Design

User Interface is use to show the interaction between user and the device. By using graphical user interface (GUI) user can easily operate the system. It helps user to control our app. User can easily operate some other interfaces by using this.

4.4.1 Home Screen

Our home screen in generally shows four item To-Let , Free Space, Tutor , Car rent and their connectivity. It shows some other options such as logout, login etc. under there is a picture in (4.6) showing our home screen option and their connectivity.

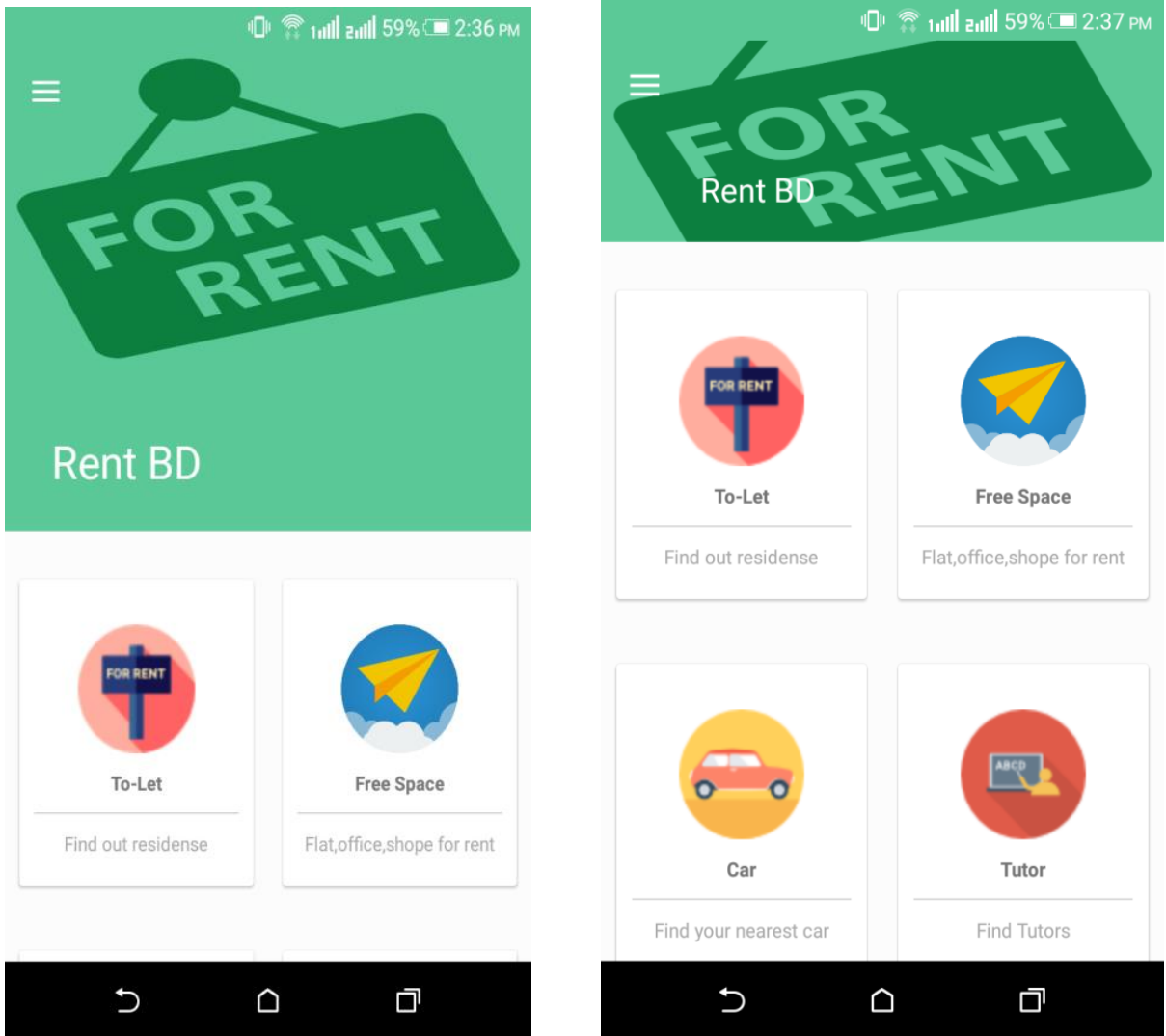


Figure 4.4.1: Home Screen

4.4.2 To-let

There are four options (To-Let, Free space, Tutor, Car) those are work similarly. Their category and working procedure are generally same. So we will describe the procedure of To-Let only.

If we click on the To-Let button, we will see there is a new interface. On the top of the interface there is a search option .On the upper left corner there is so many option such as add To-Let, User updates, category wise search options etc.

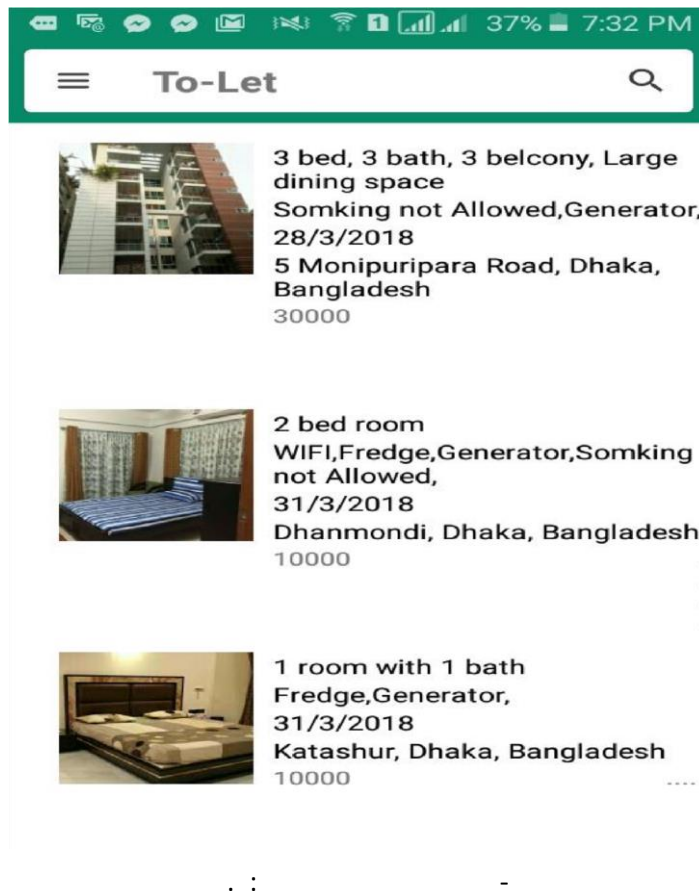


Figure 4.4.2: Home Screen of To-Let

4.4.3 Navigation drawer for To-Let

On the navigation drawer of To-Let, we can see there is add To-Let, User account and category of search option. If user click on add option there will be a another interface.

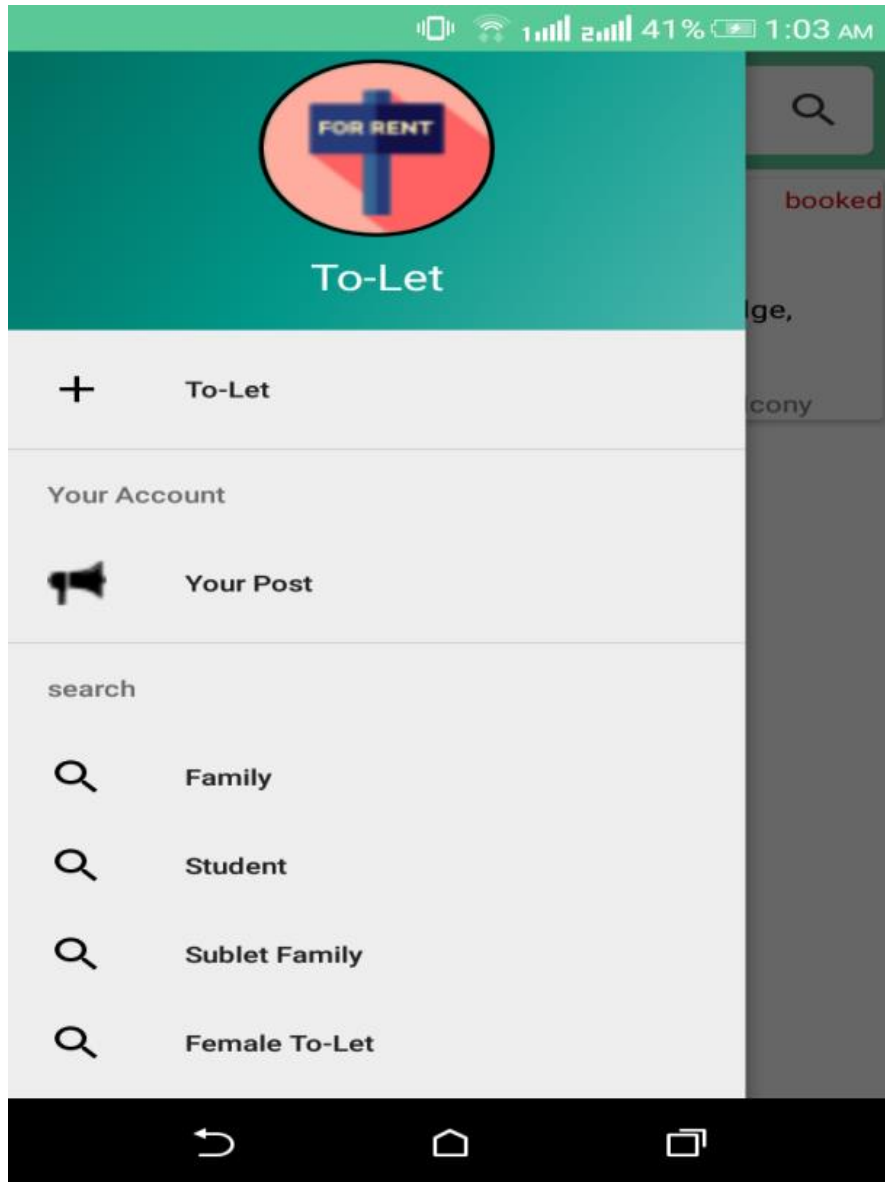


Figure 4.4.3: Navigation Drawer of To-Let

4.4.4 Add To-Let

If we click on add To-Let option we will see a form containing options. User can easily post their adds after fill up the form. On this form there is some advanced options such as date picker, check box, google auto complete text etc.

The figure displays three sequential screenshots of the 'Add Tolet Post' form in a mobile application. The first screenshot shows the top section with a dropdown menu labeled 'Select One', a text input field for 'Write something about your to-let', and input fields for 'Enter Month' and 'Enter Taka'. The second screenshot shows the 'Enter Address' section with input fields for 'Enter House No', 'Enter Road no', 'Enter housing/Road name', and 'Enter thana name', followed by the 'Contact Information' section with two '+88 Enter Contact No' fields and a 'SAVE NOW' button. The third screenshot shows the 'Enter Facilities' section with checkboxes for 'WIFI', 'Fridge', 'Generator', '24 hours water' (checked), 'Smoking No Allowed', 'Flooring Tiles', and 'Lift', and another 'Enter Address' section with input fields for 'Enter House No', 'Enter Road no', 'Enter housing/Road name', and 'Enter thana name'.

Figure 4.4.4: Add To-Let form.

4.4.5 Auto place picker

Auto place picker help us by providing location suggestion. User can easily find their location with the help of auto place picker.

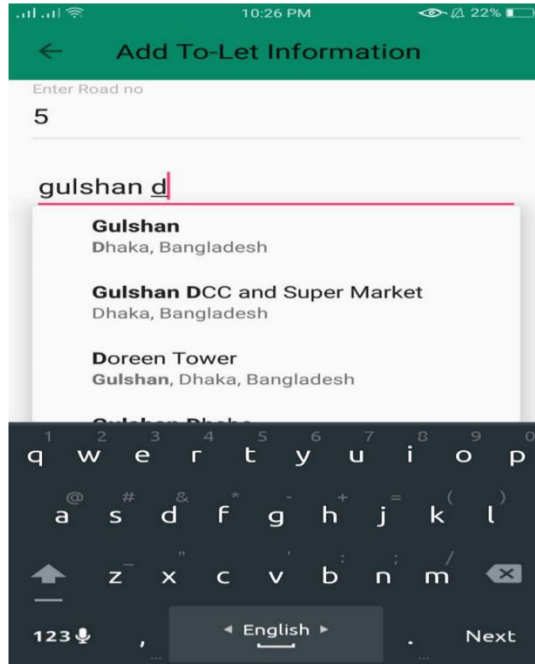


Figure 4.4.5: Auto Place Picker

4.4.6 User account

User account is an important part of this app .In user account user can easily update his/her account. User can easily add, delete and edit their information .User can update picture, edit text information to update his/her add. And booking option is also here.

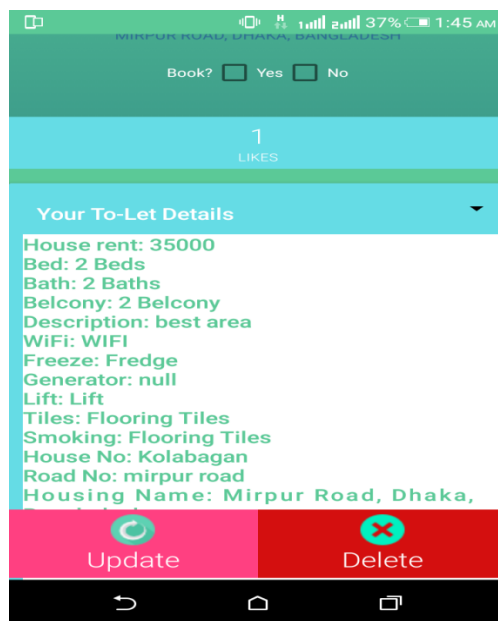


Figure 4.4.6: User Account

4.4.7 Advanced search bar for To-Let

There is an advanced search bar, which can help us to search our information what we need very easily.

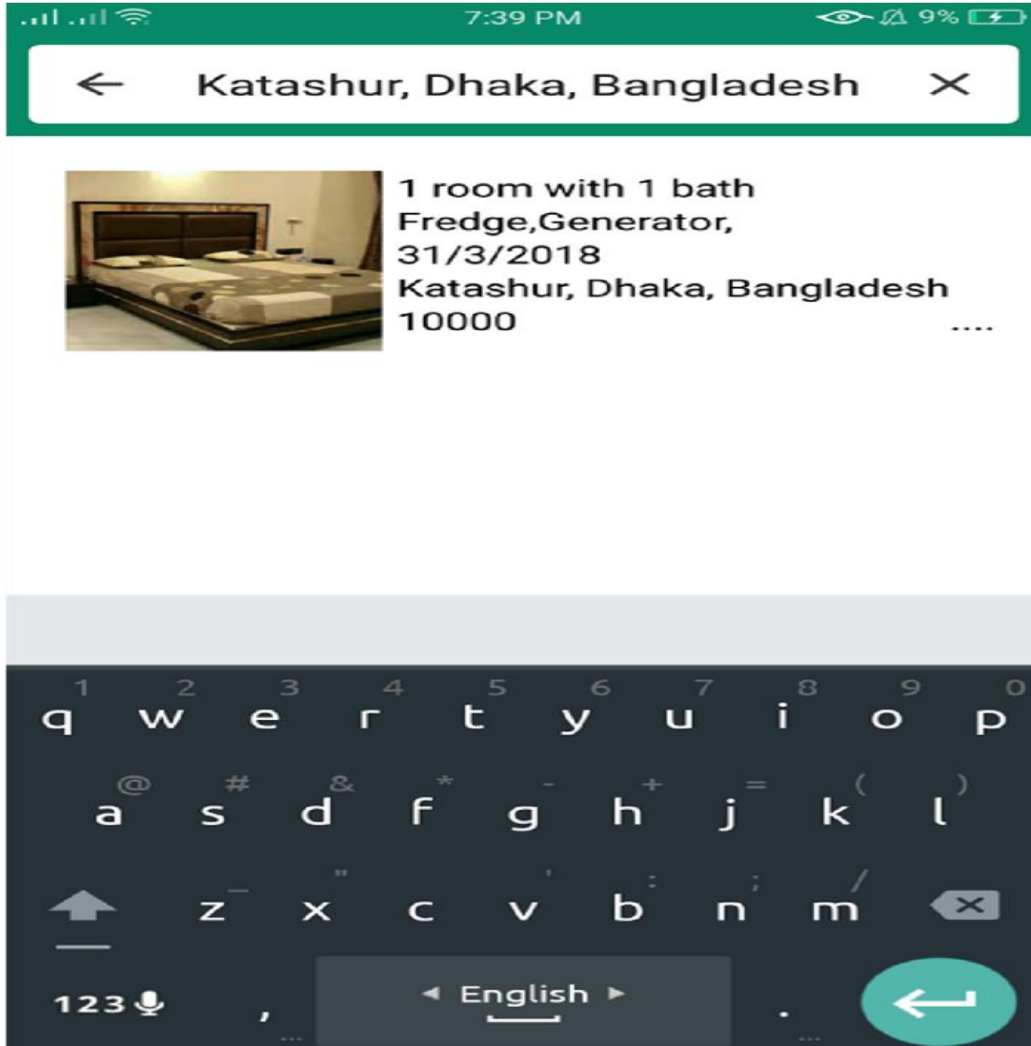


Figure 4.4.7: Advanced Search Bar for To-Let

4.4.8 Details information of To-Let

In details information we can see information about those add. If want to know any particular information about any particular add then we click details option and we will see the full information and their proper details.

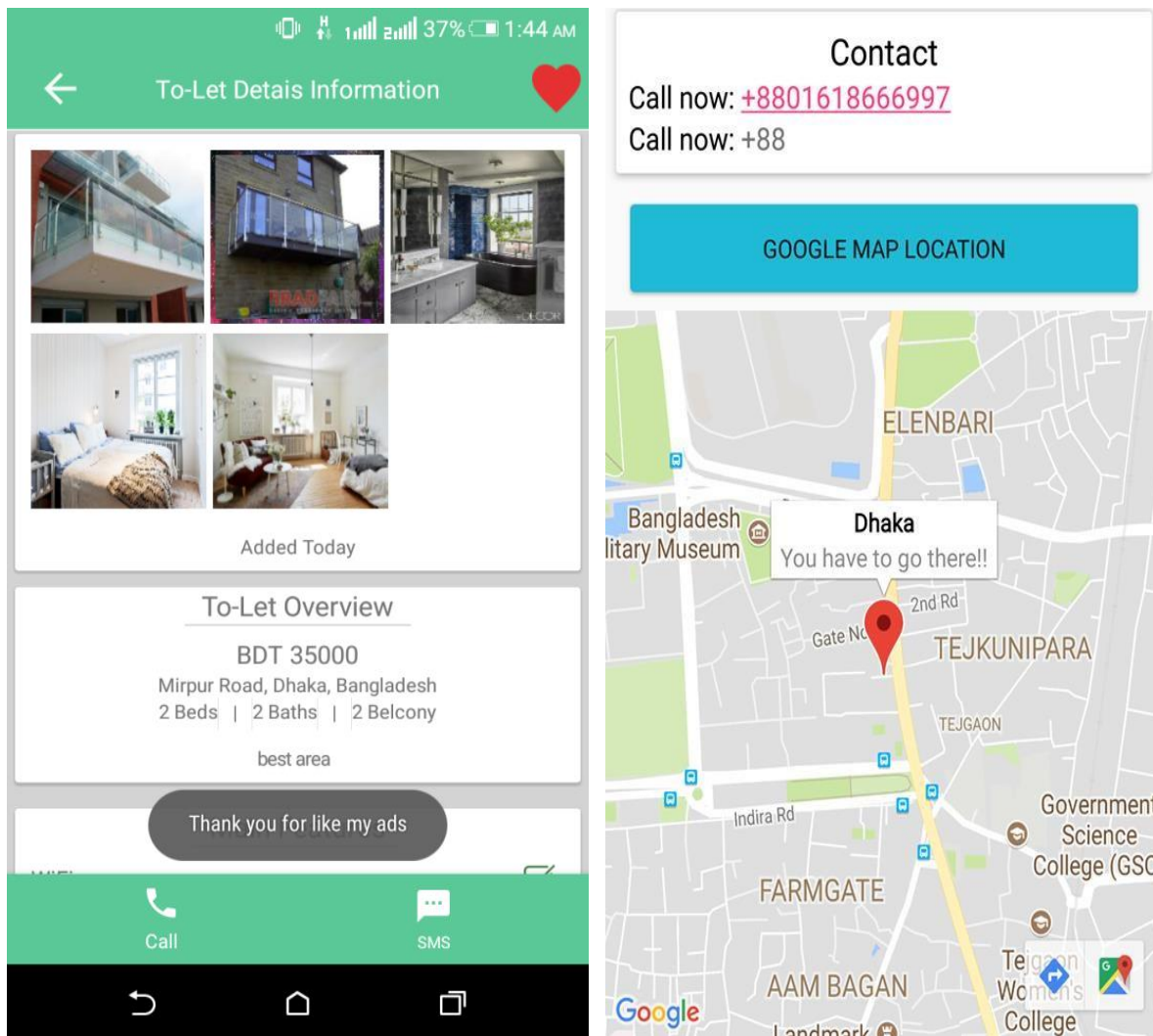


Figure 4.4.8: Details Information of To-LET

4.4.9 Calling

On the calling option user can easily find the contact number of the add publisher and the customer can contact with him/her by calling this contact number process.

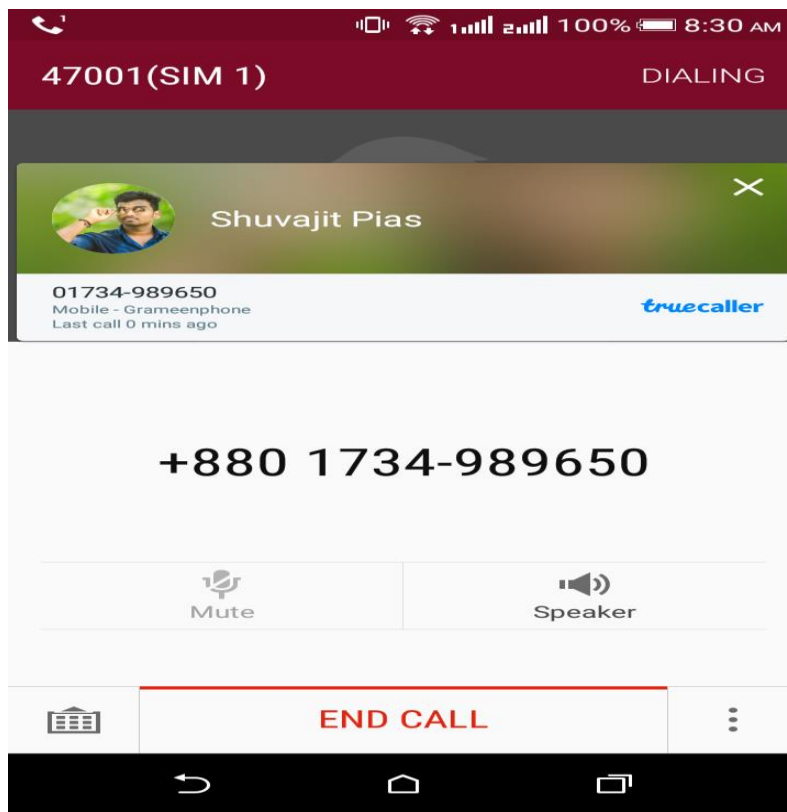


Figure 4.4.9: Calling

4.4.10 SMS:

On the SMS option user can easily find the contact by SMs of the add publisher and the customer contact with him/her. In sms option are in some direction.

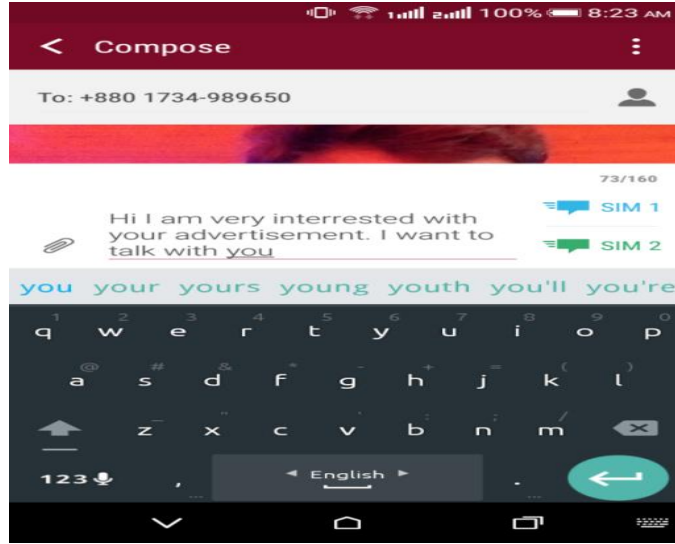


Figure4.4.10: SMS

4.4.11 Route view live

By using live route view we can easily find our direction. If we select our location and destination and click on live view and start to follow the map, the map will show us the live street view so that we can easily find our destination.

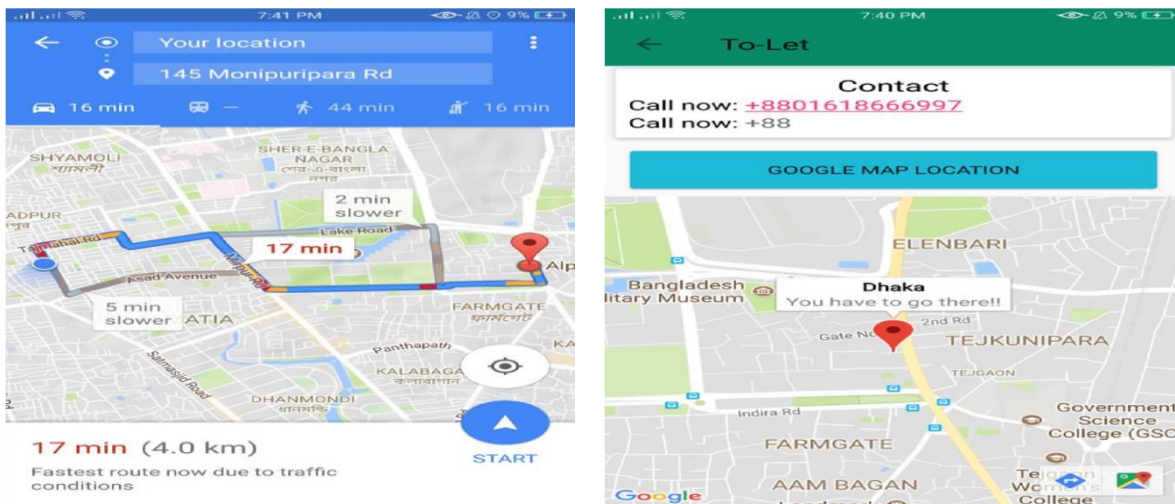


Figure 4.4.11: Route View and Live Route

4.4.12 Find Tutor by Google map

We can easily find tutor on google map. There is a find option by using this option people can easily find their nearby teacher. There is also a features that is engaged option .If anyone is engaged with tutor they can see tutor activity they also can comment on tutor posts.

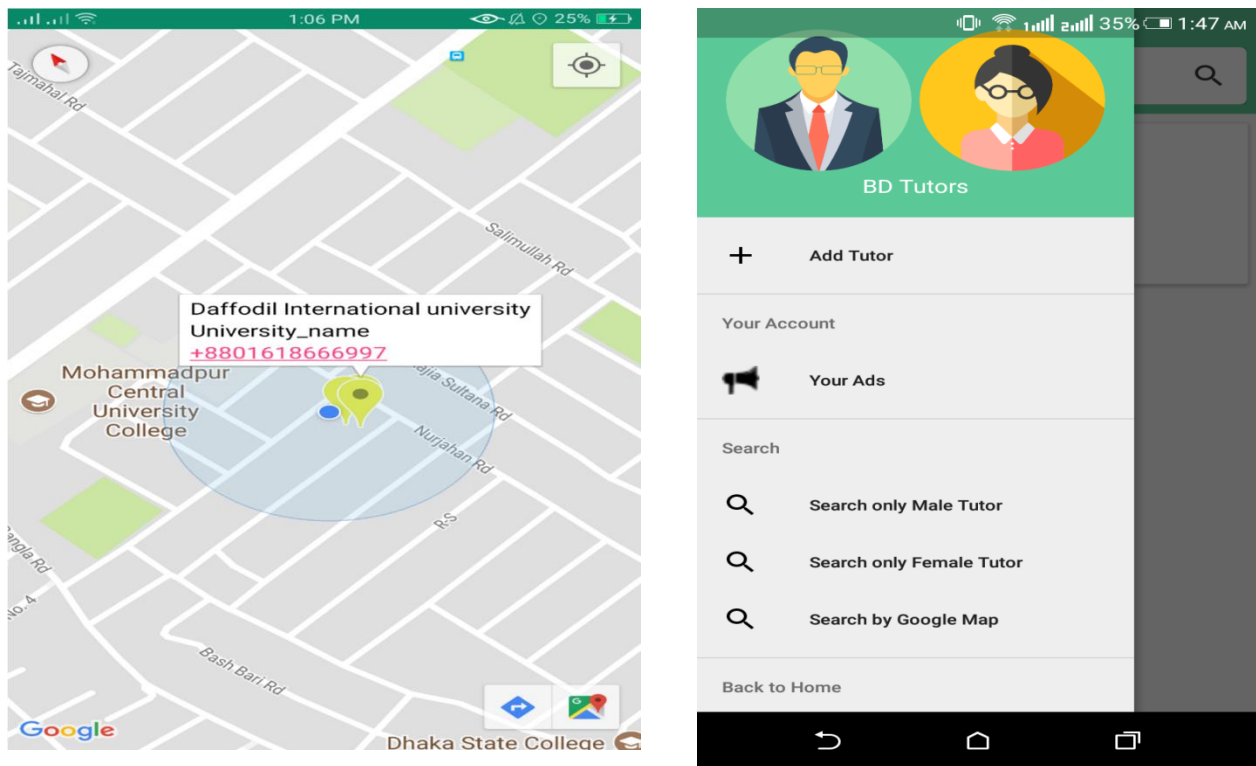


Figure 4.4.12: Find Tutor by Google Map

4.5 Design Requirements

4.5.1 Android Studio

Android Studio is the IDE (integrated development environment) for android operating system. Using android studio, we developed our application.

4.5.2 Android SDK

Android SDK provides the API libraries and developer tools necessary to build, test, and debug android applications.

To develop Android application, Android SDK is the essential tool. This SDK is very comprehensive tool that contains not only the library for development, but also includes the simulator to test the application.

4.5.3 Java Development Kit (JDK)

JDK is an implementation of either one of the Java SE, Java EE or Java ME platforms.

4.5.4 Android Virtual Device (AVD)

The AVD manager provides a graphical interface which run the android application called emulator. A QEMU-based device-emulation tool that can use to debug and test applications in an actual Android run-time environment.

CHAPTER 5

Testing and Evaluation

5.1 Usability Test

In Usability Testing we usually test its performance, user friendly or not, speed, apps functionality, user experiences etc. We ran a survey among 40 users their aged between 18-30. On this survey 30 of them are male and 10 of them are female.

We asked them few questions about our app and they reply our questions. By analyzing those questions we set up a survey report about our app. The output of our survey report is given below as a bar chart.

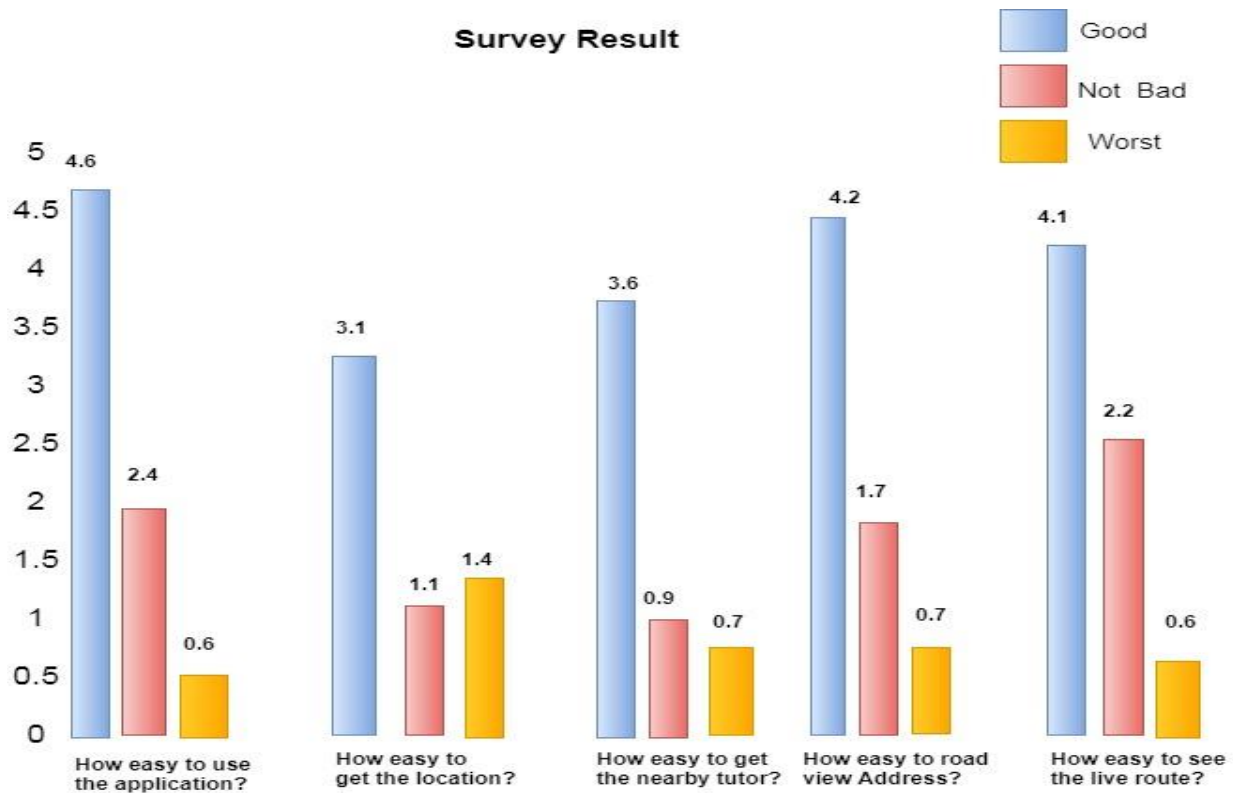


Figure: 5.1: Survey Result

Finally we found the result is –

- Better quality application
- Better performance
- Better UI
- User friendly
- Easy to use

5.1 Unit Test

Unit test is very important thing it help us to designing and implementing our project. It is a process which can help us to develop our project. In unit test there is a table and it has some option which are independently tasted and implemented after passing the test [11]. In unit test there is options related our project. It was done when we implemented our codes and project. There is some condition and variables those must be fulfill when we test our project.

The test result of our project is given below. Under there is a table containing some requirements .Let's see our project can fulfill those requirements or not.

Unit testing is commonly automated, but may still be performed manually. The IEEE does not favor one over the other. The objective in unit testing is to isolate a unit and validate its correctness. A manual approach to unit testing may employ a step-by-step instructional document. However, automation is efficient for achieving this, and enables the many benefits listed in this article. Conversely, if not planned carefully, a careless manual unit test case may execute as an integration test case that involves many software components, and thus preclude the achievement of most if not all of the goals established for unit testing.

5.2 Result of Unit Test

Table 1: Result of Unit Test

Test Case	Test Input	Expected Output	Actual Output	Result
Interface visibility	Tested on AVD	Interface are display correctly.	Interface are displayed correctly.	Pass
Correct Response for each button	Tested on AVD	Display correct activity	Displayed correctly	Pass
Click Call Button	Tested on AVD	It should make a Call	Successfully Calling	Pass
Click About Us Button	Tested on AVD	It should go About Us activity	Go successfully About Us activity	Pass
Map Zoom in & out	Tested on AVD	Should zoom in & out properly	Successfully Zoom In & Out	Pass
Click Logout Button	Tested on AVD	It should leave from account	successfully logout	Pass
Click network connectivity button	Tested on AVD	It should connect with internet	Successfully connect	Pass
Click Back Button	Tested on AVD	It should go back	Go Back Successfully	Pass

CHAPTER 6

Conclusion and Future Work

6.1 Conclusion

Rent BD is an android based application. We make this application to help people. People can easily find their houses , free space and car for rent. They can also find house tutor for their children to educate. We also add some features such as google location, street view, advanced search option, quick image loading etc. Our application is very user friendly. It is very easy and fast so that we hope user will be benefitted when they use our app. we will develop our application day by day. There will be some more options and information in future. If we get proper support and investments we will develop our application in a best position.[12]

6.2 Future Work

In future we will add some more rent option such as car parking, Ticket booking, Hotel booking, Helicopter booking etc. We will make a website for our project. Finally if we get proper investment we will help people not only in Bangladesh but also other in nations.

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APPENDIX

Appendix A

Survey Form for application

Serial no	Query	Easy	Medium	Difficult	Very Difficult	N/A
1	How easy it was to use the application?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	How easy it was to get the all types advertisement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	How easy it was to get the tutor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	How easy it was to get the nearby tutor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	How easy it was to see the route view of the advertising ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	How easy it was to see the live root of advertising ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	How it was to call?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	How easy it was to access the all function in the application?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix B

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