"EMERGENCY RIDE" – AN ANDROID BASED MOBILE APPLICATION

BY

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

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APPROVAL

This Project titled **"EMERGENCY RIDE"**, submitted by S. M. Abu Baser ID: 143-15-4314 to the Department of Computer Science and Engineering (CSE), Faculty of Science and Information Technology, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 11 December 2018.

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DECLARATION

I hereby declare that, this project has been done by us under the supervision of **Dr. Sheak Rashed Haider Noori, Associate Professor and Associate Head, Department of CSE** Daffodil International University. I 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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Finally, we must acknowledge with due respect the constant support and patients of our beloved parents.

ABSTRACT

This project provides the comprehensive analysis of emergency transport service named EMERGENCY RIDE. This ride service provides the best option to users and drivers according to their flexibility. EMERGENCY RIDE is a user friendly application which is easily accessible from any android based smartphone or Tab. There are no efficient ride sharing platform for emergency medical transport service in our localization. EMERGENCY RIDE gives the user flexibility to choose CNG or Ambulance according to their emergency case. It will be time efficiency because of instant map service. Where driver can see user's exact location where he can pick up. There is no static cost service. User can see the precise cost according to his destination. No extra cost will be count.

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CHAPTER 1
INTRODUCTION

1.1 Introduction

EMERGENCY Ride is an online based mobile application. This is an emergency transport service provide by mobile application for patient. In this platform we will provide two emergency system. Here user can choose Ambulance or CNG in case of emergency. At the same time, driver can see the exact user location by using GPS tracking system to save his time.

This application is location based that makes hiring an on demand private driver to easy. For patient EMERGENCY Ride is a convenient, inexpensive and easy option to serve themselves. Hire a private driver to pick up and take you to your destination clinic or hospital with the tap of a button on any smartphone devices. A nearby driver often arrives pick you up within minutes.

1.2 Motivation

We are living in the capital of Bangladesh Dhaka. Sometimes we fall in problem in emergency patient transportation system to here to there. There are too short and less possibility to call an Ambulance immediately. Due to this platform we think that an emergency service is needed. We motivated from different ride service available in Bangladesh. We found that some of their services can be more specific. In some case driver can’t see user destination from where user is connecting to. In our EMERGENCY ride service driver can easily see the user destination and save their time.

1.3 Project Objective

- People can easily find their emergency ride service in case of emergency using a mobile app.
- With this mobile application, people will be able to use this app with internet connection.
- It is a user-friendly Android application for user and driver.
- We provide one platform using, users and driver.
- Saving the valuable time and easily getting the proper destination.
- Rider saving some money.
- Driver earn money using this application.
- People will easily understand all the features of this android application.

1.4 Scope of the project

- The best scope of the project is that we build an Android application where user can find your location to destination.
- Records all riding history are both users.
- Try to develop online Android application.
- Also try to develop this application for all types of mobile devices.

1.5 Expected Outcome

At the end of this project **"EMERGENCY RIDE"** is a smartphone application. This project is to develop a tool that user your location and go to your destination easily move. Most of the time user can saves your valuable times. This App can be used in any smartphone or tabs based on Android Operating System.

1.6 Report layout

Chapter 1: Introduction

In this chapter we have discussed about the introduction, motivation, project objective, scope of the project and the expected outcome of the project. Later followed by the report layout.

Chapter 2: Background

We discuss about the background circumstances of our project. We also talk about the related works, comparative studies and challenges of the project.

Chapter 3: Requirement Specification

The chapter is all about the requirements like business process modeling and use case model of the project and their description, the logical data model and the design requirements.

Chapter 4: Design Specification

In this chapter, all the designs of the project are described. Front-end design for example-login page, sign up page and back-end design.

Chapter 5: Implementation and Testing

This chapter contains the implementation of database, Implementation of front-end design, Implementation of Java and XML code, Test Implementation and the test results of the projects.

Chapter 6: Conclusion and Future Scope

In the conclusion part we discussed about limitation of our application and the scope for further developments which pretty much derive about the project.

CHAPTER 2
BACKGROUND

2.1 Introduction

We designed interactive app which can be operated in many devices based on Android OS through internet. In our application driver and user connectivity will enriched. They can collaborate with each other and become a helping hand for each other. For the people who drive with CNG or Ambulance, our application represents a flexible new way to earn money.

2.2 Related work

Now a day, there are many Application those are working on the field of users and drivers. The aim is helps to transport of the peoples in medical emergency case. Here we have listed a few high indexed smart phone Application those we have found after searching www.playstore.com.bd.

Top 4 online transport service in Bangladesh are:

1. UBER Application
2. PATHAO Application
3. TAXIWALA Mama Application
4. SHOHOZ Rides Application
5. TOMA TAXI

There are many more also.

There are many mobile applications also in Google Play Store and app Store which are helpful for transport service with users.

2.2.1 UBER Application

Uber is a location-based app that makes hiring an on-demand private driver. For rider Uber is a convenient, inexpensive and safe taxi service. Hire a private driver to pick you up & take you to your destination with the tap of a button on any smartphone device.

Uber was founded in 2009 as Uber Cab by Garrett Camp, the co-founder of Stumble Upon, and Travis Kalanick, who had sold his Red Swoosh startup for $19 million in 2007. He realized that sharing the cost with people could make it affordable, and his idea morphed into Uber [1]. Figure 2.1 shows the UBER application home page.

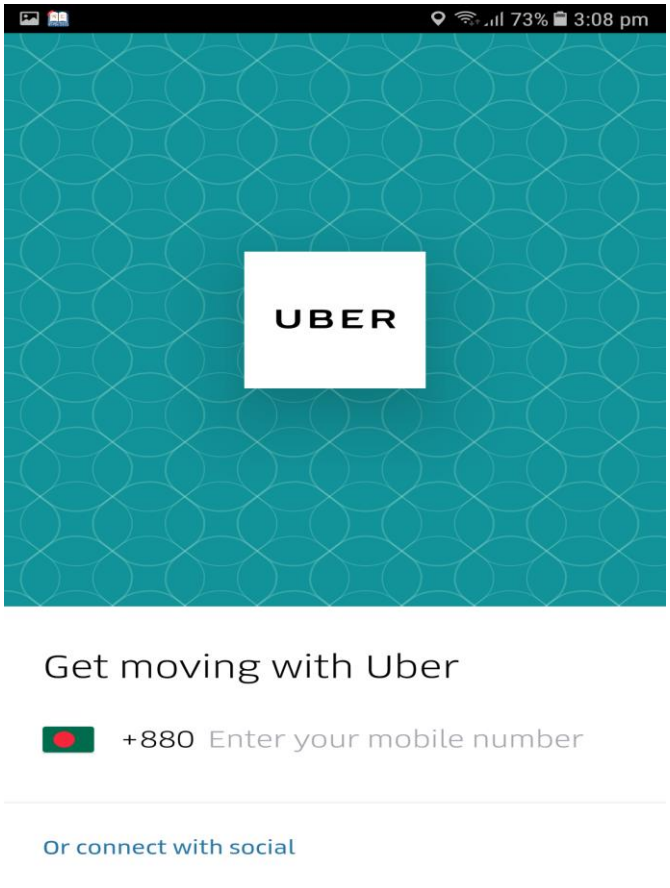

Figure 2.1: A Screenshot of UBER Application [2].

2.2.2 PATHAO Application

PATHAO is biggest transportation technology company headquartered in Dhaka and its operating services in three main cities. Currently it is operating in Dhaka, Chittagong and Sylhet. There are many other people are takes PATHAO services and they are going to your location to destination point. PATHAO is not only for bike and car service. PATHAO is provide other many services. For example- food and bicycle. PATHAO also provide home delivery. Figure 2.2 shows the PATHAO application front-end design.

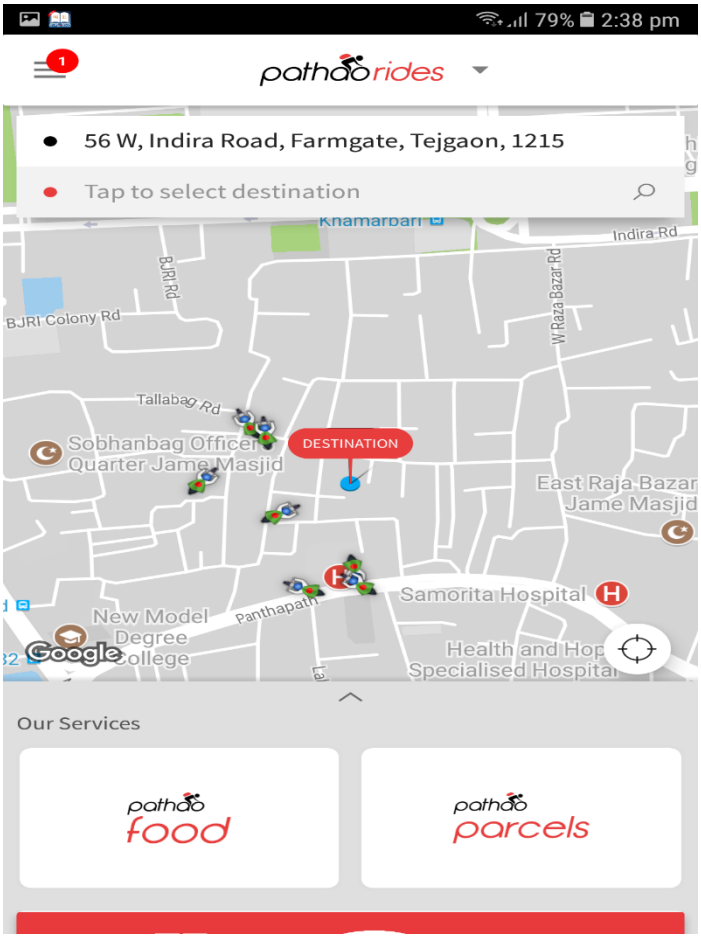

Figure 2.2: A Screenshot of PATHAO Application [3].

2.2.3 TAXIWALA Mama Application

TAXIWALA Mama is another online service portal. They are two types of service provide to the customer. Five Stars category car service and another one type parcel delivery. Figure 2.3 shows the front-end design of TEXIWALA Mama Application.

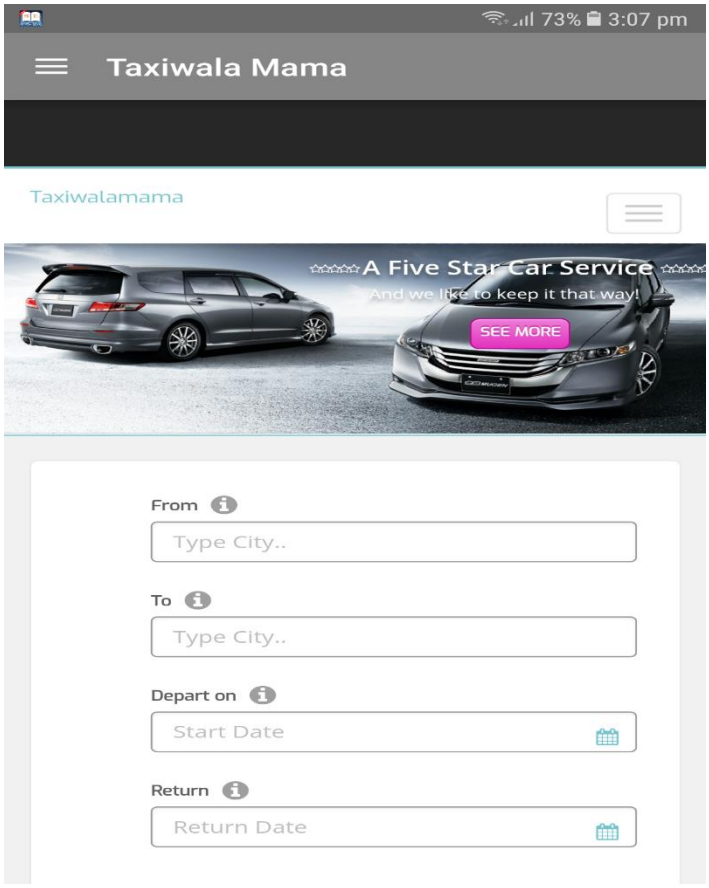

Figure 2.3: A Screenshot of TAXIWALA Mama Application [4].

2.2.4 SHOHOZ Rides Application

SHOHOZ Rides Driver and user App is intended for bikers or drivers who are registered to drive for SHOHOZ Rides ride sharing app only. This app is very popular. Most of the time they are many offers provide to the rider.

SHOHOZ Riders service only Dhaka cities but they provide biggest platform to customer. Recently they provide riding services. First time they provide online ticket service. Figure 2.4 shows the front-end design of SHOHOZ Ride Application.

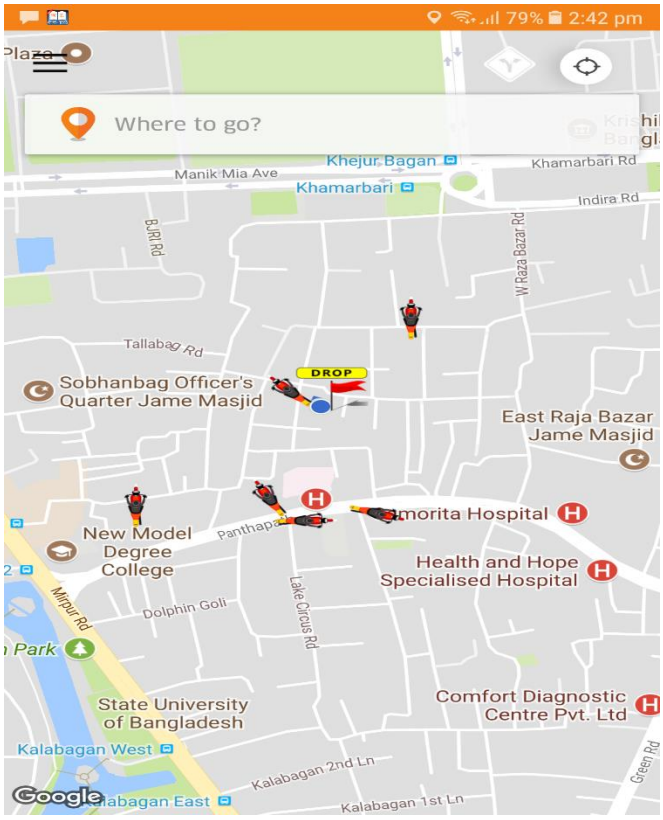

Figure 2.4: A Screenshot of SHOHOZ Rides Application [5].

2.3 Comparative Studies

When we are looking for an application then first we browse the online play store and downloading this app. By analyzing different application of our country. All applications are mostly same but few changes above them.

Some online service portal gives the many opportunities. First time UBER simply registered using valid email or phone number. And they are knowing to confirm your account. Now you create your profile and set other information. Set your picture, first name, last name, gender and many other information added to your profile. Now you are ready to riding service.

PATHAO Rides charges a base fare of TK. 25 for the first 2 kilometers and Tk. 12 for each kilometer in addition to a charge of 0.5 TK. Per minute. Even through the rates may seem expensive at a glance, the convenience of faster travel and avoidance of traffic makes it worthwhile [6].

Table 2.1: Comparative pricing chart for Uber and PATHAO Rides [7].

Service Name	**Minimum Cost**	**Per Minute**	**First 2Km (Each Km)**	**Per Km**	**Service Fee**
Uber Moto	30	1	30	12	0
UberX	40	3	40	18	0
Uber Premier	80	3	80	22	0
PATHAO Bike	25	0.5	25	12	0
PATHAO Car	50	2.5	50	20	0

2.4 Challenges

When any developer wants to make anything different type of thinking, then the developer has face to some challenges. As like this situation, our project has some different types of challenges.

There are some challenges are-

- Connected Google map API
- Accepted and calling option.

We believe that one day it will be place as favorite application of the user because of user friendly and helpful work in the society. Now this is our main goal. Now for completing our mission, all those things might be challenging for us.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

Business process modeling (BPM) is a modern process and methodology. Which the represented the activity of an enterprise of a system engineering to improve or analysis the current process. In this process one can easily represent their workflow of a system. The main characteristic of the methodology is based on diagram as ‘Flow Diagram’. Here we are trying to describe our project’s business model using data flow diagram. Data flow diagram describes how data is processed through a system or project [8].

Data flow diagram is one of the most useable Diagram to show the work flow of a system. It’s easy and understand to any workflow. We used level 1data flow diagram for our work. Figure 3.1 shows the data flow diagram of the propose system.

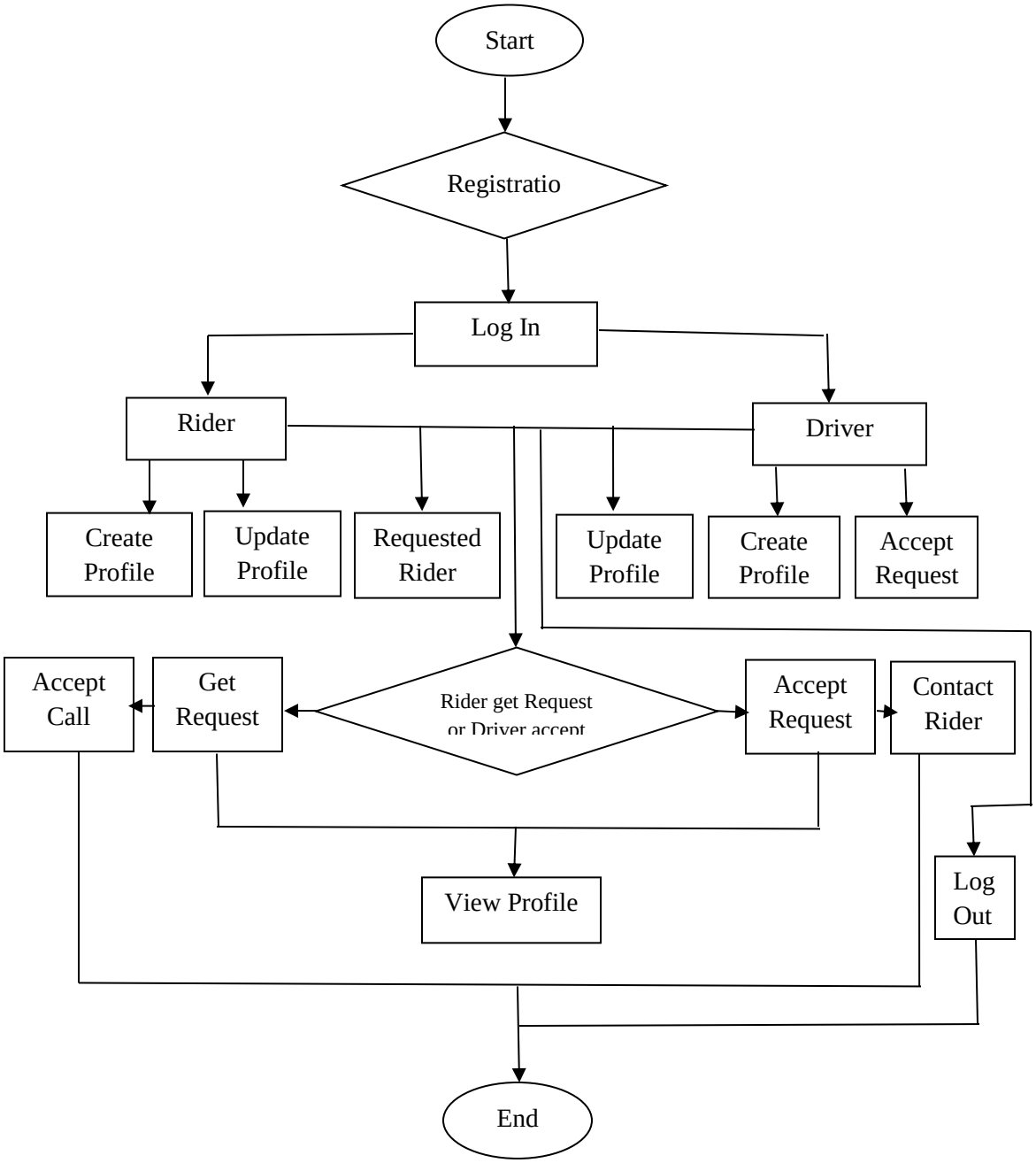

Figure 3.1: Data Flow Diagram of the Propose System

3.2 Use Case Modeling and Description

A use case is a list of actions or event steps typically defining the interactions between a role and a system to achieve a goal. Figure 3.2 shows the use case modeling of EMERGENCY Ride application.

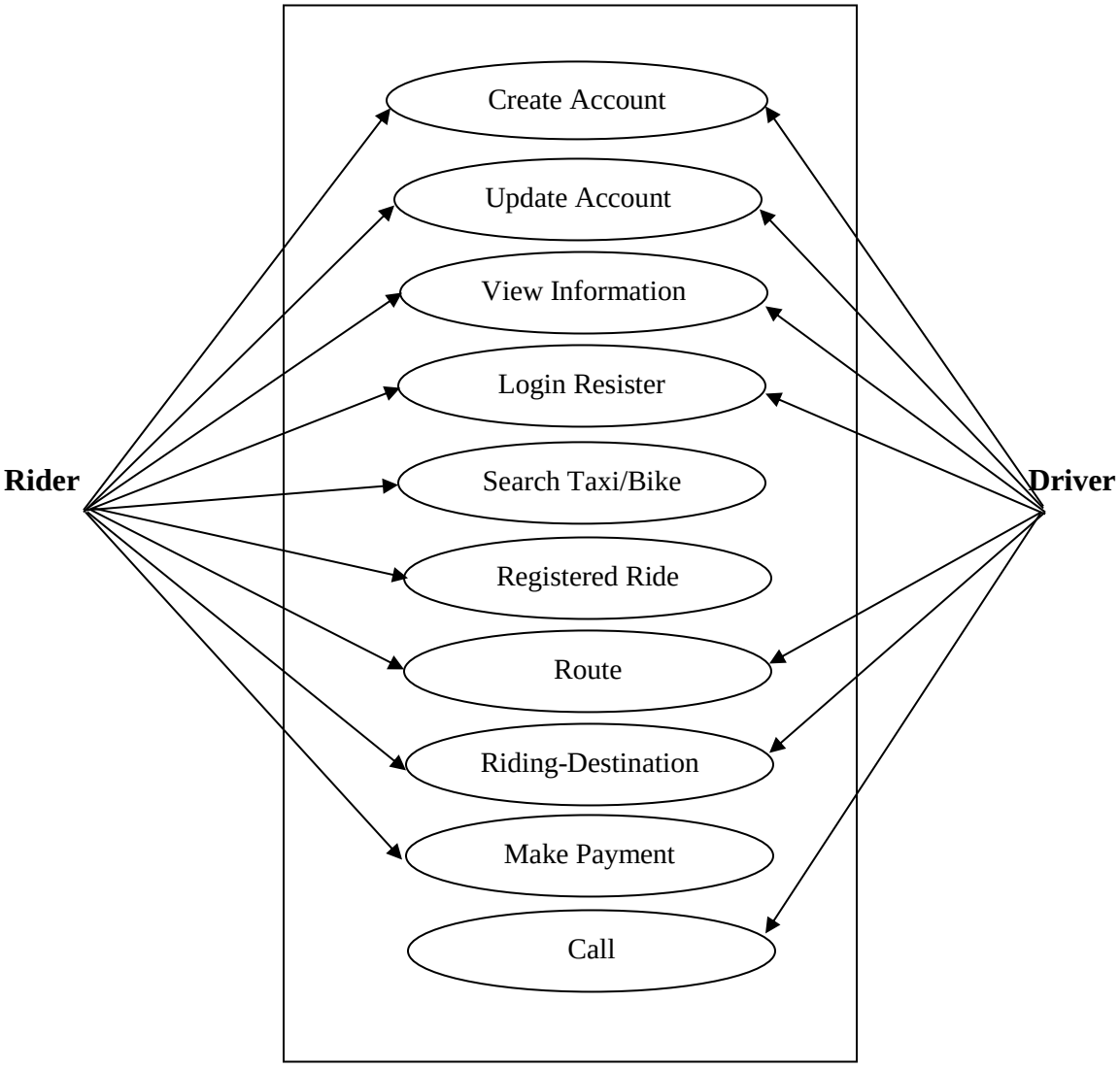

Figure 3.2: Use Case Modeling of EMERGENCY Ride

3.2.1 Use case Description

Table 3.1: Use case description of registration

Use Case	Registration
Primary Actor	Rider, Driver
Secondary Actor	Null
Pre-condition	Null
Scenario	Enter Email address Enter valid phone number Enter password minimum of 6 character Confirm password
Post-condition	Registration successfully or failed Edit profile Update profile

Table 3.2: Use case description of login

Use Case	Login
Primary Actor	User, Driver
Secondary Actor	Null
Pre-condition	Registration
Scenario	Enter valid Email address Enter password
Post-condition	Login successfully or failed Edit profile Update profile

Table 3.3: Use case description of profile setting

Use Case	Profile setting
Primary Actor	Rider, Driver
Secondary Actor	Null
Pre-condition	Login
Scenario	Update profile photo Update basic information Update driving area Update vehicle model
Post-condition	Update successfully or failed View profile

Table 3.4: Use case description of search rider

Use Case	Search rider
Primary Actor	Rider, driver
Secondary Actor	Null
Pre-condition	Null
Scenario	Search your location Search destination
Post-condition	Show result successfully or failed View information (for driver) Get destination

Table 3.5: Use case description payment method

Use Case	Payment method
Primary Actor	Rider, driver
Secondary Actor	Null
Pre-condition	Null
Scenario	Payment type
Post-condition	Show payment successfully or failed

Table 3.6: Use case description get request

Use Case	Get request
Primary Actor	Rider
Secondary Actor	Null
Pre-condition	Null
Scenario	Search in database Enter destination Select vehicle Request pending
Post-condition	Accept or ignore

Table 3.7: Use case description accept request

Use Case	Accept request
Primary Actor	Driver
Secondary Actor	Null
Pre-condition	Null
Scenario	Show rider request Show destination Contact rider View profile
Post-condition	Accept or time out

3.3 Logical Data Model

Logical data model mainly consisted of few elements like, data entities, attributes and key and relationship between the entities. By which the organization data and business rule is defined and govern the relationship between them. Implementation of the conceptual data model is considered by logical data model. Figure 3.3 shows the logical data model [9].

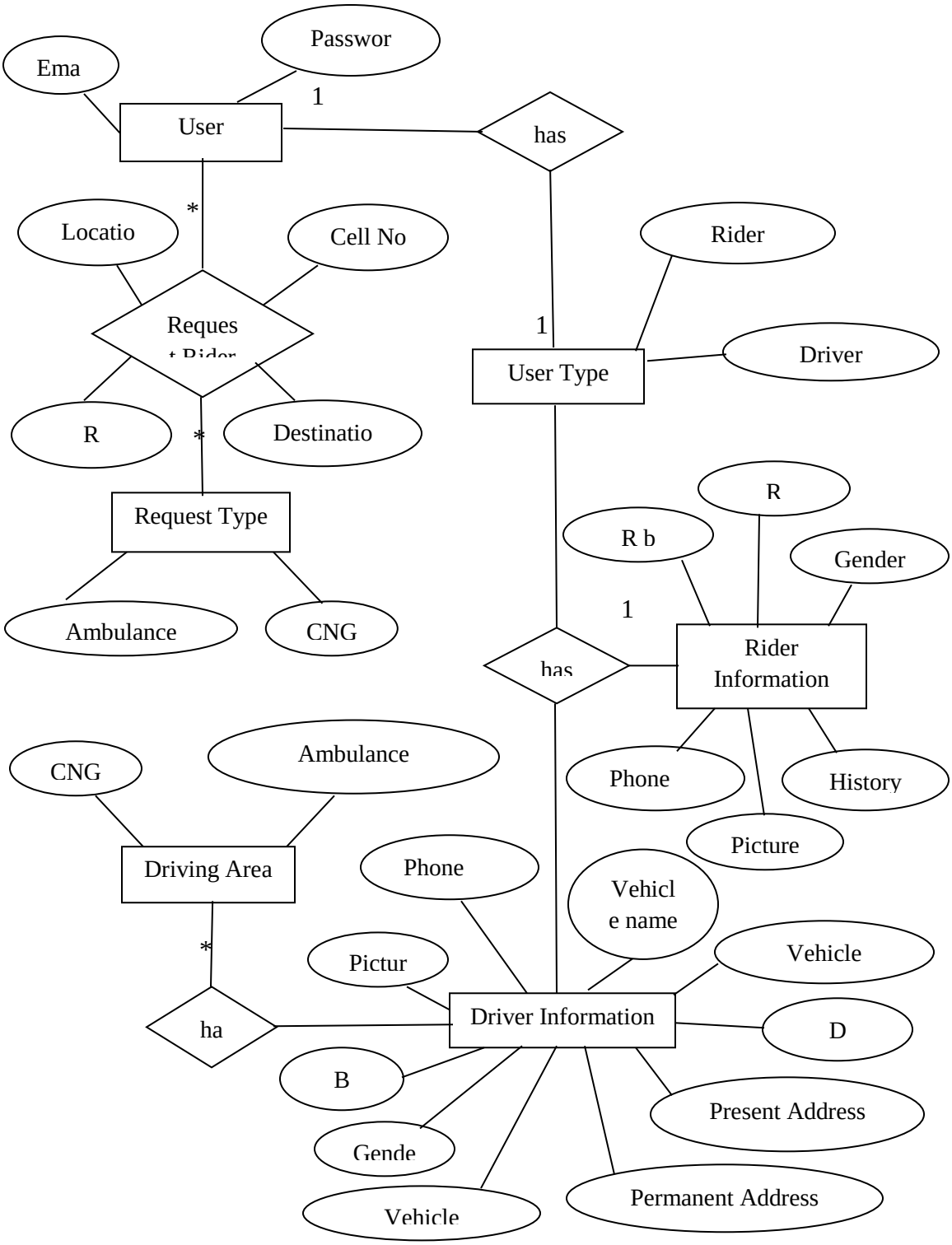

Figure 3.3: Logical Data Model

3.4 Design Requirement

- In our system, we have an authentication for our user. User that's mean rider and driver. So, we have design and registration section. We also design a login section for the registered user.

- In our system there are two types for users like rider and driver. Driver and rider are separately can get registered themselves. Now the registered users can only view your profile.

- After registration driver and rider can setup their profile and update your profile information.

- We design a map section where user can get location direction on map and also search destination point.

- After login the system the driver and rider can update their profile picture, user name, gender, birthdate and academic information (for driver).

- Driver accept the request and contact to rider. Now driver flow the rider location and pick up rider and safely reach to rider destination.

- Google map API shows the roads and streets with points of interest. Users can search for a particular place or particular types of place nearby. It shows the way and Real-time traffic too.

We are trying to build our as complex free. We think about user when we design our application. Because of this reason, our android application is so user friendly.

Table 3.8: Pricing chart for EMERGENCY Rides

Service Name	**Minimum Cost**	**Per Minute**	**First 2Km (Each Km)**	**Per Km**	**Service Fee**
Ambulance	0	0	0	200	0
CNG	0	0	0	35	0

CHAPTER 4

DESIGN SPECIFICATION

Design specification is a statement of how a design is developed. In the section of design specification, we try to show the front-end and back-end design of our smartphone application. We also discussed about many tools and platforms, which we use to develop our application.

4.1 Front-end Design

The front-end is everything involved with what the users sees, including design and some languages. The front-end design is the interface users see when he/she opens the application. That means to keep the users interested in the application, the most important part of a project is frond-end designing. Usually most of the users expect a simple user interface from the developer. If the front-end design is so complex, the application is fails to attract of the user. Figure 4.1 shows the front-end design of EMERGENCY RIDE application.

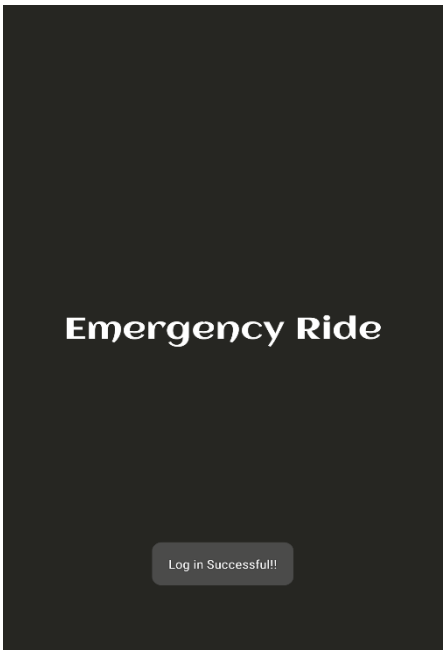

Figure 4.1: A Screenshot of Front-end Design of EMERGENCY RIDE

In this figure shows the front page of the user interface. Users will see it every time they open the application. We tried to design our application front-end as simple as possible. We also tried to make the graphical user interface easily accessible to the user. But it is

really tough to keep the interface simple with this much of facilities. Yet we tried our best to give the users the best experience. Hope the users will find it easily assessable and get benefitted from this service. Figure 4.2 shows the Signup page of EMERGENCY RIDE application. First time user can Sign up your account and update profile information. Now they can sign in using their email and password. Figure 4.3 is a snapshot of EMERGENCY RIDE application Sign in page.

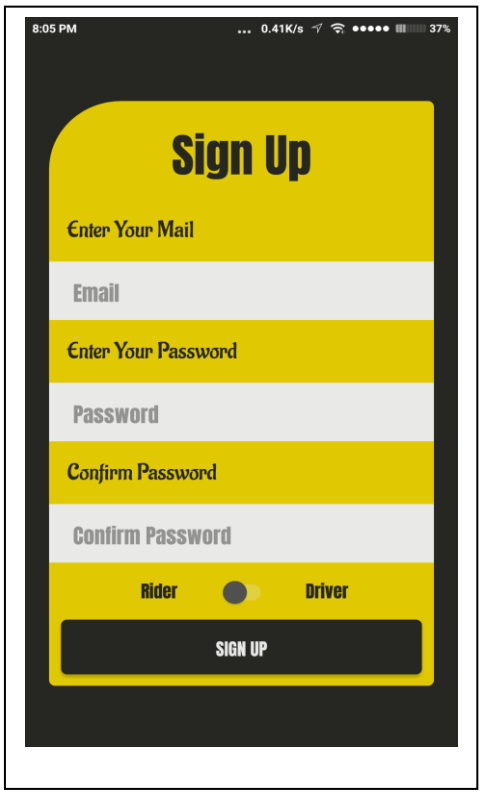

Figure 4.2: A Screenshot of Sign Up Page of Emergency Ride

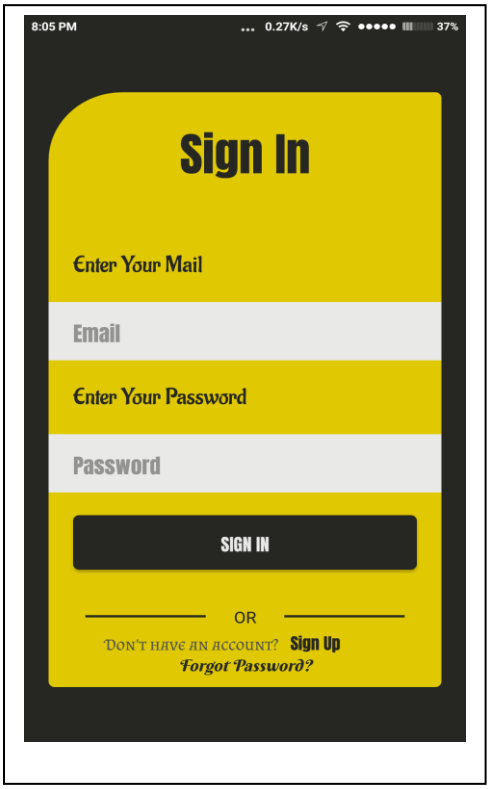

Figure 4.3: A Screenshot of Sign in Page of Emergency Ride

After a successful login, the user can see his profile. If the device already has a google account connected to it, it will login using it automatically. Figure 4.4 is Shows the riders location map and figure 4.5 is connecting the menu option of EMERGENCY ride. Users can access the features they want from here after login in.

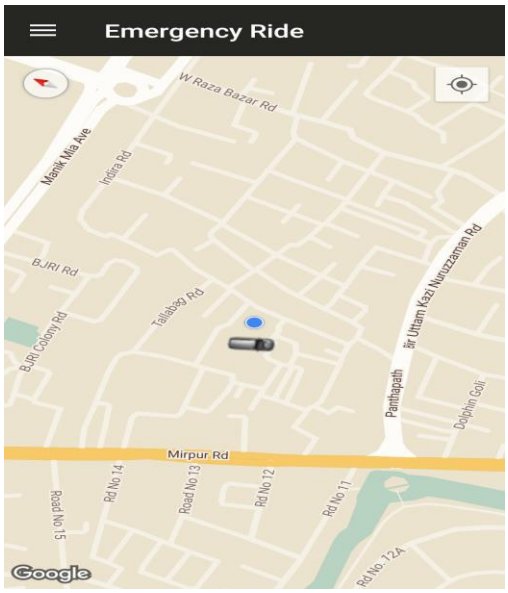

Figure 4.4: A Screenshot of Rider Google map of Emergency ride

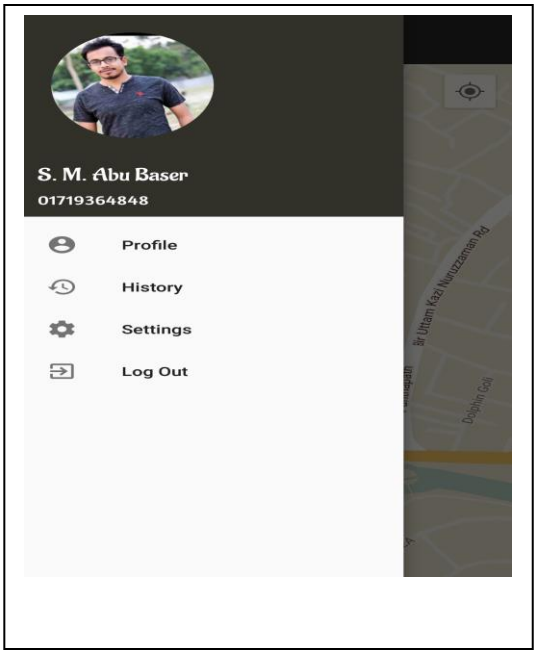

Figure 4.5: A Screenshot of Rider Menu option of Emergency ride

Figure 4.6 is the rider profile information. Rider can easily profile create and updated. And finally click the save button.

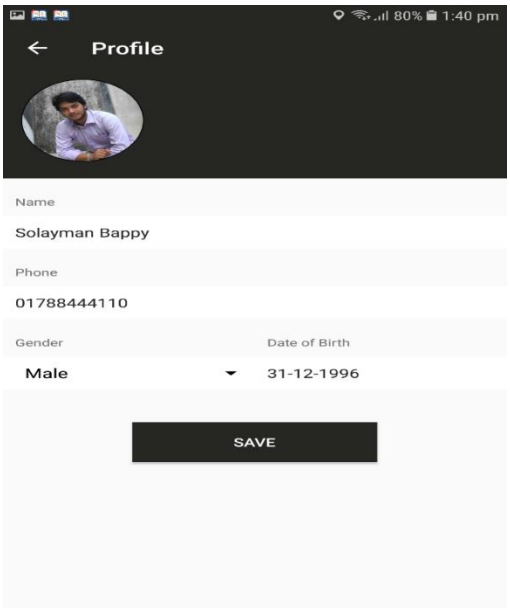

Figure 4.6: A Screenshot of Rider profile of EMERGENCY ride

In Figure 4.7 it is shown how a user will search for a specific place or destination. Figure 4.8 it is shown how a user will find a driver. First time user can select your riding option and click the find driver button.

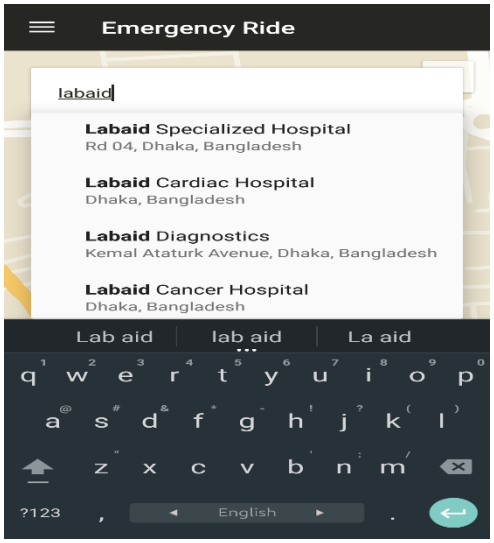

Figure 4.7: A Screenshot of Search option of Emergency ride

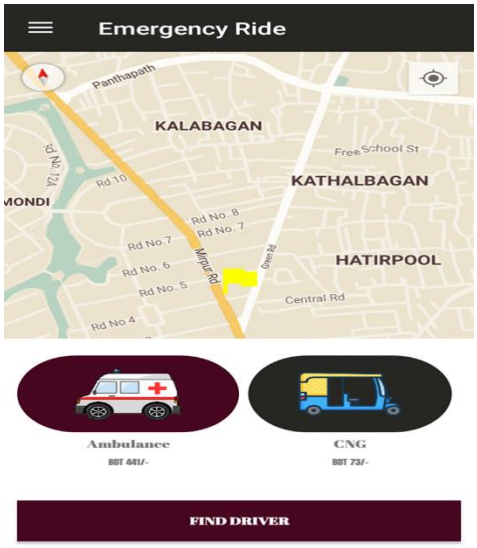

Figure 4.8: A Screenshot of Find Driver of Emergency ride

Rider enter your destination place and select your emergency vehicle for example- CNG or Ambulance. Now rider click the find driver button. In this time user can show the pickup your driver information. Figure 4.9 shown the diver information.

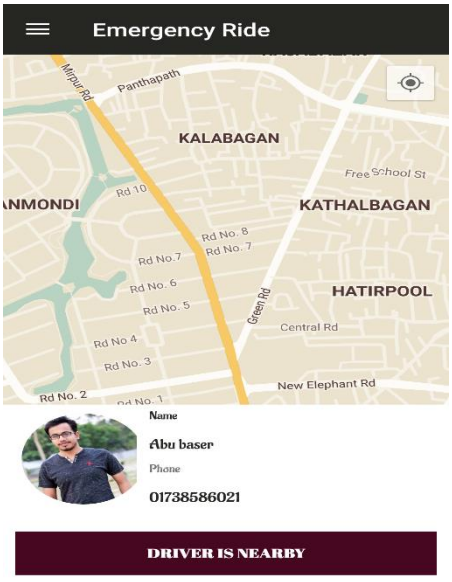

Figure 4.9: A Screenshot of driver Information of Emergency ride

In figure 4.10 shown the driver location on using google map. In this time driver is ready for riding request. After a successful login, the user can see this profile. If the device already has a google account connected to it. It will login using it automatically. Figure 4.11 shown the driver menu options of EMERGENCY ride application.

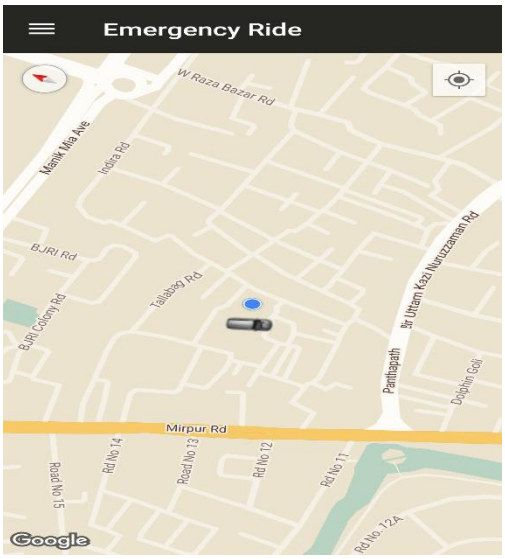

Fig 4.11: Google map view of Emergency ride

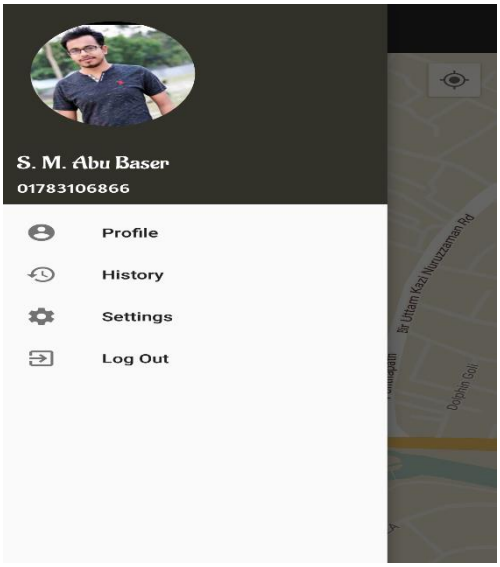

Fig 4.12: Driver Menu option of Emergency ride

In figure 4.13 shown the driver profile information. Driver profile update or editing any time. If driver can drive all vehicle in different time. Figure 4.14 shown the editing driver profile.

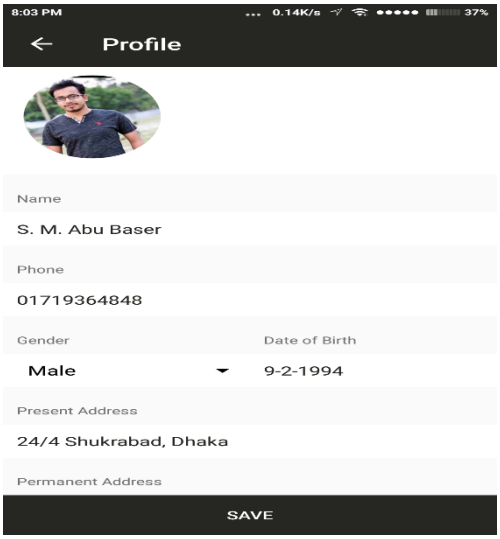

Fig 4.13: A Screenshot of driver profile

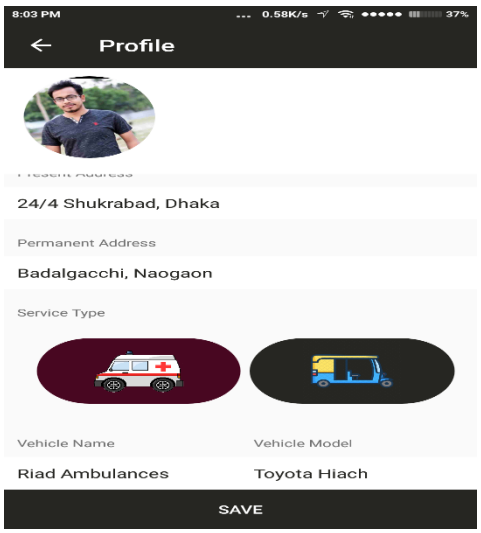

Fig 4.14: A Screenshot of Editing driver profile

History is the most important part of the rider and driver. All rides information stored in history. Figure 4.15 shown the driver history of EMERGENCY ride. Some apps information available in about option. Figure 4.16 is about of EMERGENCY ride application.

Fig 4.15: A Screenshot of driver history of Emergency ride

Fig 4.16: A Screenshot of About of Emergency ride

Rider select your destination and choice your vehicle option. Finally, rider find your driver. In this time driver receive the request. Figure 4.17 shown the receive request of EMERGENCY ride application. Driver receive rider request and click the accepted button then driver is ready for calling. Now click the calling button and contact to rider. Figure 4.18 shown the accepted and calling request of EMERGENCY ride.

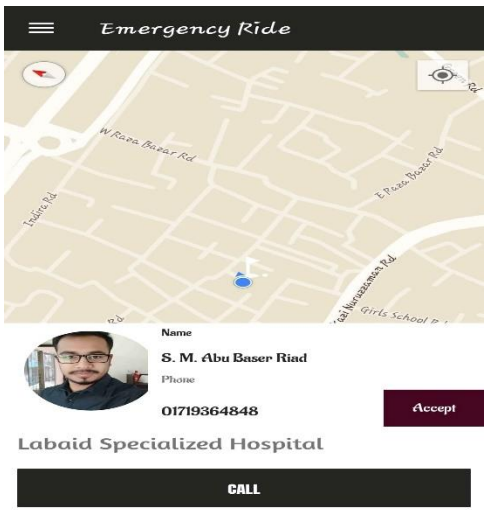

Figure 4.17: A request for acceptance of Emergency ride

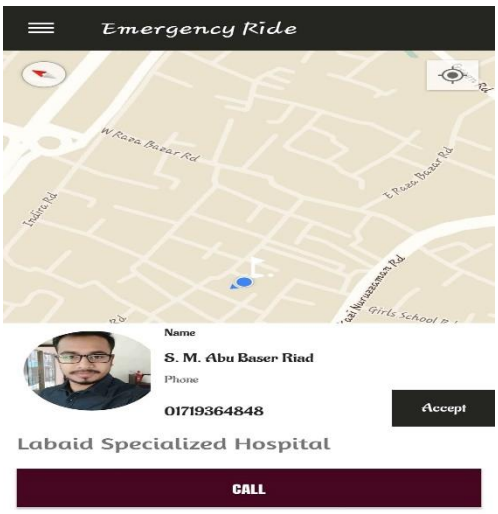

Figure 4.18: Accept and calling request of Emergency ride

Driver contact to rider and driver going to rider location. Now pick your client and click the pick your client button. Figure 4.19 shown the pick your client of EMERGENCY ride. Now driver pick your client and safely reach rider destination. Driver click the ride completed button and complete your ride. Figure 4.20 shown the ride completed of EMERGENCY ride.

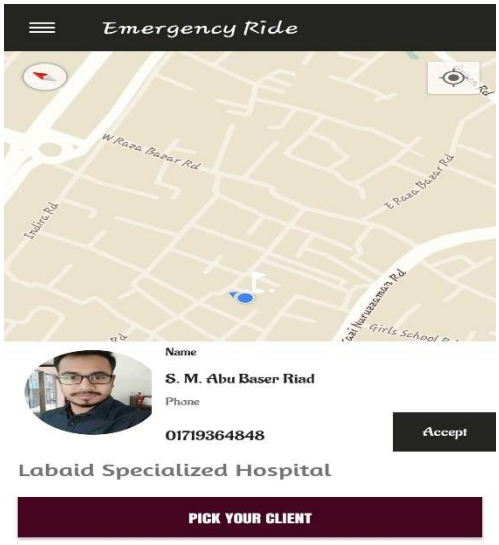

Fig 4.19: A Screenshot of Pick your client f Emergency ride

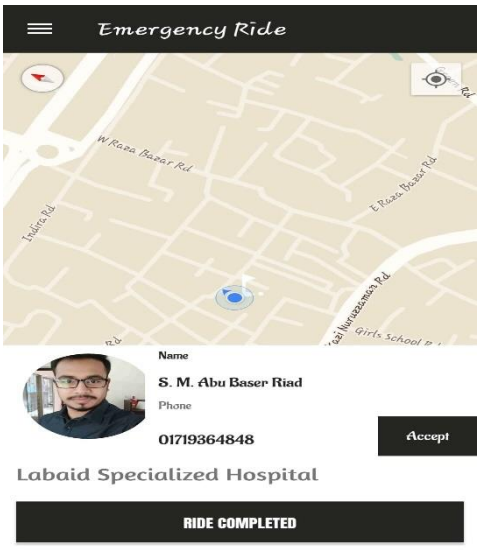

Fig 4.20: A Screenshot of Ride completed of Emergency ride

Now your drive has been successfully completed and shown your total cost. Now driver click done button and ready for riding request again. Figure 4.21 shown the total fair.

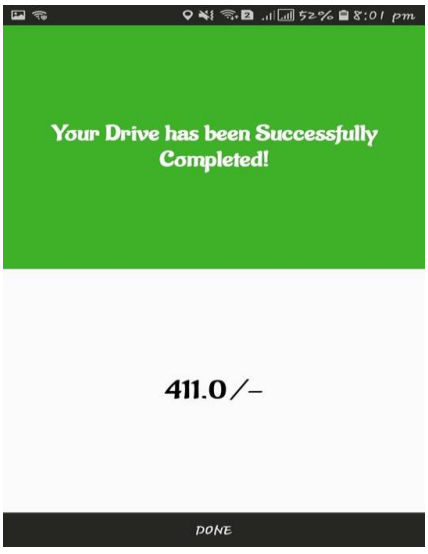

Figure 4.21: A Screenshot of Total fair of Emergency ride

4.2 Back-end Design

The back-end design is also called the server side. It controls the behavior of the site upon and action is taken. The back-end is the core portion of an application form where everything is being controlled whereas the front-end is the visual representation of the back-end. Back-end is the most important part. So, the security, structure, and content of it is very much important. We used Firebase Real-time Database this application.

We used some of googles API distribution packages for our mobile application back-end designing such as map API. We also used firebase for email authentication for the platforms.

The users email address is authenticated using firebase, the data user seeks or inputs is beings carried to the server for further processing is being done using java.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

We have used firebase server as data manager to store our android application data. The Real-time Database provides a flexible, expression-based rules language, called Firebase Real-time Database Security Rules, to define how your data should be structured and when data can be read from or written to. When integrated with Firebase Authentication, developers can define who has access to what data, and how they can access it [10].

The Real-time Database is a NoSQL database and as such has different optimizations and functionality compared to a relational database. The Real-time Database API is designed to only allow operations that can be executed quickly. This enables to build a great Real-time experience that can serve millions of users without compromising on responsiveness.

5.2 Implementation of Front-end Design

It is really a good challenge to develop a gorgeous front-end design which will be attracted to user. Because, for developing a design for android devices, all the time developer has to consider the display dimension of android device, it is very tough work to balance the design with android display size. Sometimes it can't fix with the display for many reasons. So, a developer needs to check several times of his/her android application by building or running within an android device. For interactive design we always try to think as a simple and easier in user interface design for creating user attraction to our android application. We also try some materials and tools design for making and creating attraction to the user. On the other hand, the user can enjoy to using a very simple and easier interface.

Front-end design is the first impression of a user. We know that people are not easily forget the first impression. So, we have tried our best to make the front-end design simple, attractive and user friendly. So, it was really a good challenge to us when we are designed our android application's user interface.

There are some factors of implementing the front-end design are given below

- There will be two types of users like rider and driver.
- Every types of user must be registered by filling up the required information fields.
- User can login using their registered email and password.

5.3 Implementation of Java and XML Code

We use android studio for our application user interface design with xml file and for java code to connect with the xml file, Firebase Real-time Database server and apache server.

We also android studio for our application design and connection with internet. Because, in android studio, is supported many types of languages. In java code, we use some class, method and process for connection view. We use JSON parsing method for parsing data from online to user device. That means major work was done in java code. In xml code, we take some text view, button and image view for our application. By using in xml coding, we design our application.

5.4 Test Implementation

Table 5.1: Test case for EMERGENCY ride

Test Case	Test Input	Expected Outcome	Obtained Outcome	Result	Tested on
1. Install application	Tested on various android version • Jelly bean (4.1-4.3.1) • KitKat (4.4-4.4.4) • Lollipop (5.5-5.0.2) • Marshmallow (6.0) • Nougat (7.0-7.1)	Successfully install all those various	Install successfully	Passed	02-11-2018
2. Login	Login via any smart phone device and tablet	Successfully login	Successfully login	Passed	02-11-2018
3. Registration or sign up	Registration any smart phone device and tablet	Successfully registration	Successfully registration	Passed	02-11-2018
4. Email	Blank or incorrect email	To warn that correct email must be entered	Showed the warning	Passed	02-11-2018

5. Password	Blank or incorrect password	To warn that correct password must be entered.	Showed the warning	Passed	02-11-2018
6. Picture Update	Input profile picture	To add profile picture in user profile	Update profile picture successfully	Passed	02-11-2018
7. Profile Update for rider	Input full name, phone number, gender and birthdate	To update rider profile information	Update rider profile information successfully	Passed	02-11-2018
8. Profile update for driver	Input full name, phone number, gender, present address, permanent address, vehicle type, vehicle model and vehicle number.	To updated driver profile information	Update driver profile information successfully	Passed	02-11-2018
9. Search destination	Input destination name	To show the similar other destination name and selected one	Showed the destination name	Passed	02-11-2018
10. History	Click on the history button	Show the all riding information	Showed the all riding information	Passed	02-11-2018

11. Setting	Click on the setting button	Show the profile information	Show profile	Passed	02-11-2018
12. Requested rider	Rider get requested to any smart phone devices	Show your location, search destination name and enter search driver	Accepted requested	Passed	02-11-2018
13. Accepted requested	Driver accepted requested to any smart phone devices or tablet	Show the rider requested	Successfully accepted	Passed	02-11-2018
14. Logout	Click on the logout button	To logout from that account	Logged out successfully	Passed	02-11-2018

5.5 Test Results and Reports

Test report is needed to reflect the result of testing the application in a formal way, which gives an opportunity to estimate the result of testing quickly. It is a document that records data obtained from a determine, experiment in an organization manner, describe the environmental or operating systems conditions and shows the comparison of test results with objectives, which are so important for any types of application.

In table 5.4, we show the test case, test input, expected outcome, obtained outcome and finally we find our expected results for our application. The test result was quite successful. The user satisfies to using our application. Our expectation will be that user can easily use and understand our application as a better user interface.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

Our android based mobile application has been successfully implemented. For implementing our application, we tested the application with many types of smart phones, we saw that our application worked properly and it also gave the required data from database server, map navigation was successful.

The design is very user friendly. The user interface is so simple and not looking like as a complex view. User can easily handle our application. We tried our best to complete all requirements of our application. We hope that people will use our application and will get proper service.

6.2 Limitations of our Application

As like every application, our application has also some limitations. We will overcome those limitations in future. Here, we want to mention that some of the main limitations of our application are given bellow:

- Proper not uses in Google map API
- Not uses valid email address
- Payment type is only hand cash

6.3 Scope for Future Development

We try our best for developing our application in present time. If we find any scope for developing in future, we want to develop and change something of our application. Our future developments scopes are given below:

- In future, we will try to develop this application another vehicle adding. For, example- bicycle.
- We will try to develop this application for all Types payment option, for example bKash, DBBL, credit card and debit card.

APPENDIX

Java Code:

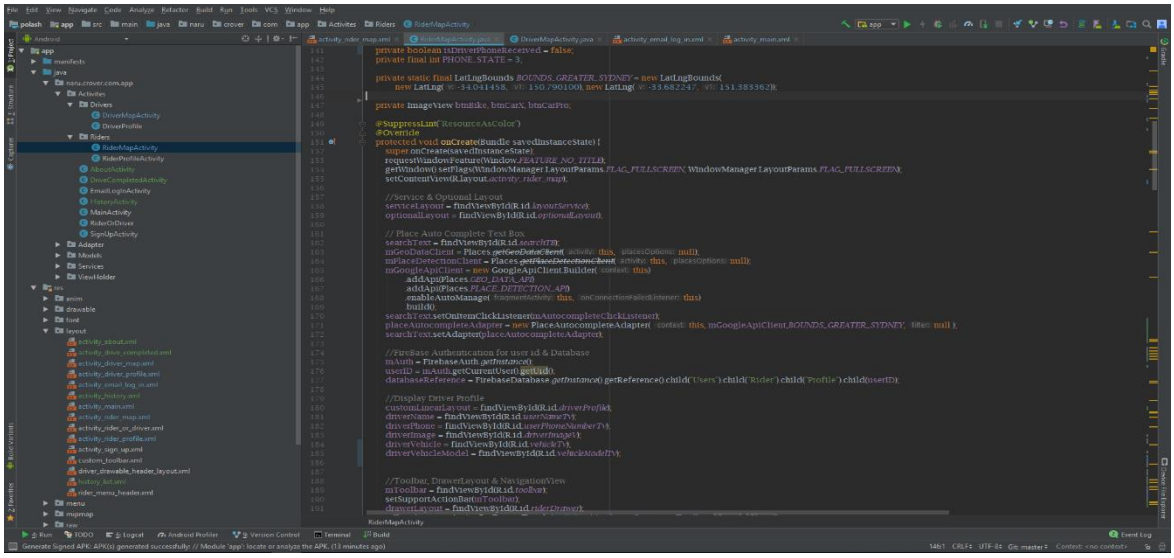

Figure 6.1: A Screenshot of Java Code of EMERGENCY Ride

XML Code:

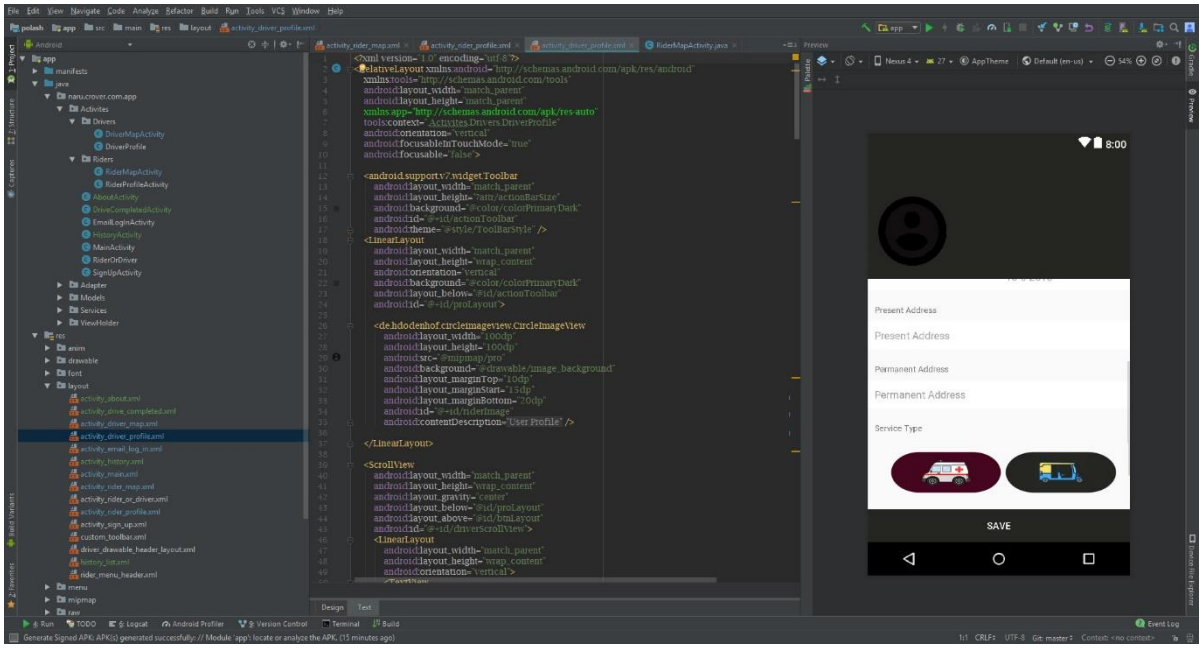

Figure 6.2: A Screenshot of XML Code of EMERGENCY Ride

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