

Public bus Management 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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DHAKA, BANGLADESH

JUNE 2020

APPROVAL

This Project titled “**Public Bus Management System**”, submitted by Md. Arif Rayhan and Shahnaj Taher Liza 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 of B.Sc. in Computer Science and Engineering and approved as to its style and content.^[Font-12]

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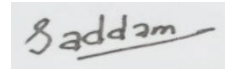
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We hereby declare that, this project has been done by us under the supervision of **Aniruddha Rakshit, Lecturer, Department of CSE**, Daffodil International University. We also declare that neither this project nor any part of this project has been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

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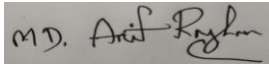
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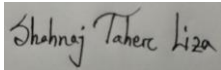


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Acknowledgement

First we express our heartiest thanks and gratefulness to almighty God for his divine blessing makes us possible to complete the final year project successfully.

We are really grateful and wish our profound our indebtedness to our Supervisor **Aniruddha Rakshit (AR)**, Department of CSE Daffodil International University, Dhaka. Deep Knowledge and distinct fascination of our supervisor in the field of “App Development” to carry out this project. His interminable persistence, academic direction, important counsel, perusing numerous sub-par drafts and adjusting them at all stage has made it possible to complete this project.

We would like to express our heartiest gratitude to Prof. Dr. Syed Akhter Hossain, Department Head of CSE, for his kind help to finish our project and also to other faculty member and the staff of CSE department of Daffodil International University.

We would like to thank our entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Abstract

Our project title is Public Bus Management System, which is a Android based application specially for public transport system in Dhaka city. The modern world is always accelerating forward and looking for various new methods in order to gain access to every form of freedom possible. The greatest form of freedom provided to man in the modern century is through use of the Internet for various tasks. And considering this as a great advantage a large number of people are now moving on to the Internet in order to get transport easily. Our aim is to propose a secure and safer Prescribing System that allows authentication and protects user data.

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CHAPTER 1

Introduction

1.1 Introduction

This online transport management system brought the concept of safer, smarter management systems.

In this project, we are working to ensure the provide guidance and direction for the safe and wise use of transport to make sure people can stay safer. We are trying to develop a android application that create prevent the mistakes and also prevent use of extra system. It is a safe prescribing system that allows easily creating and booking buses quickly and efficiently that makes life more productive.

1.2 Motivation

People try to catch a bus with competition. They come down the street and gather for a bus. That's why many times we can see traffic jam and accident. Trying to catch a bus some time people fall in accident. So we want no more traffic jams and accidents. People can catch their bus from their house. They arrive at the bus stop at the appointed time. Some people have no idea about roads and buses. So they fall in many kind of danger and cheating. Using this application they can see their roads and their specifics buses . We want may the journey of people be happy, easy and safe. Don't gather on the street and don't try to catch a bus with competition. Try to be safe and make your life easier.

1.3 Objectives

We are going to develop an online android application where bus can pick passenger through online. The passenger phone number is their unique identifier and they can book buses from their location with access of their phone number. By using this system no one can book buses without this system because it's also provide the QR code authentication [1], Google Maps [2], Real time Location [3], Live data [3]. Throw our application user will be benefited.

- Wasting of time will be under control
- Privacy of users will be so strong
- User interface will be easy and efficient
- Proper service
- Bus misusing will be so hard as admin can easily able to monitor whole system clearly

1.4 Expected Outcome

After successful development we believe that this concept will create a safe prescribing system that can be a good option for every smart citizen of our country. This system can avoid misuse because it's also provide the QR code authentication [1]. Our main expectation from this projects is

- Connecting all in one platform
- Making communication easier
- Saving time
- Reduce risk of accident
- Reduce the traffic jam

We are working to connect buses, users and admin to create a suitable environment in one platform so that the system will be much easier for user to get proper service from buses. This prescribing system can save users valuable time.

By using this management system, we can assure that no person can booked from station without QR code. This system can reduce risk of accident and traffic jam.

1.5 Report Layout

After arrange further discussions in several chapters in our report, which are:

- In chapter 1 we try to say about our project what actually it about.
- In chapter 2 we discuss about our related works, limitation and future work.
- In chapter 3 we discuss about different types of model and diagram that actually represent our android application. .
- In Chapter 4 we discuss about our project layout where the front-end and back-end visual appears to be represented.
- In Chapter 5 we discuss about our project on basis of testing and implementation.

In Chapter 6 we discuss about Conclusion and Future Scope

CHAPTER 2

BACKGROUND

2.1 Introduction

Now a days in our society everything becomes easier than before for technical improvement. Our online bus management service is a model of deployment where an application is hosted a system to the user across the internet. For this we need to users registration on server or computer, driver registration and own mobile or computer & admin panel. But it was not the web Based so here we made it as an android app based system.

2.2 Related Works

The main experience we learn from this Project is to work in group. We also learn about new library like Geofire library in live location tracking [4]. We used Java in the previous android web application project. We worked more designing in web platform using HTML, CSS, bootstrap and JavaScript.

2.3 Comparative Studies

We know that our android application “**Public bus management system**” is simple concept, but very effective. We want to create a platform for booking bus and which is monitoring by admin system for efficient and effective for user. We think our concept will work very much in a specific area.

Because in those platform which described in above all kind of people are connected in one category. In recent years Internet-based daily life is obvious for everyone. By using our prescribing system user can easily access their app when need and user can book bus, just need to know their phone number [1].

It's just an example, like this lots of feature will be added in our android application. So we think it will work very much good and hope for the best.

2.4 Scope of the Problem

Internet connection is most needed requirement to use this system. This system also has some limited feature that need to update and we are working to develop the system as soon as we can.

2.5 Challenges

It's very common that in every new step challenges always wait to welcome. But we were determined to make our goals visible. So day by day we able to overcome many problems some are still present we also confident against it. We have experience that if we will organize our resource according to requirements then we can make the project successful. The main challenges of this development project is

- Information Collection
- Reliability
- Stay up to date with recent technology
- Comfortable user interface

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

In this model here is four major parts such as user(passenger), admin, driver and bus. In user panel user can create an account. User can edit, update and delete his/her account information. In driver panel driver can login to access the driver app, driver can create account and register and submit his profile in database. Admin also can see driver information and bus details and bus location. In user and driver panel, both need to use their phone number for verification. But driver also need to submit their license Without driver provided QR CODE user cannot get and booked buses [1]. Database can verify user's account request. Admin can monitor and removed driver panel's action.

Why the model of business process?

Business process system user various area in development project. There some advantages of using this business process system to a project. Some of them are given below:

- Specific user roles can comprehend what they need to do with their particular assignment.
- To represent a system graphically
- Improve Operational Efficiencies

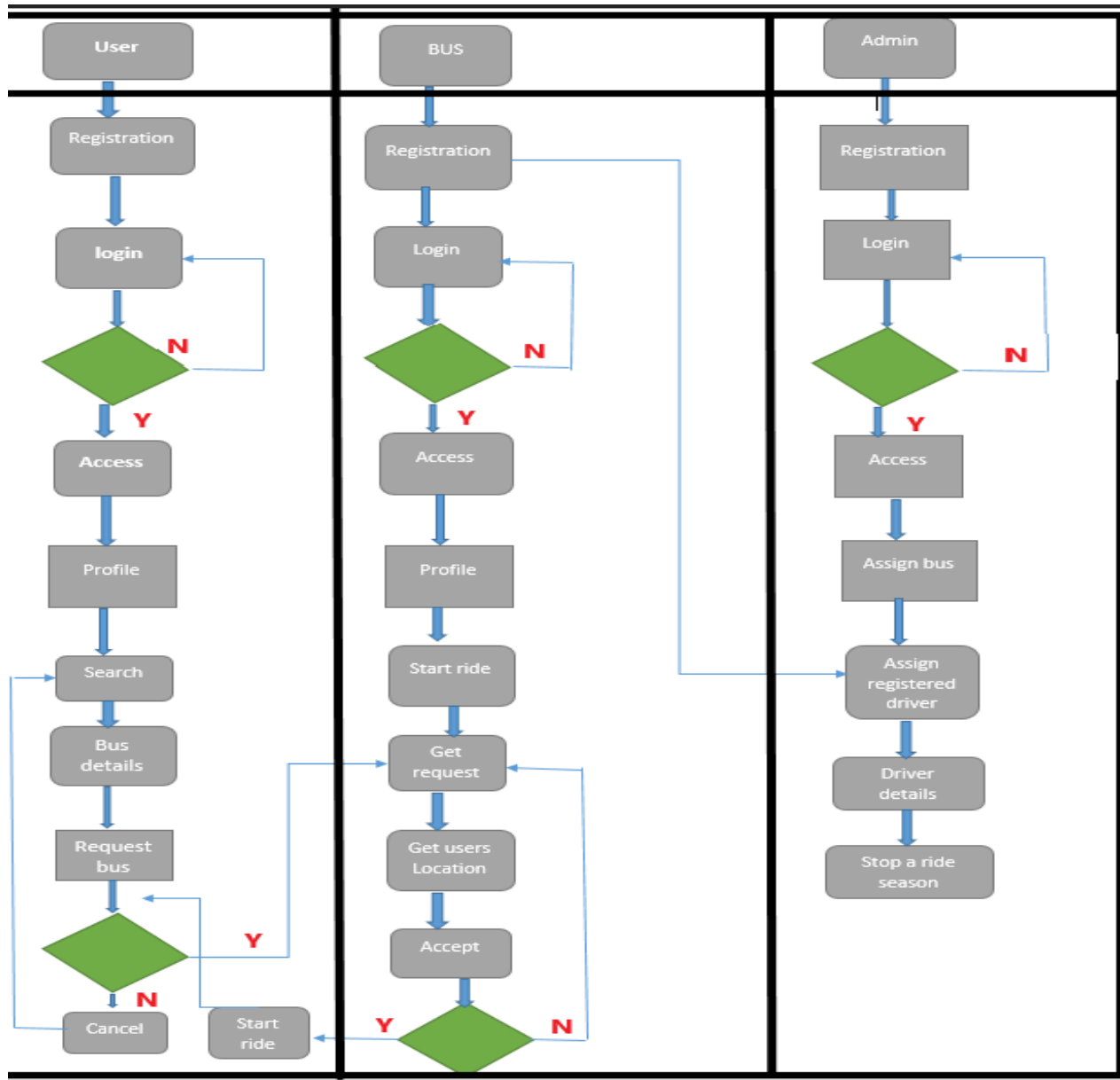


Figure 3.1: Business Process Modeling

Requirement Collection and Analysis

Initial requirements

Initial conditions we need to operate our system without this being difficult to execute. The following are provided

- We need a database storage for android application
- User device (computer/laptop or mobile)
- Data validation requires some advance database query so that user and bus driver, information can be validated by each other

Admin requirements

Admin performs the system's most significant job. His actions specifications and roles are set out below:

- Administrators can monitor and act
- Solve problems faced by different users, bus, driver of the stage
- Admin can add/ remove bus
- Admin can add/remove driver
- Admin can see bus location

User's requirements

The user can understand the details of the feature by using our systems. The following are their conditions:

- They need user app with an android Smartphone.
- Need internet connection to booked the bus and search.
- They need phone number to registrations [1].

Driver's requirements

Driver can easily prescribe the user by using our system. The following are their conditions

- They need Driver app with an android smartphone.
- They need phone number and license to access.

Software requirements

- Android studio (Code editor)
- Firebase database (real time database) [5]
- Firebase's Geofire library (live location tracking) [3] [4].
- Direction API [2], distance matrix API [2], places AP [2] (poly line, time/km, search button)

Hardware requirements

- Internet accessible desktop or laptop.
- Android Smartphone with internet connection.

3.2 Use Case Modeling and Description

It's become easy to describe any systems using the use case model. Use case describes a discrete unit of the user and system interaction. The use case provided below where we attempt to define certain techniques for specifying, identifying and organizing our system requirements that can enable a correct perspective of our entire system. It also specifies goals of different types of users and their boundaries. For describing any system with user interfere, using use case modeling is always a better option because it is easy to create, edit and understand.

Why we use use case model?

We use case model in our project report so that by seeing that a non-technical person can also get an idea of what is happening and how the system's different functionalities work and interact with each other.

- Smoother project execution
- Build test instances
- System context specification

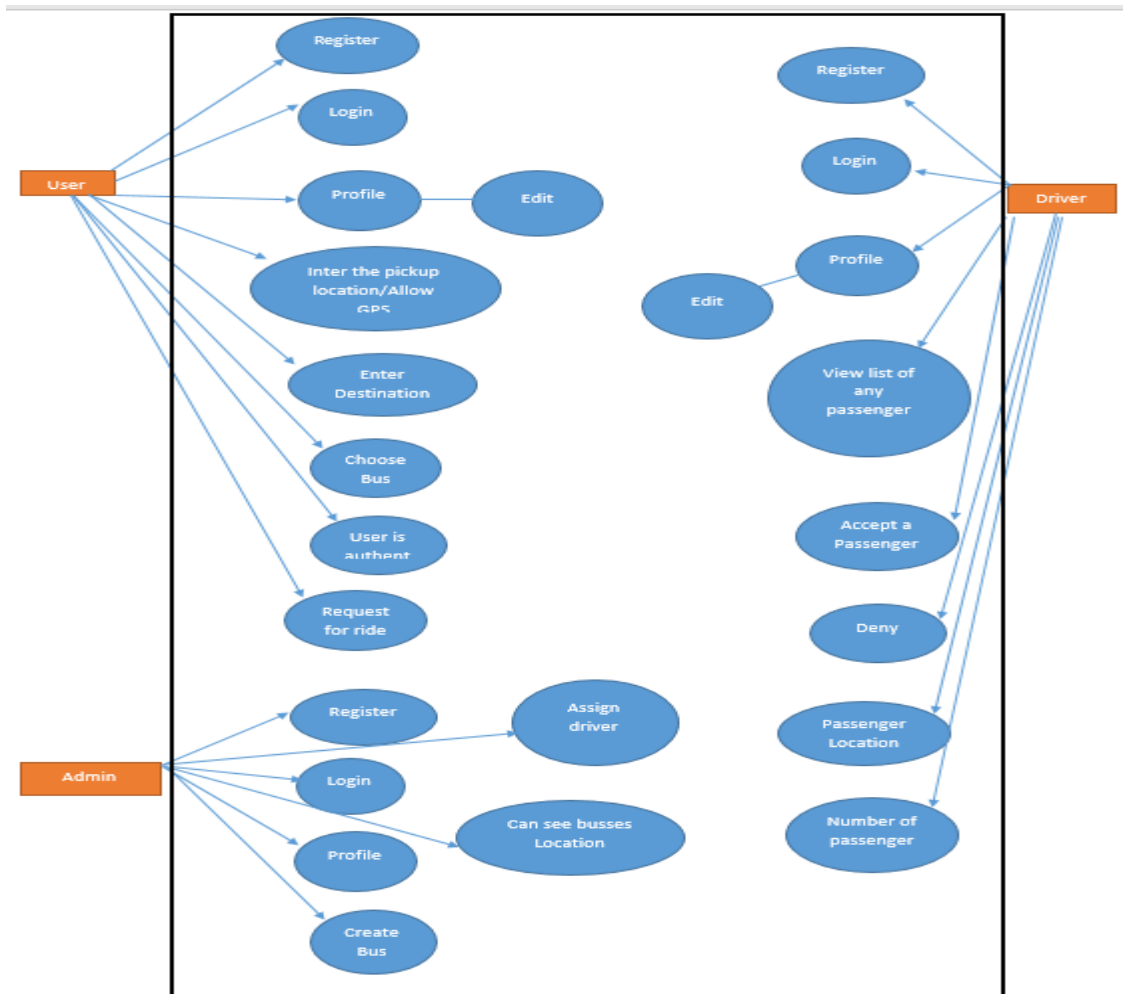


Figure 3.2 Use Case Model

3.4 Data Model

Logical data model also called ERD by seeing that we can comprehend how all the information at the back end of the systems interact with each other.

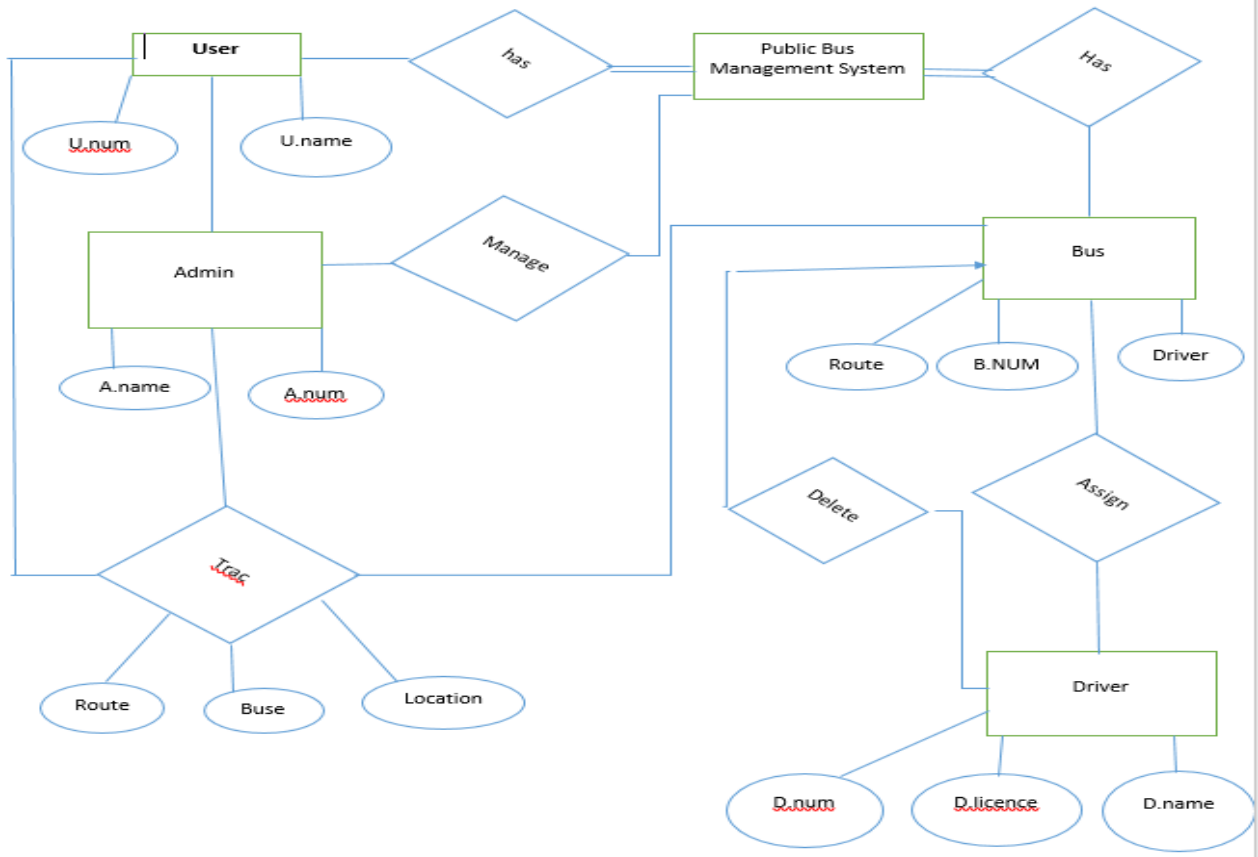


Figure 3.3 ER Diagram

3.4 Design Requirements

Design specifications are a crucial player between any system or application being developed. If we follow design criteria exactly, many other tasks become simple to perform automatically, such as project management, technical growth and system testing.

USER	DRIVER	ADMIN
<p>To access our app each user has to register with proper information (phone number, full name, email, picture). User also can update their profile information. These details information's are stored in the database and phone number is their unique ID. User can see their bus location.</p>	<p>Driver have to login to driver app to access. When user booked to the bus for service, Driver first check the bus's sit for allow the user and then check user location [4]. After checkup, driver allow user and it will be saved in the database. Provided QR code is viewable for user and driver scan the code [1].</p>	<p>Admin also have to login to admin app with proper phone number and password to access admin panel. Then admin can assign driver for his bus these driver who already registered and he also can see the driver details. Admin can see their bus location and activity [4]. After finished the season, admin can disconnect the driver with these bus. For that driver can drive any kind of company's bus if he want.</p>

Table 3.1 Design Requirement

CHAPTER 4

DESIGN

Our android application is responsive and user friendly.

User Application:

Here User need to login with their phone number and after that he will get a verification code for authentication [1]. To access our app each user has to register with proper information (phone number, full name, email, picture. User also can update their profile information. These details information's are stored in the database and phone number is their unique ID [5]. Then User can search buses with their location and destination location [4].

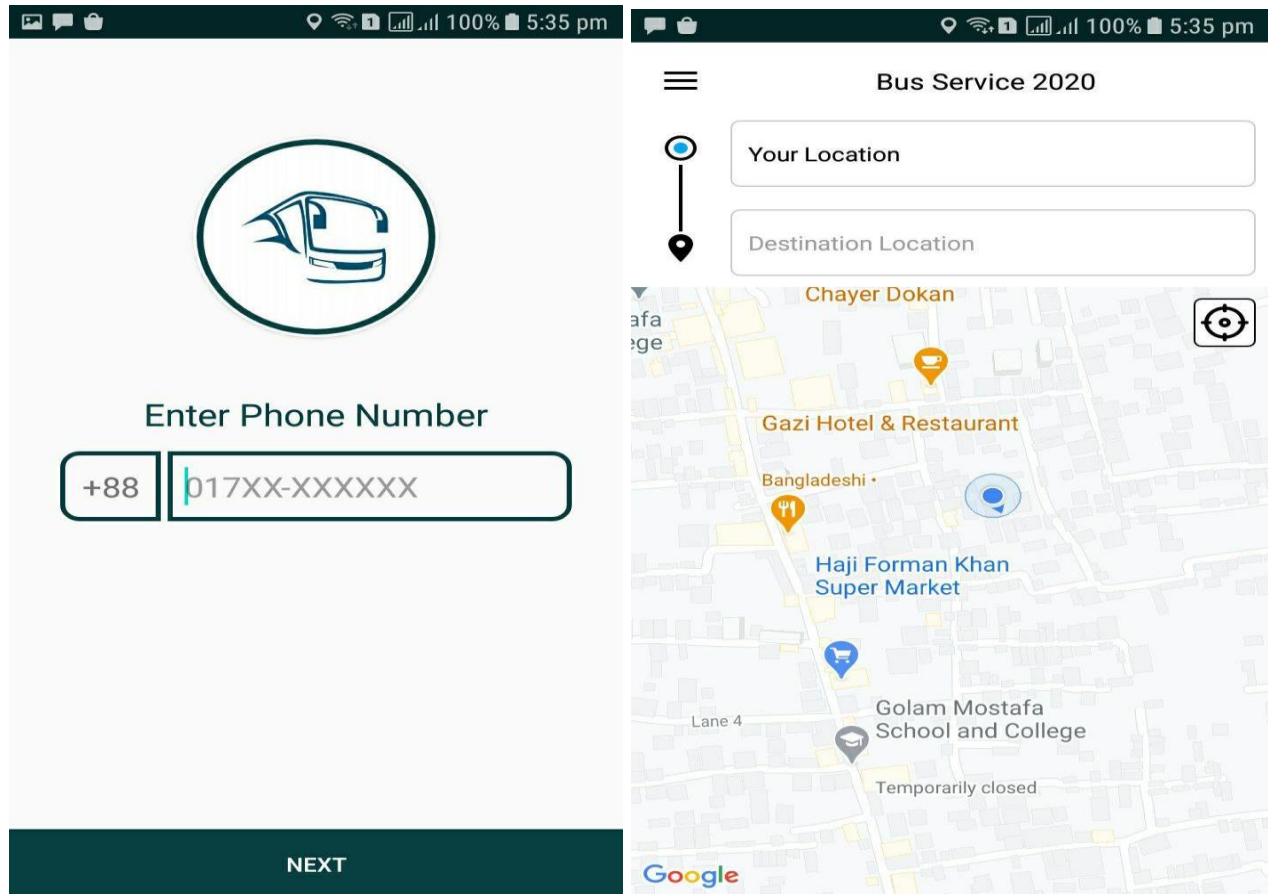


Fig 4.1: Login page and home page of our user management system

Driver Application:

Here driver have to give their registered phone number. Driver also have to login to driver app to access. When user booked to the bus for service, Driver first check the bus's sit for allow the user and then check user location [4]. After checkup, driver allow user and it will be saved in the database. Provided QR code is viewable for user and driver scan the code [1]. In home page driver can see passenger list, and their location. He also get a notification when he comes very close to the pickup and destination location.

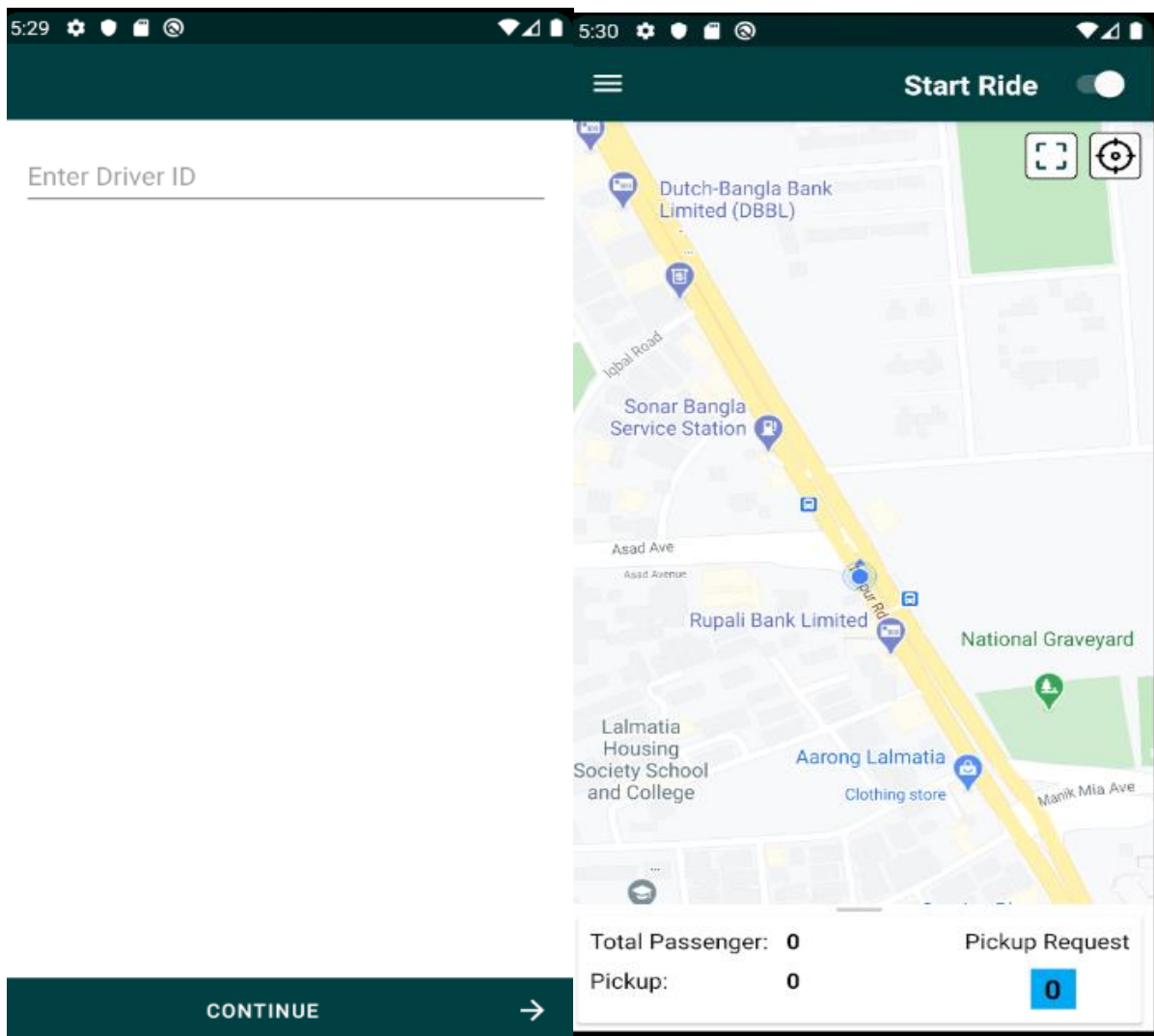


Fig 4.2 Driver application login and home page

Admin Application:

Admin also have to login to admin app with proper phone number and password to access admin panel. In Home page admin can register new bus. Also can close a bus's ride season.

In driver details page admin can assign driver for his bus those driver who already registered and he also can see the driver details. Admin can see their bus location and activity. After finished the season, admin can disconnect the driver with these bus.

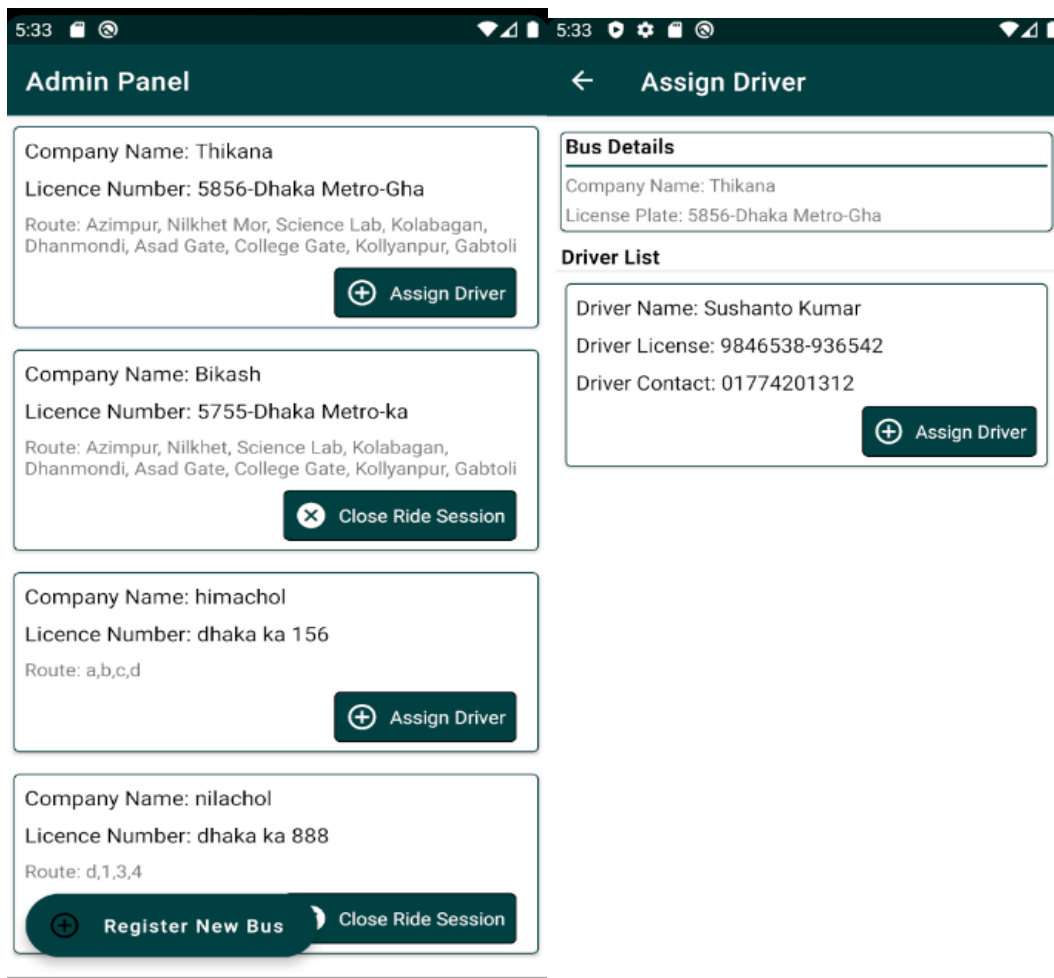


fig 4.3: Admin panel home and driver details page of Application management system

CHAPTER 5

DESIGN SPECIFICATIONS

5.1 Implementation of Database

Here we used Google firebase database server to implement the database [5].

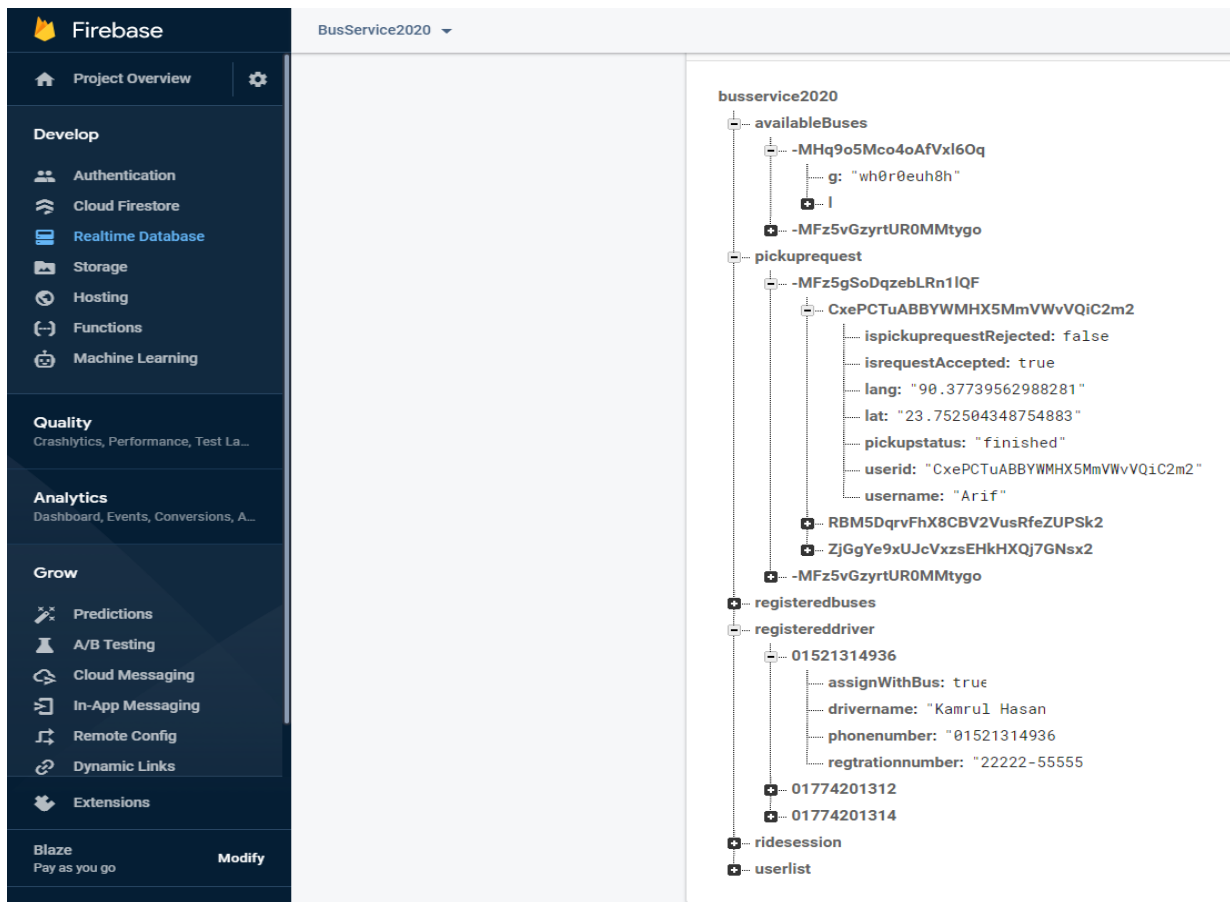


Figure5.1: Design Implementation of Database

CHAPTER 6

CONCLUSION AND FUTURE WORK

6.1 Discussion and Conclusion

The main concept of this project is to ensure a secured platform for transport user where there is no scope to misuse of public service. People must need driver permission to get bus when needed. This system is already used in many country around the world. But this type of prescribing system is not yet popular or well known in our country. But for our own safety we need to use this bus management system properly. We believe that this project can help the people of our country because this type of transport system is not using now-a-days. We are working to develop this platform and add more significant feature as soon as possible.

6.2 Scope for Further Developments

We tried a lot to make our project very much easy, user friendly and efficient to user, driver and also owner according to research. Basically in this time we focused to connect all person and audience to react with each other on one platform. Because in those platform which we meant before there are some specific limitations to connect and react with each other Though we have some limitations we are working on these and keep working for more positive output. We are thinking to use the latest tools, techniques, technologies in our application that will make the system easier and more secured. We are thinking about many features to add on this project. Now it's time see how all works.

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APPENDIX

Appendix: Project Reflection

Appendix (reflection of the project) provides an introduction to the reflection of the project. Team project management is a wonderful way to know the working structures of the true life software industry and their methods of project management. We attempted to flow them as well.

The truth is without proper planning, hard work, dedication can't be made a good project or any kind of special work. So during build our project also we faced lots of challenges but we didn't give up. From others previous experience we Learn to not give up but working more hardly with proper planning & dedication. For that we worked and researched a lot on our plan So that we can reduce the upcoming challenges as much as possible & it had worked. By passing time we felt that our project is going to visible day by day. Though it was not so easy. But through the grace of Almighty we overcome all the challenges and complete it. In short this was actually our journey to build the system or web application Online prescription system to connect all in one platform for doing better work than previous & we hope it will work. For now we stop our journey here to see how it works and waiting to start again to do more in future.

Plagiarism Report

Public Bus Management System

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