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An Undergraduate Internship on Ushuttle App

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Independent University, Bangladesh

An Undergraduate Internship on Ushuttle App

By

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Dissertation submitted in partial fulfillment for the degree of Bachelor of Science in Computer Science

Department of Computer Science & Engineering

Independent University, Bangladesh

Attestation

I here attest that I, Tazmim Mehzabin (1820572), a student enrolled at Independent University Bangladesh, have finished the report and have submitted it in part-fulfillment of the requirement for the Degree of Computer Science and Engineering from Independent University, Bangladesh (IUB). I followed the advice of my respected professor, Md. Asif Bin Khaled and this project and report have sources that have been properly recognized.

Tazmim

Signature

31/01/2023

Date

Tazmim Mehzabin

Name

Acknowledgement

First and foremost, I am grateful to the Almighty for giving me this chance and allowing me to submit my internship report on time. I want to express my thanks to Md. Asif Bin Khaled, a lecturer in the Independent University of Bangladesh's (IUB) department of computer science and engineering, for his invaluable advice, continuous instruction, support, and inspiration throughout my internship and the writing of this report. Working as an intern at "Excellent Soft" has been a wonderful experience. The "Excellent Soft" team goes beyond and above with their support and encouragement. My special thanks go to my supervisor for giving his time and expertise, which were essential to completing this report. I want to thank my classmates especially. They have always been encouraging and have occasionally provided helpful advice. I want to thank my family before anything else. Without any limitations, they have offered their complete support.

Letter of Transmittal

Md. Asif Bin Khaled
Lecturer,

Department of Computer Science and Engineering,
School of Engineering and Computer Science
Independent University, Bangladesh.

Subject: Submission of Internship Report.

Dear Sir,

I am Tazmim Mehzabin (ID: 1820572) from CSE 499, Internship Course of the Autumn 2023 Semester, and I would like to submit my internship report to you with the utmost respect and decency.

I have completed my internship program under the supervision of Md. Asif Bin Khaled.This report is based on my internship program and the project I have worked on, the "Ushuttle app." I tried to make this report as informative as possible with my experience; I have gained a lot during my internship period. I have tried my best to deliver a good report. However, it might lack perfection. I shall be highly obliged if you are kind enough to receive this report and provide your valuable judgment. I hope the following report can achieve your approval and is adequate.

Sincerely,
Tazmim Mehzabin ID-1820572
Independent University, Bangladesh
Department of Computer Science and Engineering

Evaluation Committee

Asif Bin Khaled

Signature

Asif Bin Khaled 30.01.23

Name

Supervisor

Signature

Mahmudul Islam

Name

Internal Examiner

30.01.23

Signature

Md. Mahmudul Kabir Peyal

Name

External Examiner

Signature

Name

Head, Department of Computer Science and Engineering

Abstract

Ushuttle is a transport-related app. Students at universities will be able to move fast with the help of this software. A shuttle bus service called "UShuttle" provides live bus tracking, digital ticket purchasing, and other valuable features for Bangladeshi students. The project's objectives include minimizing traffic congestion, encouraging sustainable transportation, and giving students a dependable and affordable transportation option. Especially in some areas, there is no direct bus service, so students have to suffer at different times for movement. This app will play an essential role for university students in those areas. For example, there is no direct bus service from Mirpur to Bashundhara. Students can take advantage of this service using this app. Students can use this app to track the location of the bus, use virtual ticket cards and ticketing systems, make emergency contacts, and enjoy various extra services.

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Chapter 1

Introduction

1.1 Background of the Work

Bangladesh's economy relies heavily on transportation. Since the country's liberation, infrastructure development has progressed rapidly, and several land, water, and air transport modes have emerged. However, significant progress must be made to ensure uniform access to all available transport services. Dhaka is the sixth most densely populated city in the world, and the population is about 8.9 million. Traffic jams are a common phenomenon nowadays in Dhaka City. It isn't easy, quite challenging to move from one place to another.

This will be critical in areas where buses are not permitted to operate. The students have suffered because of that. So this will play a vital role for the students in areas with no bus service. Mirpur and Bashundhara, in particular, will be essential in facilitating student transportation. Here is a mobile app that allows students to access servers easily and travel to their desired locations. Being an intern, the biggest challenge was applying theoretical ideas to real-life situations.

1.2 Objectives

Advancements in Information and Communication Technology (ICT) have enhanced human life and experiences. Economic gains, enjoyment, and sustainability are motivating factors behind the growth of collaborative consumption. Uber, Pathao, Uber, Shohoz Rides, and Obhai ride-sharing services are available in Bangladesh. Here, we examined the "uShuttle app" for Students ride-sharing service designed and developed in Bangladesh. The project's main objective is given below:

- Reservation system (for seven days / 15 days/30 days)

- Real-time location like Ubers.
- Card punching system like IUB Library.
- Payment gateway.
- Bus payment history.
- Ride history.

1.3 Scopes

The project's scope is necessary to ensure the project's accomplishment as we are making a new system. This real-time bus transportation system is based on apps. Where students can take a bus service and reach their specific destination, students in areas with no bus service can quickly go to their particular goals using this app.
Users can sign up and log in to the main page of this application-based, real-time "Ushuttle" transportation system to track the bus's location in real time. They can buy tickets and use them by scanning a QR code from the home page. Users can also receive notifications, fare information, schedules, stoppage information, and up-to-date announcements. Also, it has capabilities that let bus drivers scan tickets, sell tickets, and update data while sharing the real-time location of the bus.

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

The primary goal of the university's teaching and learning approach is to help students develop into responsible, informed, and mature citizens. Thanks to my undergraduate programs, I have the information and resources to build this" Ushuttle app" project. It would have been easier to start this project if these courses had been completed. Moreover, the group and individual projects I met for my undergraduate coursework helped me with this assignment. A few of the systems are:

The Mobile Application course is essential in building this "UShuttle app." This course gives me a thorough introduction to mobile apps. I gained knowledge about creating mobile applications from this course. Therefore, the knowledge I have gained from this course will help me complete the project. When we implement a project, we need planning, analysis, design, deployment, and maintenance of all stages of the systematic process known as systems development. I gained knowledge from the System Analysis and Design course, which helped me execute this project. The scope of the system is the functionality it will provide to its users. It explains the actions and inactions that the system will take. Object-Oriented Programming This course is a deep dive into classes and the objects of programming. It also taught me how to write modular programs, making codes less repetitive and reusable. This was the first course I completed that introduced me to how to develop and plan a project. Web Application This course gives me a thorough introduction to web technologies and how to use them, and it also shows me how to create a responsive website. I use HTML, CSS, XAMPP, and PHP to learn how to develop dynamic websites. In the Database Management System course, I studied several planning and strategy techniques used in this project's development, including Six Element Analysis, Rich Picture, Requirement Analysis, and Entity Relationship.

2.2 Related works

It is a transportation-related app. Bangladesh currently has a variety of apps for transportation. For example, students' everyday use of Uber, Pathao, Obhai, etc.

Uber has been enjoying double-digit growth in Dhaka, both on the drivers' side and riders' side, over the last five months. Uber says it is the company's fastest growth in any city in Asia.[1]The service was launched in Dhaka on November 22, 2016. It extended services to 24 hours in about two weeks, starting on December 5, 2016. The fares were also increased on January 23, 2017, to ensure sustainable operations. Dhaka suffers from some of the worst traffic congestion in the world. There is a demand for more options for reliable, efficient, and affordable ways to get to and from work, particularly around commuting routes underserved by public transport. This is where ridesharing and Uber come into play. And In December 2016, the Pathao app was released. As of March 2018, it had amassed a user base of over three million across Bangladesh. Pathao has ridesharing, food delivery, courier, and E-commerce services. Pathao is the first significant ridesharing company in Bangladesh to get an enlistment certificate from the authorities. It's one of the various services that the sharing economy relies on nowadays.
Pathao and Uber both have a problem with serving multiple passengers at the same time. It is costly to take the daily Uber-Pathao service for students.

As a result, the students will benefit from unique benefits provided by the Ushuttle bus service, and they will be able to travel at a meager cost. This app's unique feature is that it will provide students with transportation services in places where there is no bus service. As an example, there is no direct bus service from Mirpur to Bashundhara. Students may and affordably move from one place to another with the assistance of this application. This one will include a number of features, such as a virtual ticket card, a live location, and emergency contact details, among many other facilities.

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

A work breakdown structure (WBS) organizes a project's activities in a hierarchical order. WBS is a project management technique that helps break down a complicated project into smaller, more manageable tasks or procedures. It's a strategy for dividing and controlling big projects to execute them more quickly and effectively. A WBS's objective is to reduce the size and complexity of a huge project. I developed a WBS for my project (the Ushuttle app) to make sure that our work is coordinated.[2]
In a development-oriented model, we divide our tasks into UML designs. We have tasks like rich pictures, gantt charts, and system architecture for the system design. The two phases of the project's development are frontend and backend. This is the perfect tool for the team to brainstorm and work together. In my WBS, I used a top-down approach.[3]

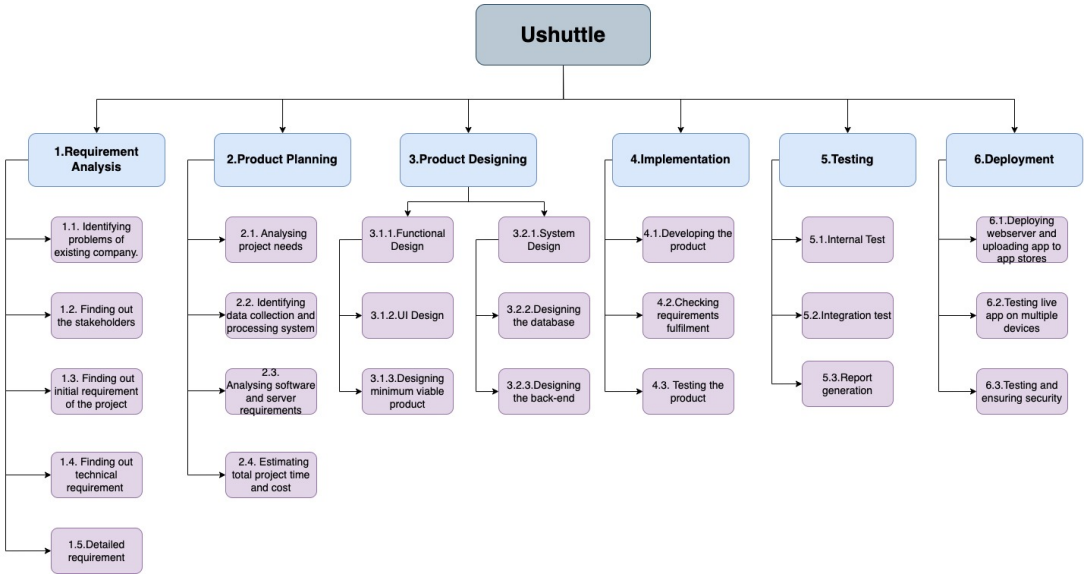

Figure 3.1: Work Breakdown Structure

3.2 Activity wise Time Distribution

Project managers and other specialists regularly employ the process- or activity-wise time distribution, a probabilistic variant of the Critical Path Method. One technique for figuring out the jobs required to finish a project is the critical route approach.The most difficult challenge for the project manager and developers was coordinating effectively. Time management was used when creating an application. The longest string of tasks that must be completed on time for the project to be done is known as the "critical path" in project management. A time frame was assigned to the project I've detailed in my work breakdown structure so that it might be completed on schedule. The time allotted for working on this project is displayed in the table below:

Index	Task	Dependency	Duration
A	Proposal	T1	7 Days
B	Acceptance	T2	5 Days
C	Gathering Requirements	T3	5 Days
D	Project Planning	T4	5 Days
E	UI UX Design	T5	2 Days
F	Adding Live map	T6	14 Days
G	Adding Server	T7	2 Days
H	Designing database	T8	5 Days
I	Adding Database	T9	2 Days
J	Server integration	T10	5 Days
K	Testing	T11	5 Days
L	Finding and solving bugs	T12	5 Days
M	Retesting	T13	2 Days
N	Final touch	T14	10 Days
O	Deploying to consumer	T15	5 Days

Table 3.1: Activity wise Time Distribution

3.3 Gantt Chart

A project management tool defined as a Gantt chart helps in the planning and scheduling of various project types. They are especially useful for simplifying complicated projects. To represent start and end dates, dependencies, scheduling, and deadlines, as well as the percentage of a task that has been completed for each step and the task owner, horizontal bar charts are created using project management timelines and tasks. This helps keep the work on track when the scope changes and there are a lot of stakeholders and a large staff. Using a Gantt chart, I planned and scheduled each task that had to be performed to successfully complete the project.[4]

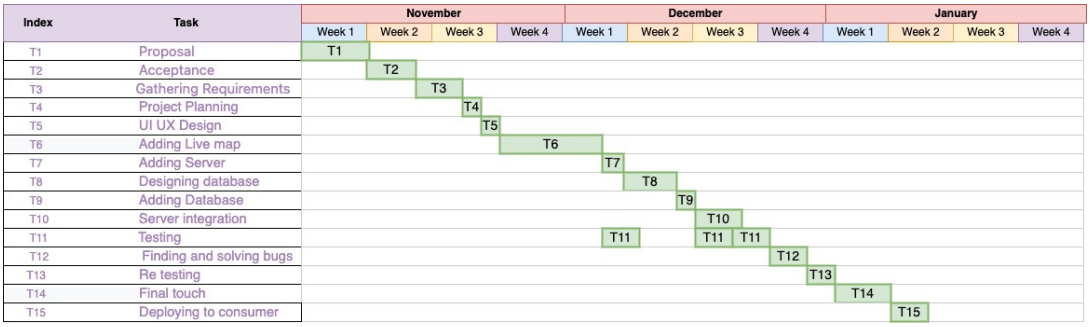

Figure 3.2: Gantt Chart

3.4 Estimated Costing

The estimated overall cost of our app is shown here. Flutter, Firebase, Node.js, Android, iOS, and OpenStreetMap are all used here. For data storage and backend operations like serving live locations, we need a domain, and we have used all free services to make this app. Flutter, Firebase (free tier), and Android (own device) for Map Api (free service), Domain (free service), Hosting (free service), Flutter, Firebase (free tier), and Android (own device).

Chapter 4

Methodology

Because of its flexibility and evolutionary character, agile project management is currently among the most widely used methods. Using multiple phases, the Agile technique splits a project into manageable chunks. Continuous communication with stakeholders and improvement at every stage are necessary. Once the process is underway, teams cycle through a process of planning, carrying out, and assessing. Our project was really active to begin with. The requirements for our projects are always changing. In response to that requirement, we also updated the project. In fact, we promptly modified the app's design elements after consulting with the relevant parties. We regularly develop, design, and plan.

We selected the Agile methodology for this project. It can also be effective in iterative development. Agile is a methodology in which a team can manage a project by separating it into different stages, including ongoing stakeholder collaboration, continuous improvement, and iteration for each step. Customers must first explain how the final product will be used and what problem this method will solve. It doesn't build an entire structure immediately; however, it develops constantly.[5]

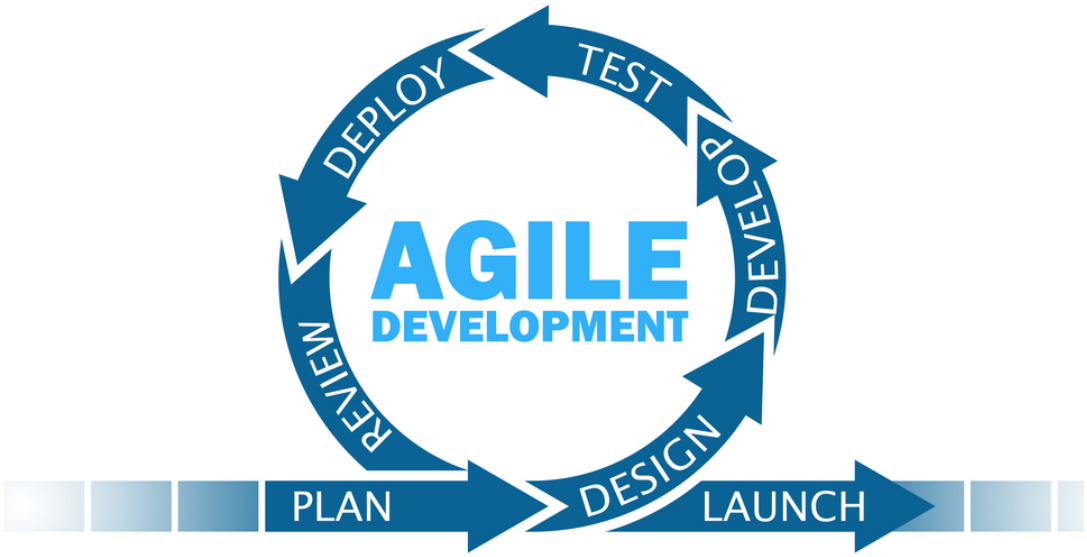

Figure 4.1: Agile Methodology

Why did we select agile methodology for this project:

Customer satisfaction: Flexibility and adaptability are hampered in the traditional framework because the customer is only involved in the planning stage and has no say in how things are done after. You provide value to the customer and guarantee that the final product is actually in line with their expectations by keeping them informed and making modifications in response to their input.

Improved team morale: Agile teams get more autonomy and authority because they are self-managing and self-organizing. The project manager protects the team from management and sponsor interference.

Improved project predictability: Predicting issues and developing effective mitigation plans are made easier with more visibility. Greater methods for risk identification, risk prediction, and project planning are available under the Agile framework.

Improved quality: Agile allows us to adjust the business and specialized scope of the arrangement while fixing time, cost, and quality. You probably won't get everything you want, but you can accept what you get.

How we used agile methodology in this project?

We could divide the development process into manageable portions using Agile methodologies, such as Extreme Programming, and provide functional app features quickly. This method also helped in the early recognition and resolution of any problems, allowing us to produce a high-quality, user-friendly Android app utilizing Flutter. The Ushuttle app was developed using the Agile methodology, which was a great decision because it allowed us to provide our clients and end users with helpful, responsive, and user-friendly software.

Chapter 5

Body of the Project

The project's body of the report provides a complete description of the work. The project's body explains what was done, how it was done, what the findings were, and what inferences and suggestions might be made in light of those results.

5.1 Work Description

First of all, this project is mobile-based. For the most common types of human movement, there are various apps such as Uber, Pathao, and OBhai. But they are too expensive for daily use by students. On the other hand, it is seen that there is no specific bus service for some areas, which causes suffering for the students. For example, there is no direct bus service from Mirpur to Bashundhara. This app plays an essential role for students in those areas. Through this, students will be able to travel by bus very quickly at a low cost and enjoy other facilities. The user must fill out the Registration and Login forms. There is a page for registration. Before using the system, users must first register. The user must fill out the registration page with the necessary data to write, including an email address and a unique password. Users who successfully register must log in before using the system. Live bus location by the university: Students can access the current site of the bus from the map. Purchase tickets: Students can purchase tickets online using a safe payment method through the service. Fare: Students can see the ticket fare. Schedule and stoppage information: Students can see all the information about the bus schedule and where the bus will stop. Scan your ticket with a QR code. Students can scan their tickets with a QR code. Update Information: Students can get the information they need from the app anytime.

5.2 Requirement Analysis

5.2.1 Rich Picture

[6]

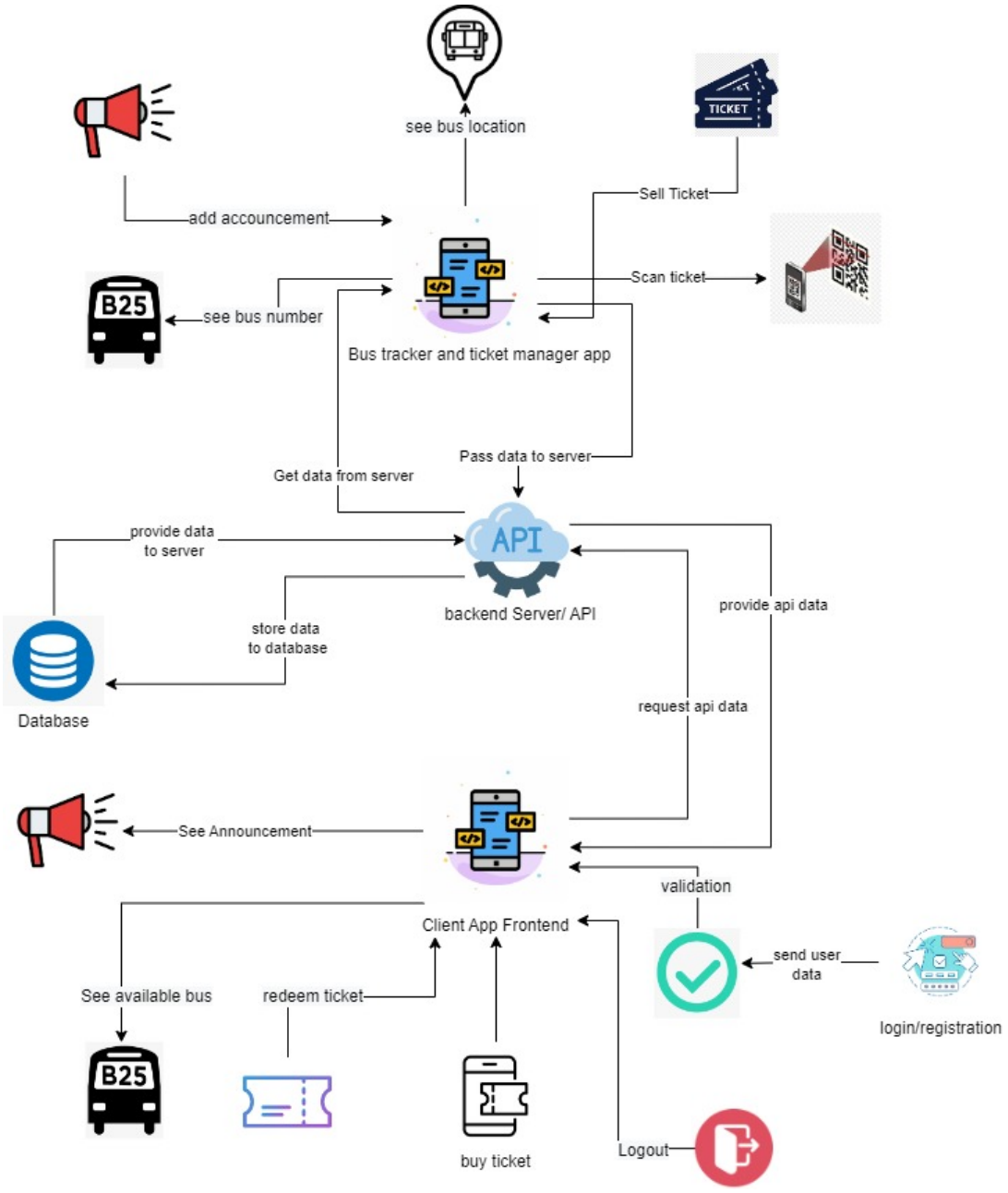

Figure 5.1: Rich Picture

5.2.2 Functional and Non-Functional Requirements

Functional Requirements:

- Through a website or mobile app, users of the "Ushuttle" service must be able to track the location of their shuttle bus in real time.

- Users must be able to purchase tickets online using a safe payment method through the service.
- The service must offer people a safe and secure environment, including security precautions like background checks for drivers and routine vehicle maintenance.
- In order to find the most effective pickup and drop-off locations, the service must work with schools and universities to develop efficient shuttle bus routes and schedules.

Non-Functional Requirements:

- The "Ushuttle" service needs to be reliable, with little downtime and high uptime.
- As the service develops, it must be accessible and able to manage a rising number of customers and routes.
- The service must have an easy user interface with clear instructions and simple navigation.
- The service must be available and support a range of browsers and devices.

5.3 System Analysis

5.3.1 Six Element Analysis

Process	System Roles					
	Human	Non-Computing Hardware	Computing hardware	Software	Database	Network and communication
Login/registration	Admin and user can register and login	N/A	Android or iOS smartphone	Vs Code, android studio, node.js, XCode	Firebase	Internet
Live bus tracking	Admin and user can see live update	N/A	Android or iOS smartphone	Vs Code, android studio, node.js, XCode	Firebase	Internet and GPS
Purchase ticket	Users can purchase ticket	N/A	Android or iOS smartphone	Vs Code, android studio, node.js, XCode	Firebase	Internet
Use ticket	Users can use available tickets	N/A	Android or iOS smartphone	Vs Code, android studio, node.js, XCode	Firebase	Internet
Sell ticket	Bus manager can sell ticket	N/A	Android or iOS smartphone	Vs Code, android studio, node.js, XCode	Firebase	Internet

Figure 5.2: Six Elements

5.3.2 Feasibility Analysis

An essential piece of research was completed before the "Ushuttle users" were in the development phase to identify an important conclusion: is this project feasible? By doing a feasibility analysis, we were able to generate a complete report on the project's advantages, disadvantages, possibilities, and threats.

These were:

- **F**easibility: This project is feasible and sound. It is possible to do without any particular tools or resources. The proposed system's technical viability and compliance with all system criteria are evaluated in terms of hardware, software, and other technical requirements. The Ushuttle app was created using the Flutter framework with Firebase as the database, making it simpler and more effective.

- **Economic feasibility:** The project's costs and financial gains are evaluated for economic feasibility, which identifies costs and benefits. It analyzes expenses and benefits as well as cash flow. Manufacturing and research and development costs are considered for economic feasibility. If this strategy successfully reaches people, it will surely be beneficial.

- **Legal feasibility:** This system conforms to all necessary cyber-security standards. standards.

- **Operational feasibility:** Operational feasibility: This assessment involves researching to see whether and how successfully the project will satisfy the business's needs. Operational feasibility studies also examine how a project plan meets the requirements established during the requirements analysis stage of the system development process. This technology will make it easier for buyers to communicate with providers and vice versa.

5.3.3 Problem Solution Analysis

The problem analysis process includes identifying the actual issues and user requirements, then developing solutions to address those needs. Situation analysis aims to understand more about the problem before deciding on a solution. To better understand the problem before deciding on a solution, use these five helpful steps:

- I agree with the explanation for the real issue.
- Decide what limitations will be placed on the solution.
- Define the problem's perimeter.
- Identify the real issues of the issue at hand.
- Define the stakeholders and the users.

5.3.4 Effect and Constraints Analysis

The project manager's ability to evaluate all of these restrictions and develop the procedures and plans necessary to maintain their balance is essential to a project's success. Every project has to manage four basic constraints. These are:

- **Budget:** A strategic budget plan for your project is a cost control plan. Taking into consideration resource planning, cost estimating, budgeting, and cost control, it is a four-pronged strategy. Yes, it is a plan, but it is used to track expenses and maintain your financial restrictions as the project progresses.

- **Schedule:** Time is important to the growth of any project. As part of our project, every employee delivered a daily update at the end of the day while working from home. Consequently, our project remained on Schedule, and no delays were noted.

- **Scope:** All processes involved in completing a project are contained in a scope management plan. The Scope establishes the project's limitations and serves as a road map. Given that changes always influence Scope, managing the project restriction is essential. Without a plan, projects can easily go off track.

- **Quality:** The primary focus of the quality limitation is the quality of the deliverables or product. Generally, the project's quality will be determined by how closely the finished result adheres to the objectives set forth during the planning stages.

5.4 System Design

UML Diagrams

Figure 5.3: Use Case

Architecture

An architecture outlines the organization and management of an application, from how data will be transferred and stored to how the app will function. It provides the framework for how the app will be structured and operated. Our application design permits users to communicate with the front end, which then sends their requests to Firebase. Firebase subsequently retrieves and stores the requested data from both the file system and the Firebase database and sends it back to the front, allowing users to view the response.[7]

5.5 Implementation

Our "UShuttle" project is a cross-platform mobile app developed with Flutter. We combined Flutter, Node.js, and Firebase for the back end. The GPS and camera modules are examples of the numerous native components used.

To ensure that the mobile application and backend system was created, tested, and implemented effectively and efficiently, the "UShuttle" project's implementation process was broken down into several parts.

The mobile app and the backend system's completed designs came first. This required drawing intricate UML diagrams, developing code for the mobile app using the Flutter framework, and writing code for the backend using the Node.js platform. The project's requirements, restrictions, and the team's aims and objectives served as the foundation for the system's design.

The backend system and mobile app were then created following the design. Writing code, establishing servers, and integrating the Firebase database and any necessary third-party systems or services were required. The development process was carefully controlled to guarantee the system's flexibility, adaptability, and security and the implementation of all necessary capabilities.

The backend system and mobile app were carefully tested once they had been created to ensure they were operating properly and fulfilling the project's needs. This included unit testing, integration testing, and approval testing to find and address any problems before the system was deployed.

The mobile application and backend system was deployed to a production environment once they had completed testing and were ready for deployment. This included setting up any required infrastructure, configuring any required third-party systems or services, and deploying the system on servers.

5.6 Testing

Test Results

The following table shows the results of our success in the implementation of this project:

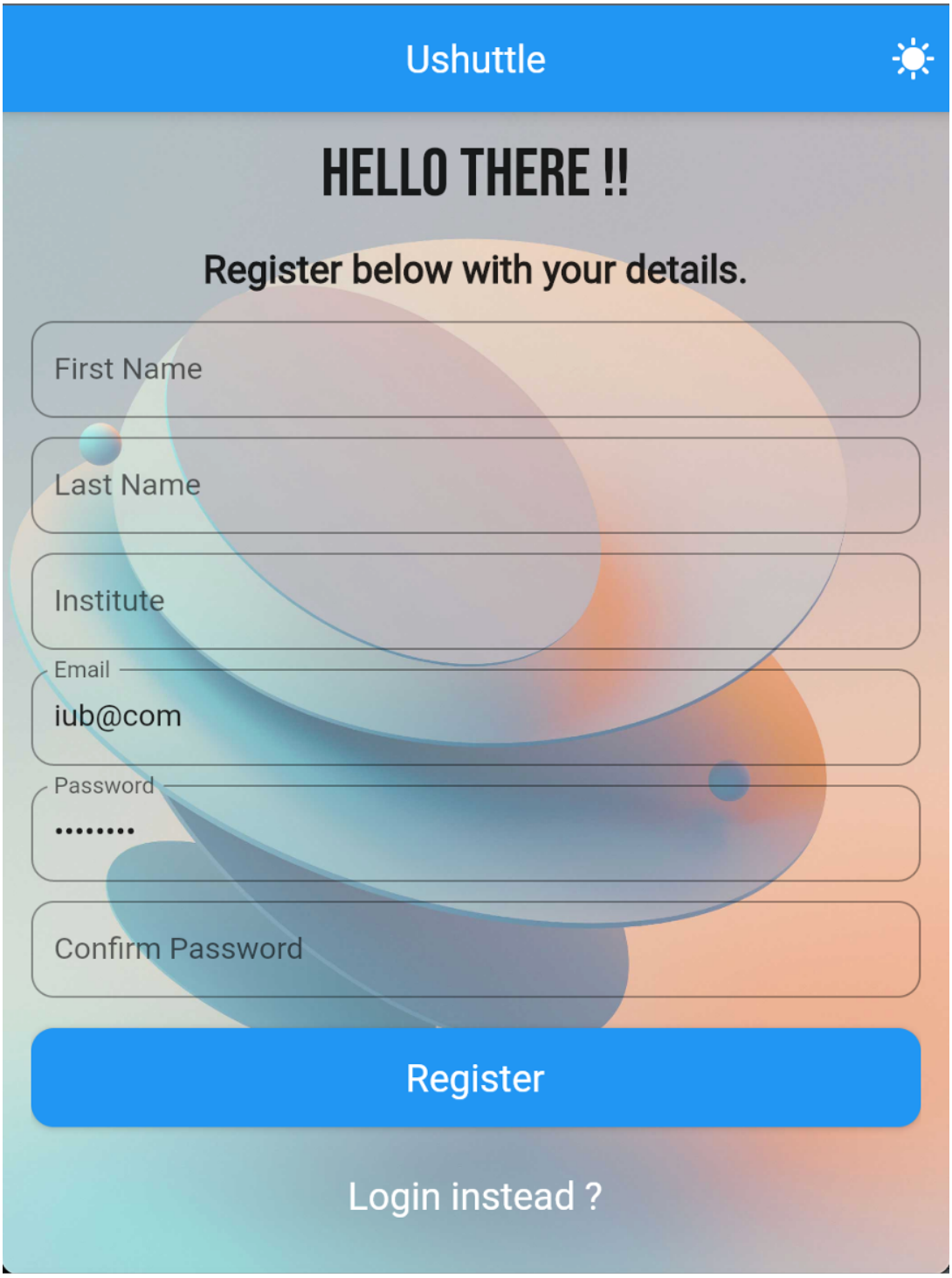

Figure 5.4: Registration page

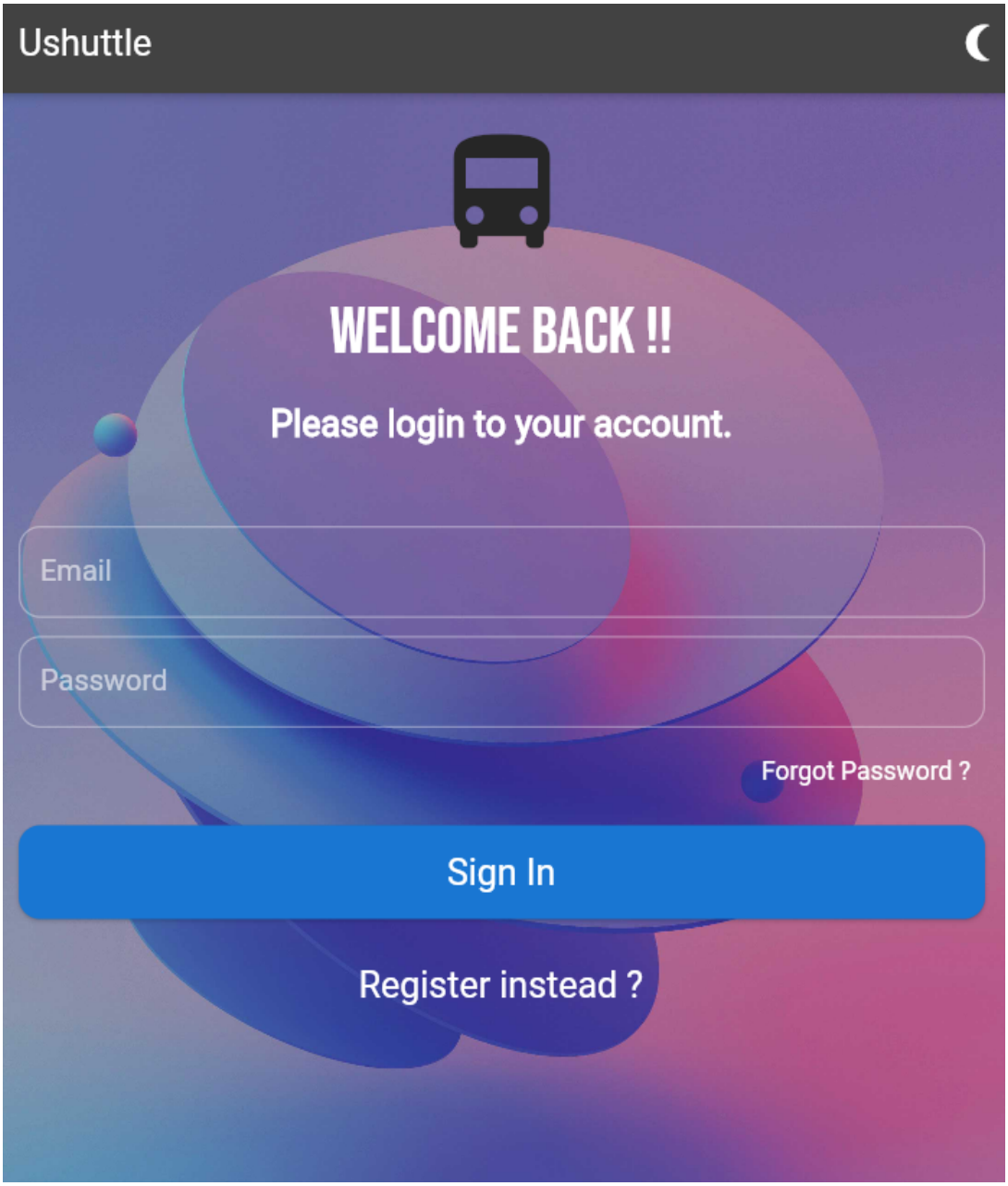

Figure 5.5: Login Page

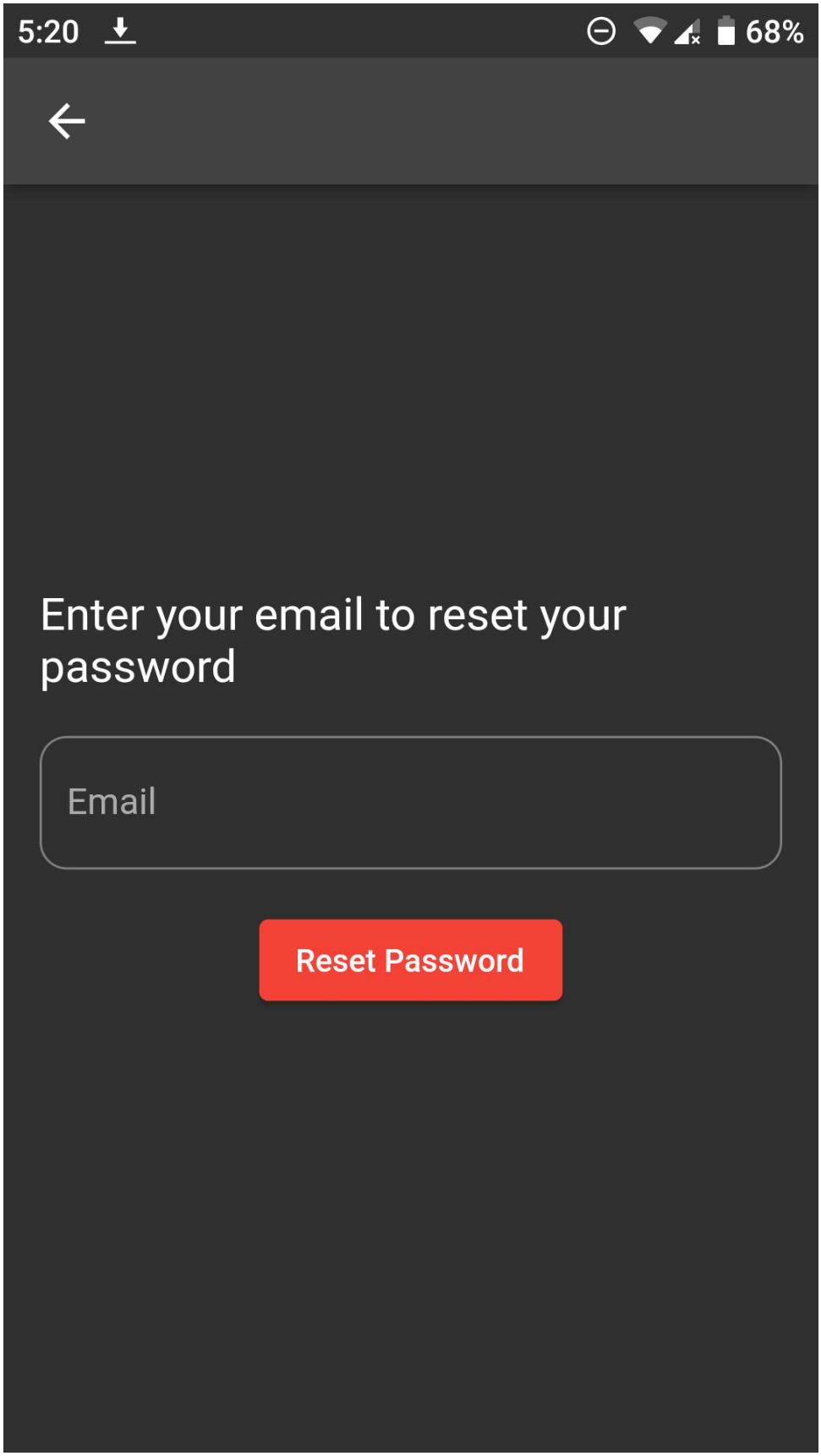

Figure 5.6: Reset Password Page

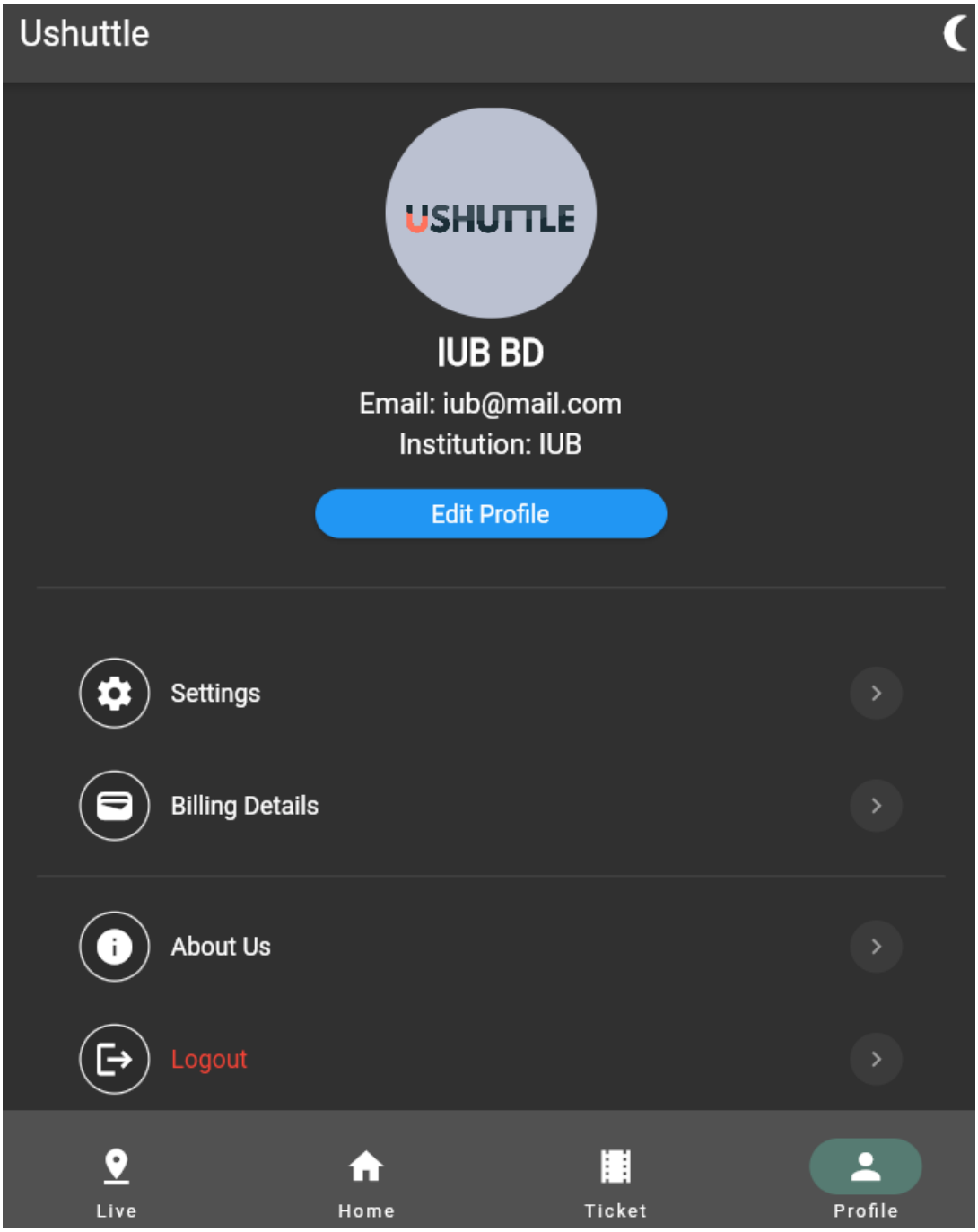

Figure 5.7: Profile page

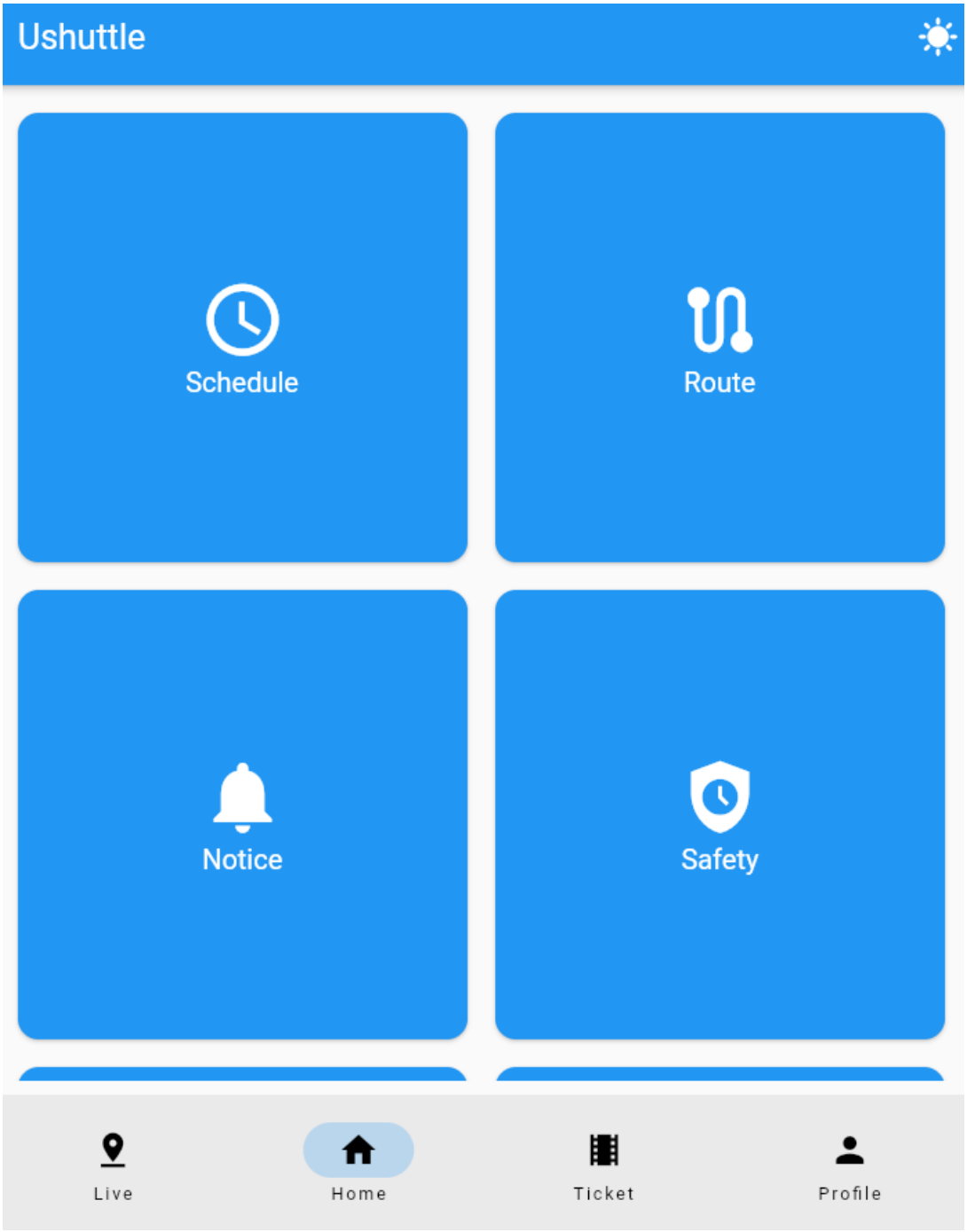

Figure 5.8: Home Page

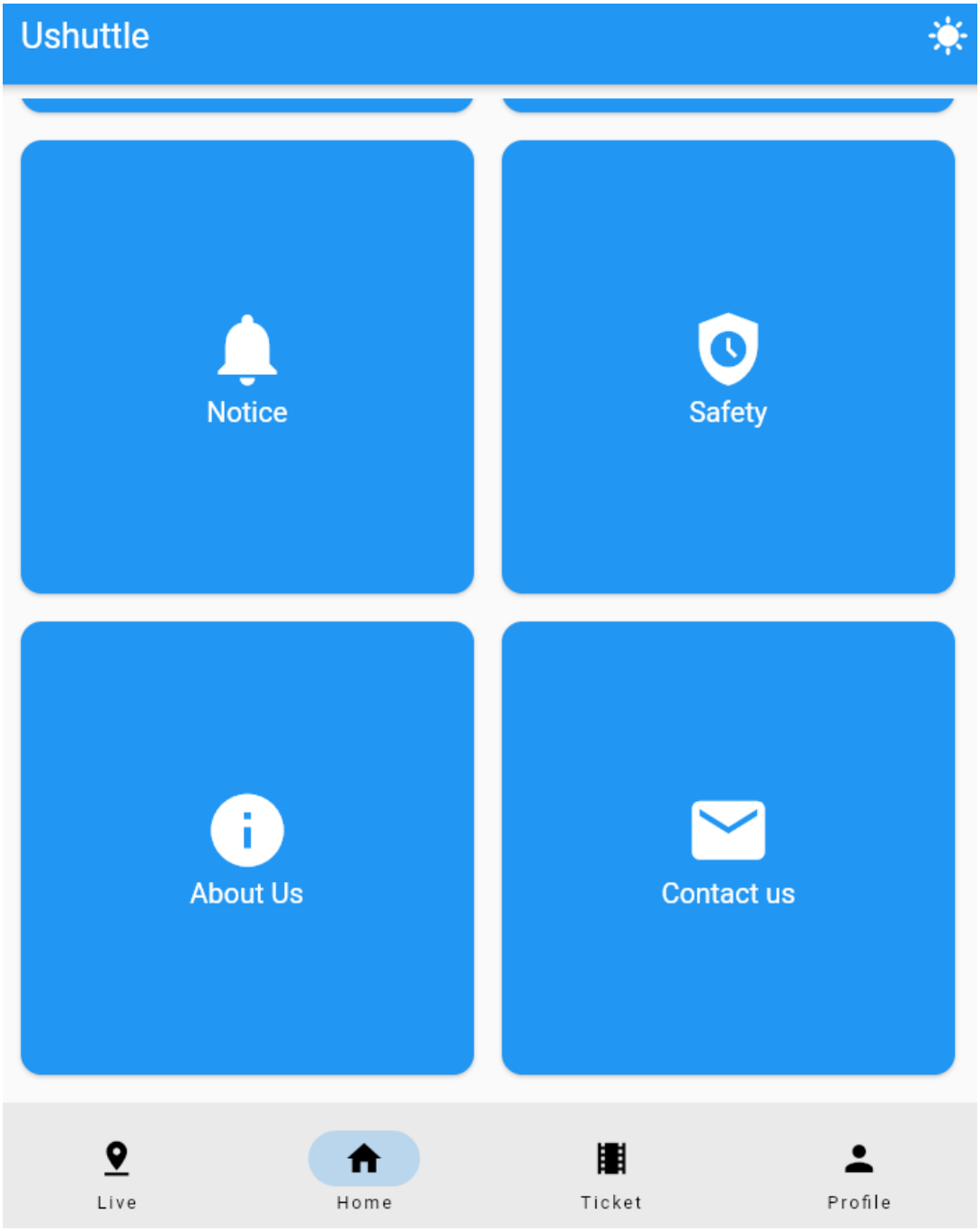

Figure 5.9: Home Page

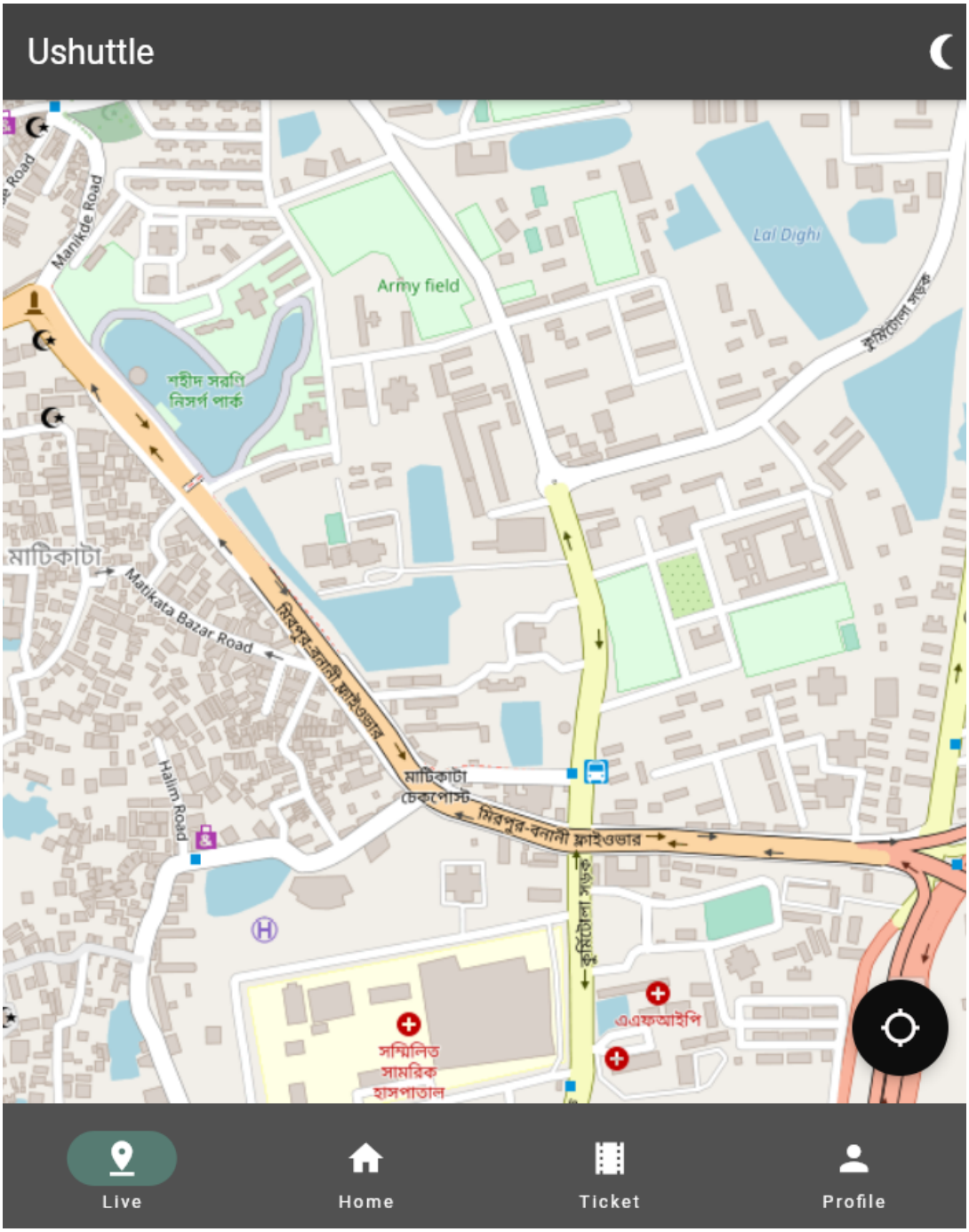

Figure 5.10: Live Location Map

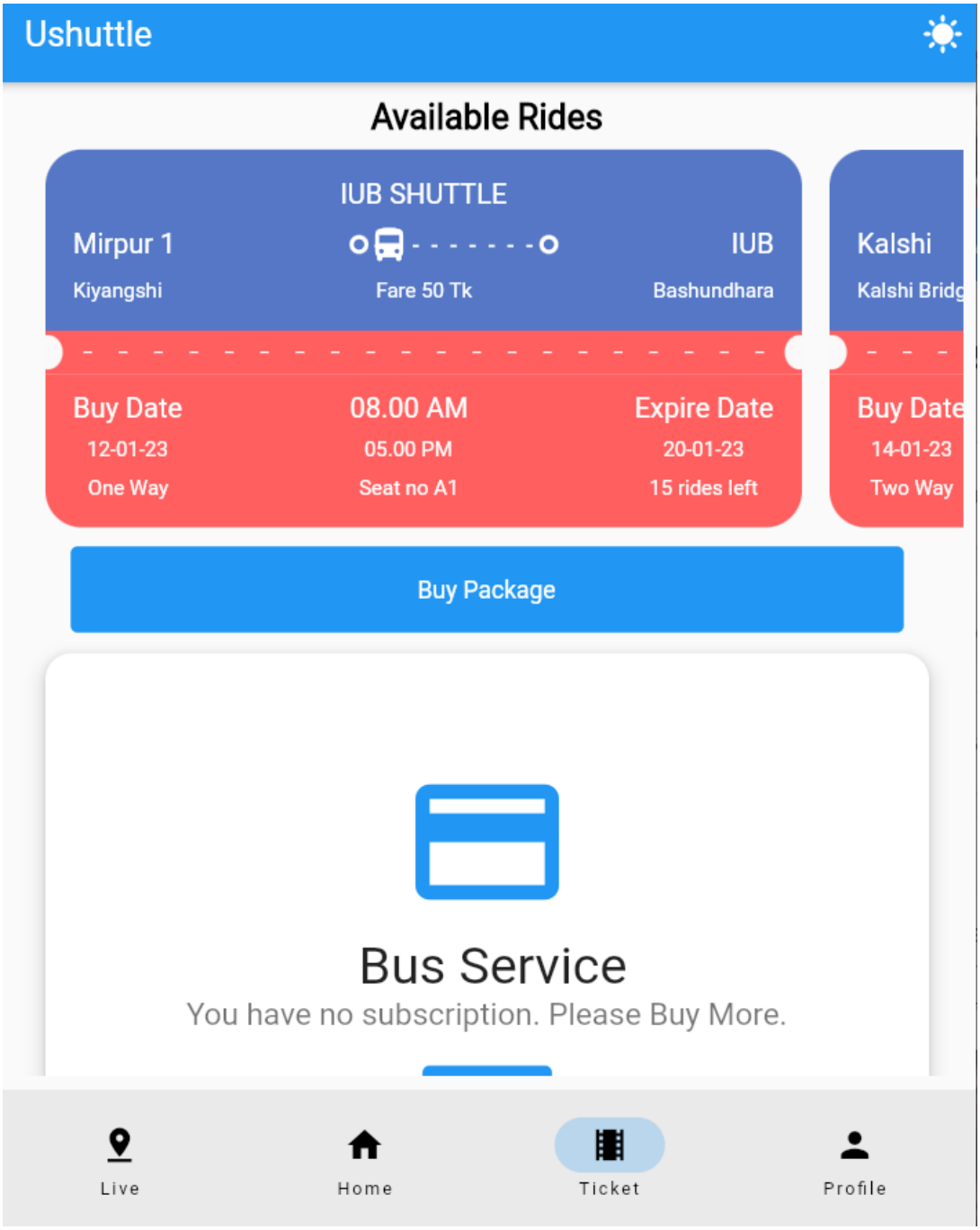

Figure 5.11: Ticket Page

Figure 5.12: Scan to use ticket

Figure 5.13: Ticket Schedule

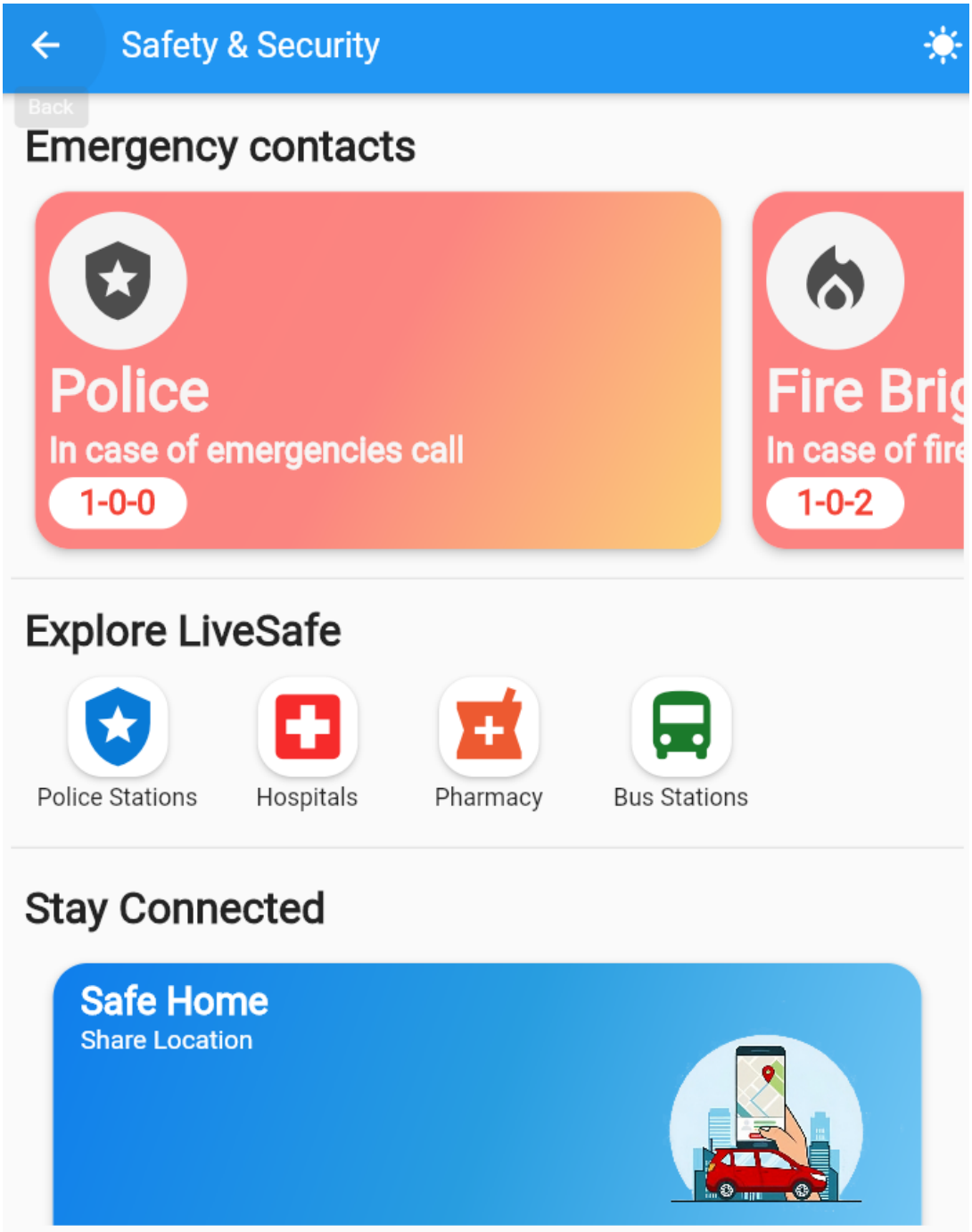

Figure 5.14: Emergency Contacts

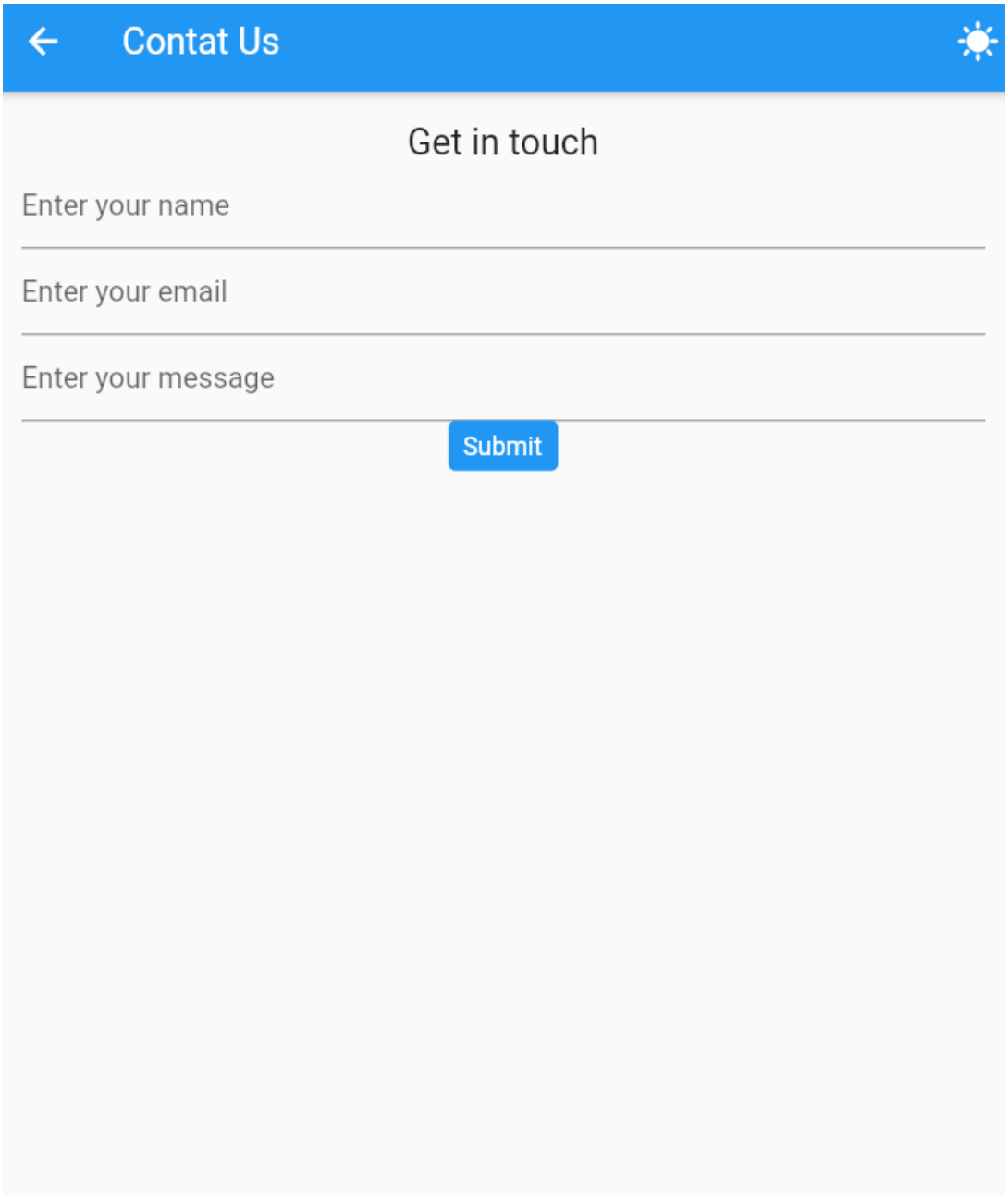

Figure 5.15: Contact Us

The table above shows the features implemented in this project and the results of the implementation.

Features	**Status**
Registration, Login	OK
Reset Password	OK
Track Live Location (From Client Side)	OK
Track Live Location (From Admin Side)	OK
GPS Server	OK
Ticketing System (From Client Side)	Ok
Ticket Scanner (From Admin Side)	OK
Virtual Ticket Card	OK
Schedule	OK
Profile	OK
Emergency Contacts	OK
Safe Home	Not Implement
Logout	OK
Notice (From Admin Side)	OK
Notice (From the Client Side)	OK
Theme (Dark/Light)	OK
Online Payment System (bkash, Nagad)	Not Implement
Payment History	Not Implement
Backend Server	OK

Table 5.1: Test Result

Chapter 6

Results & Analysis

First of all, the main objective of our project was to start a bus service for students in Mirpur and Bashundhara, as there is no direct bus service from these areas. So, using this app, university students can easily take bus service, and they will benefit. We had to face various problems to implement this project. For example, "live location on the map," "scan ticket by QR code," "virtual Ticket," "Emergency Contact," etc. Although we could add this feature, we would face many problems.

Below the Result Analysis Table:

Features	Attempted	Success	Failure	Success Rate (percentage)	Final Status
Login, Registration	10	8	2	80%	OK
Password Reset	2	2	0	100%	OK
GPS Server	10	10	0	100%	OK
Live Map (Admin)	10	10	0	100%	OK
Live Map (Client)	10	8	2	80%	OK
Ticket Scanner (Admin)	5	5	0	100%	OK
Ticketing System (Client)	5	5	0	100%	OK
Virtual Ticket Card	5	5	0	100%	OK
Notice (Admin)	3	3	0	100%	OK
Notice (Client)	3	3	0	100%	OK
Schedule	1	1	0	100%	OK
Emergency Contacts	3	3	0	100%	OK
Profile	5	4	1	90%	OK
Safe Home (Client)	1	0	1	0%	Not Implemented
Live Safe (Client)	3	3	0	100%	OK
Theme	10	10	0	100%	OK
Backed Server	5	5	0	100%	OK
Online Payment	1	0	1	0%	Not Implemented
Payment History	1	0	1	0%	Not Implemented
Logout	5	5	0	100%	OK

Table 6.1: Results and Analysis

Analyzing the results after project implementation shows that we had a lots of features. We anticipate offering additional features in the future that will increase the enjoyment of students. This will enhance the experience for everyone involved.

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work

Sustainability is the capacity of a product to be enhanced and maintained. Any new website or application today needs to be regularly updated and maintained for the users. The website has become more sustainable as a result of the implementation of these minor but significant changes.
Usually, engineering problems can be resolved by more than one method. The engineer's objective is to discover the best answer they can use the tools available. Engineers are considered officially responsible for the effectiveness and reliability of their creations.

The goal is to find the best simple, effective, and affordable solution to a specific issue. After all, one of the applied sciences is engineering. The engineer's tasks fall into a broad category. From the position of a pure scientist to that of a sales or applications engineer, which deals more with people-oriented issues like psychology and economics, they span all categories. Most engineering issues can be solved in more than one way. The engineer's goal is to find the best answer using the tools.[8]

- **Community Sustainability:** It is expected that after the "Ushuttle app" has been developed and made public, a major user base will develop, giving rise to a user community that shares common interests.
- **Organizational Sustainability:** It refers to how the organization will maintain its commitment to doing work after the application has been launched. After an application is released, the business typically keeps the application using either its current team, an extended team, or a brand-new team. Organizations may also move to other projects, increase their teams, form new groups, etc., and update

their project by adding additional features. Also, extra features will be developed and added to the Ushuttle app. The project will be maintained and upgraded when released, and premium services will be added because the application has future goals. So, if the project is organizationally sustainable, it may be completed.

7.2 Social and Environmental Effects and Analysis

Technology is changing at an alarming rate. Computers are necessary for people to stay technologically up-to-date. If it is related to property, jobs, or other facets of life. [9]

- **Social Effect:** All service providers who plan to restart once the limitations are relaxed currently value safety above all else. Since the risk of COVID-19 is expected to last for a long time, businesses and organizations can supply their services while upholding a high safety standard by investing in technologies that can assist with managing the arrival and customer ownership. In conclusion, keeping appointments is essential for making the best use of your time, maintaining personal privacy, and showing people how much you respect their time.
- **Environmental Effect:** Because consuming outside is no longer as safe as it once was during the global epidemic, the internet has helped save many lives. The service enables users to increase their safety in daily life while keeping a safe social distance.

7.3 Addressing Ethics and Ethical Issues

The study of morality as a branch of philosophy dates back to ancient Greece. It refers to a set of values that possess the power to significantly change previous decisions and behaviors. According to popular belief, the philosophical topic of ethics is focused on the dynamics of value judgment. Like all humanity, scientific research is constrained by personal, communal, and social ideals. Study ethics include rules for everyday tasks, the protection of individuals' dignity, and disseminating of research findings. Because we value our users' privacy, we, as the creators of "Excellent Soft," followed all rules of conduct and confidentiality. Given Below:

- No Sharing or Selling of User Data: The system does not permit the selling or sharing of user data with other parties.

- Data Security: To reduce the risk of data compromise, only the owner, admin(s), and leading developer of the "Ushuttle app" will have access to the system's database.
- Except for a few age restrictions, there is no tolerance for discrimination in the "Ushuttle app." It does not discriminate against users based on ethnicity, sexuality, gender, religion, skin color, political views, local or global, or date of birth.

Chapter 8

Lesson Learned

8.1 Problems Faced During this Period

I found it quite tough to deal with all the obstacles and difficulties I encountered during my internship. Working as an intern, comparable to working as a full-time employee, was a significant adjustment in my life. Some of these are listed below:

- **Workplace:** I experienced some challenges there as well. I had to ensure I followed all the rules and regulations that had to be carefully maintained. I had to become comfortable with their working culture in a minimal amount of time. I was unfamiliar with the idea of full-stack web and mobile applications. On top of that, I had to learn a brand-new library of JavaScript, Flutter, Bootstrap, and Laravel for the back end.
- **New Technologies:** I had to learn and adjust to the company's new technologies since this was my first time in an office. It was possible to gain the skill set, but applying those skills in practical situations was challenging.

8.2 Solution of those Problems

In my last four years as an undergraduate student, I've learned a lot. It helped me find most of the answers to the problem. The following are the issues and their solutions:

By God's grace, everything seems to be going well on this journey. I completed my internship at a reputable and well-known company effectively. I gradually became accustomed to the process and everything as the days passed. I went to work every day to do tasks with the team and participate in meetings with outside management and my teammates, who were developers.

In this regard, I learned a great deal. I'm studying various programming languages and how to implement them into the framework to improve as a back-end developer. My

university classes exposed me to the essential ability of time management. I was able to plan enough time for myself as a result so that I could complete the demanding deadlines, study for my other classes, and work on both projects. I exerted more personal effort to improve the project. This is proved in my highly significant and successful work. After that, the project and report were completed and delivered on time to our internal management.

Chapter 9

Future Work & Conclusion

9.1 Future Works

As the project advances, the company plans to add a ton more features to the application to improve its usefulness and aesthetic appeal for users.

In my opinion, the project may benefit from adding a few more backend developers to enhance the app's core capabilities. Furthermore, work is still being done on the "Ushuttle." Before they can be developed, several features still need to be refined. It can be improved on several fronts. Among them are:

- Online Payment System.
- Add a live chat feature.
- Reservation system.
- Add a voucher system.
- Ride History.
- Payment History.

9.2 Conclusion

In summary, by providing a quick and reliable shuttle bus service for students, the "UShuttle" project has the potential to improve society significantly. The "UShuttle" project can fulfill student needs and enhance the shuttle bus experience by providing features like live bus tracking and digital ticket buying. While the "UShuttle" project's development and implementation were undoubtedly tricky, we overcame these difficulties and deployed the service effectively. We were able to make sure that the "UShuttle"

project could satisfy the needs of our users and stakeholders by putting in place solutions, including a thorough integration plan, quality assurance methods, and strong security measures etc.Finally, students will benefit significantly from using the Ushuttle app. Because Bangladesh has various transport systems, they are expensive for students to use daily. Using Ushuttle, students can avail themselves of the service at a low cost. We hope the "UShuttle" project has the potential to have a beneficial, long-lasting effect on the community.

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The student modified the internship final report as per the recommendation made by his or her academic supervisor and/or panel members during final viva, and the department can use this version for achieving.

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