Smart Traffic: An Android Application to Ease the Traffic Problems on Roads

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Submitted as partial fulfillment for the degree of

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July 2022

CERTIFICATE OF APPROVAL

The project entitled “Smart Traffic” submitted by, ID: 1202310200431 (Session: January 2013), ID: 1302410200517 (Session: July 2013), and ID: 1302410200508 (Session: July 2013), has been accepted as satisfactory in partial fulfillment of the requirements for the degree of Bachelor of Computer Science & Engineering (CSE) to be awarded by Premier University, Chittagong.

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DECLARATION

We hereby declare that except where specific reference is made to the work of others, the contents of this dissertation are original and have not been submitted in whole or in part for consideration for any other degree or qualifications in this, or any other university. This dissertation is our work and contains nothing which is the outcome of work done in collaboration with others, except as specified in the text and acknowledgment.

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ACKNOWLEDGEMENT

Firstly, we would like to thank the Almighty God who provided us the opportunity to study at Premier University, Chattogram, and then blessed us with the most precious gift of physical and mental health during the whole study period.

We would like to take the opportunity to express our humble gratitude to our honorable supervisor, Mr. Khaleque Md. Aashiq Kamal, Assistant Professor, Department of Computer Science and Engineering, Premier University, Chittagong, under whose supervision, we have completed this project successfully. His constant guidance and willingness made us understand this project, and its manifestation in great depth of knowledge also helped us to complete the assigned task. His endless support, cooperativeness, inspiration, outstanding guidance, constructive criticism, and educative suggestions throughout the progress of our work helped us to make this work far better.

Last but not least we would like to thank our parents. We thank our family for the love, moral and financial support they had given us. We are grateful to our friends, classmates, seniors, and lab assistants, who gave us their unlimited support and helped in every aspect. We are fortunate to have nice human beings like them beside us.

CHAPTER 01

INTRODUCTION

1.1 Overview

Traffic is an integral part of our everyday life. The number of vehicles is soaring on roads so the load on traffic sergeants is increasing day by day. Traffic sergeants need to check the legitimacy of records that are conveyed by the driver. On the other hand, if a driver does not keep his driving documents with him while driving, traffic sergeants have to impose traffic laws against the driver. Moreover, there are many accidents here and there. Many times victims cannot be identified easily therefore, the victim's relative cannot be informed about the incident. Hence, we need an up-to-date system to solve these miscellaneous problems to make the life of the traffic sergeants easier and to facilitate the traffic system for the common people traveling with vehicles on roads.

1.2 Problem Background

This is a harsh reality indeed that drivers and owners of vehicles on the roads of our country are often faced with unbearable suffering related to documents. Many times, it is seen that drivers are facing many kinds of problems as they do not have proper documents with them. Again, the traffic condition in our country is already so bad that a traffic sergeant has to go through a lot of trouble in the course of his duty and the continuous increase of vehicles in our country has been a growing concept for both individuals as well as the government. Thousands of drivers are booked on the roads for one reason or another. Whether it is driving without a driving license or lack of vehicle's necessary documents, each day traffic offenses are being committed. However, the authority needs a way to store all this information for proof and future reference. Again, a common thing in our country is that in many cases the traffic sergeant gives illegal cases and fines which is not desirable at all. There is no scope for arbitrary prosecution or arbitrary fines using our proposed system. Traffic sergeants often have to check documents one after the other which sometimes contains fake documents. Our system can verify the authenticity of documents held by the drivers. Apart from this, the general people have to suffer a lot while paying the fines, and sometimes they have to undergo a lot of trouble to keep all the documents i.e., license paper, vehicle papers, and case documents. Even, they suffer in disposing of their seized vehicles or seized documents.

Our system tries to solve these various problems of both traffic sergeants and common people under one platform.

1.3 Motivation

In our country, when a traffic sergeant stops a vehicle on the road and wants to check the driver's license and the necessary documents of the vehicle, it is often observed that many people are in a lot of trouble as the necessary documents are not with them. Besides, traffic sergeants have a bad reputation in our country because they demand extortion in various ways without giving a case on the road. Moreover, when a traffic sergeant stops a vehicle or a driver on the road and goes to check his necessary documents such as driving license, vehicle fitness document, vehicle tax token document, vehicle route permit, etc., it is seen that a lot of time passes to check the documents properly. In this case, the traffic sergeant cannot always stop and check many vehicles. This causes more traffic congestion on the roads and people have to face a lot of problems, and it wastes a lot of time and reduces the efficiency of people. People also find it difficult to keep track of the documents of each of their vehicles and the cases on them. Helping both the traffic sergeants and the general public to overcome these problems and making our roads safer for everybody are the primary motivation behind building this application.

1.4 Objective

- Our objective is to develop a comprehensive system that eases the problem of both sergeants and general people by making filing cases for traffic violations and managing documents, cases, and their payments in digital form, under one platform.

In our system, everyone can keep updated on the vehicles and drivers roaming the roads, cases filed against their name, and pay the required fee for the case. In case of filing a new case, a traffic sergeant can easily take further decisions by checking the case history or verifying the authenticity of the documents. Furthermore, in our system, a vehicle owner can associate one or more drivers for one or more vehicles under his or her control and can easily keep track of each vehicle. On top of that, the system has the facility of adding an emergency contact number for each user so that any traffic sergeant can communicate with the emergency contact number provided by each user in case of any danger. This will save traffic sergeants and drivers from unnecessary hassles on the road, therefore, it will save everyone's time and increase human efficiency. After all, the main objective of this system is to bring the analog system of traffic system in our country to a completely digital system that will be a more feasible and unique way to manage information of necessary documents and cases.

CHAPTER 02

EXISTING WORK

2.1 Overview

So far, the kind of system we are hoping to build has never been introduced in Bangladesh. Though an application named "BRTA Sheba" [1] can be found on the web but does not fill the requirements that we are working on with our application.

2.2 Analysis of Existing System

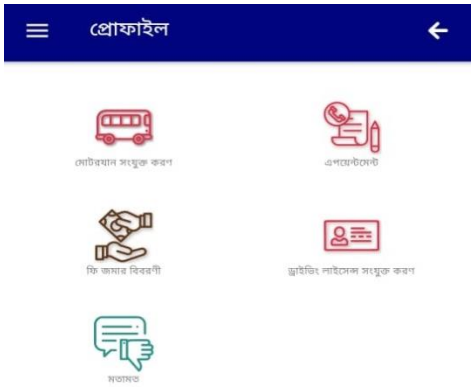
BRTA Sheba:

The app "BRTA Sheba" was developed by Computer Network Systems Limited, and was released on 16th January 2020. The current version is 0.1.4, released on 23rd March 2022. According to Google Play, BRTA Sheba achieved more than 100 thousand installs, and it currently has a 397 rating value of 2.90.

By using "BRTA Sheba", the only BRTA mobile application, users can get services directly using this app, and online payments can be made for various services of BRTA using the "BRTA Sheba" mobile application. Notable services include:

I. Registrations of vehicles
II. Payment of fees for various services
III. Transfer of ownership
IV. Digital registration certificate
V. Digital number-plate
VI. Application for Driving License
VII. Information on Driving License
VIII. Apply for Learner's License
IX. Documents of Fitness
X. Documents of Tax Token
XI. Documents of Route Permit
XII. List of driving vehicles
XIII. List of cases
XIV. List of road safety procedures for everyone

“BRTA Sheba” Mobile Application at a Glance



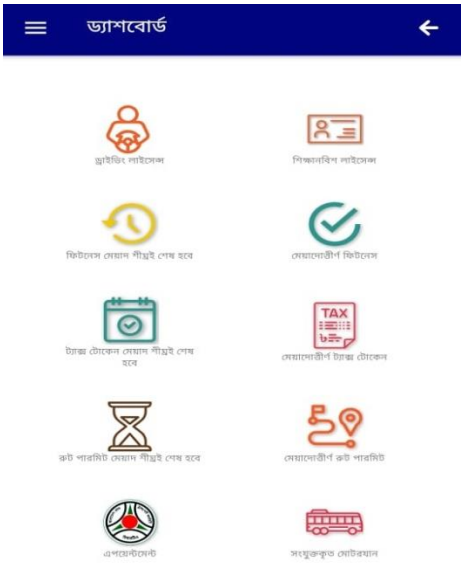


Figure 2.1: Existing Application System (BRTA Sheba)

CHAPTER 03

METHODOLOGY

3.1 Overview

To build our “Smart Traffic” application, we need to have a clear picture of what are we going to build and how we are going to build it. We need to understand how the current traffic system works and how we can make it better and easier for the user. For that, we need to understand what kind of users will use this application, and what different kinds of activities users will perform in different roles. Understanding that will help us decide what features our application needs to have in different sections, which data we need to store or retrieve, and how to store that data efficiently.

3.2 Entities and Activities

There are mainly two categories of users: traffic sergeant and general users who drive or own vehicles. Among the general users, some only drive vehicles, some only own vehicles, and some engage in both of these activities. Based on that, we can divide users into four roles, each having different activities:

1. Traffic Sergeant
   - Enforce traffic law by filing cases against people who violate the law;
2. Driver
   - Drives vehicles owned by other people;
3. Owner
   - Owns one or more vehicles;
   - Employ drivers for driving their vehicles;
4. Both
   - Drives a vehicle owned by himself;
   - Can employ drivers for driving their vehicles;

Besides these activities, all the general users should be able to view cases filed against their license or vehicle, get notified about pending or paid cases, and add, remove or update emergency contact for emergencies.

3.2.1 Use Case Diagram

Considering all these activities, the use cases for all the different roles are defined and shown in the diagrams below:

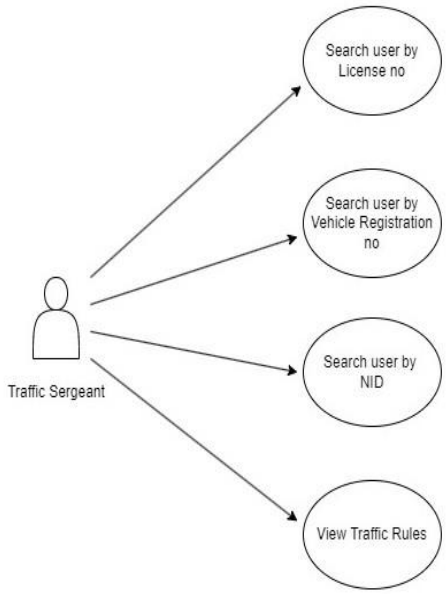


Figure 3.1: Traffic Sergeant Use Case

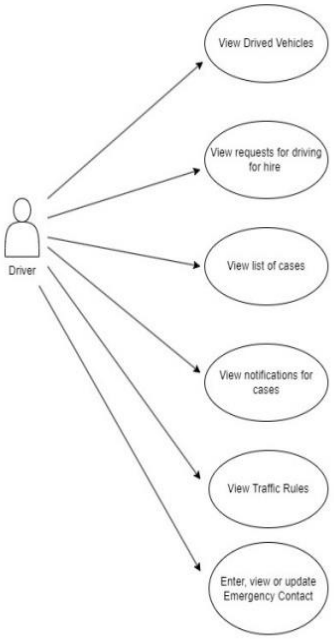


Figure 3.2: Driver Use Case

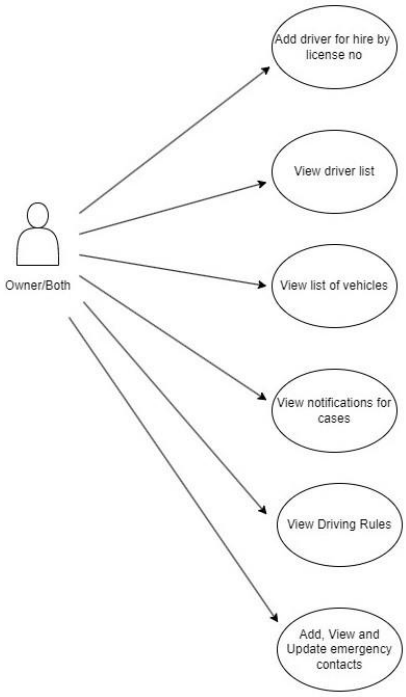


Figure 3.3: Owner/Both Use Case

3.2.2 Entity-Relationship Diagram of this Application

Considering every entity and their relationships, the entity-relationship (ER) diagram is showed below:

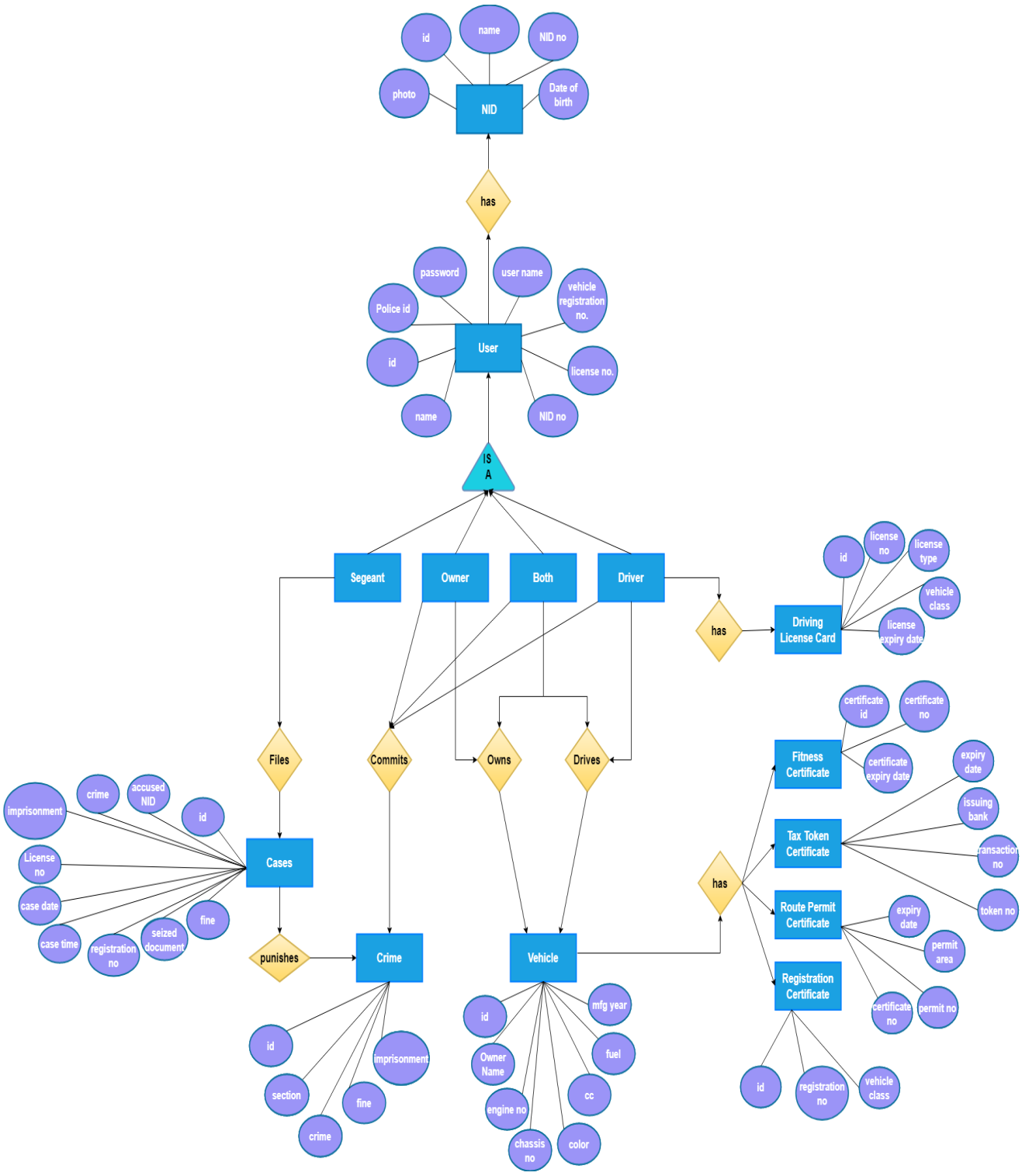


Figure 3.4: ER Diagram

3.3 Flow Chart for Users

3.3.1 Registration Process

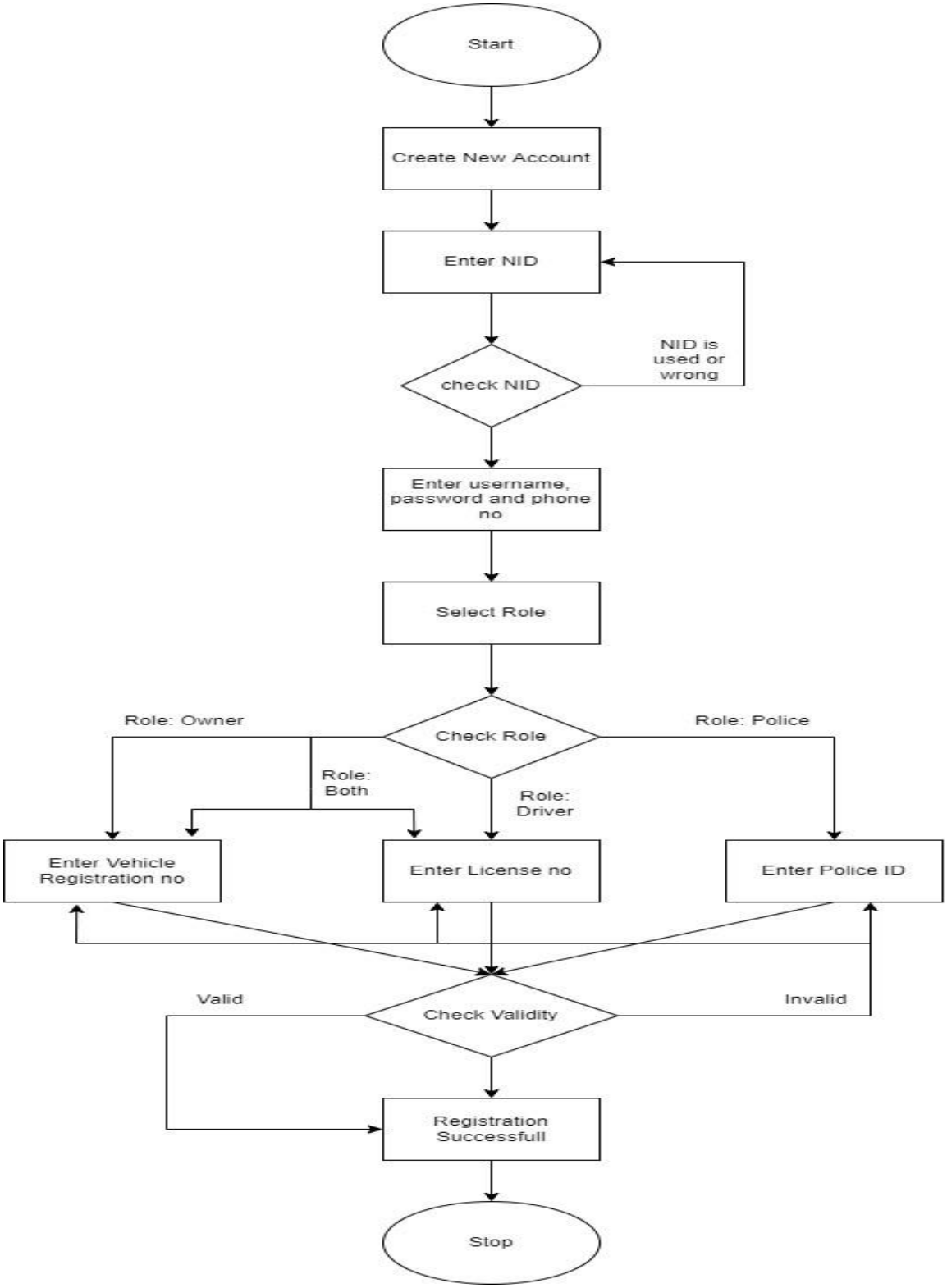


Figure 3.5: Registration Process

3.3.2 Case Filing by Traffic Sergeant

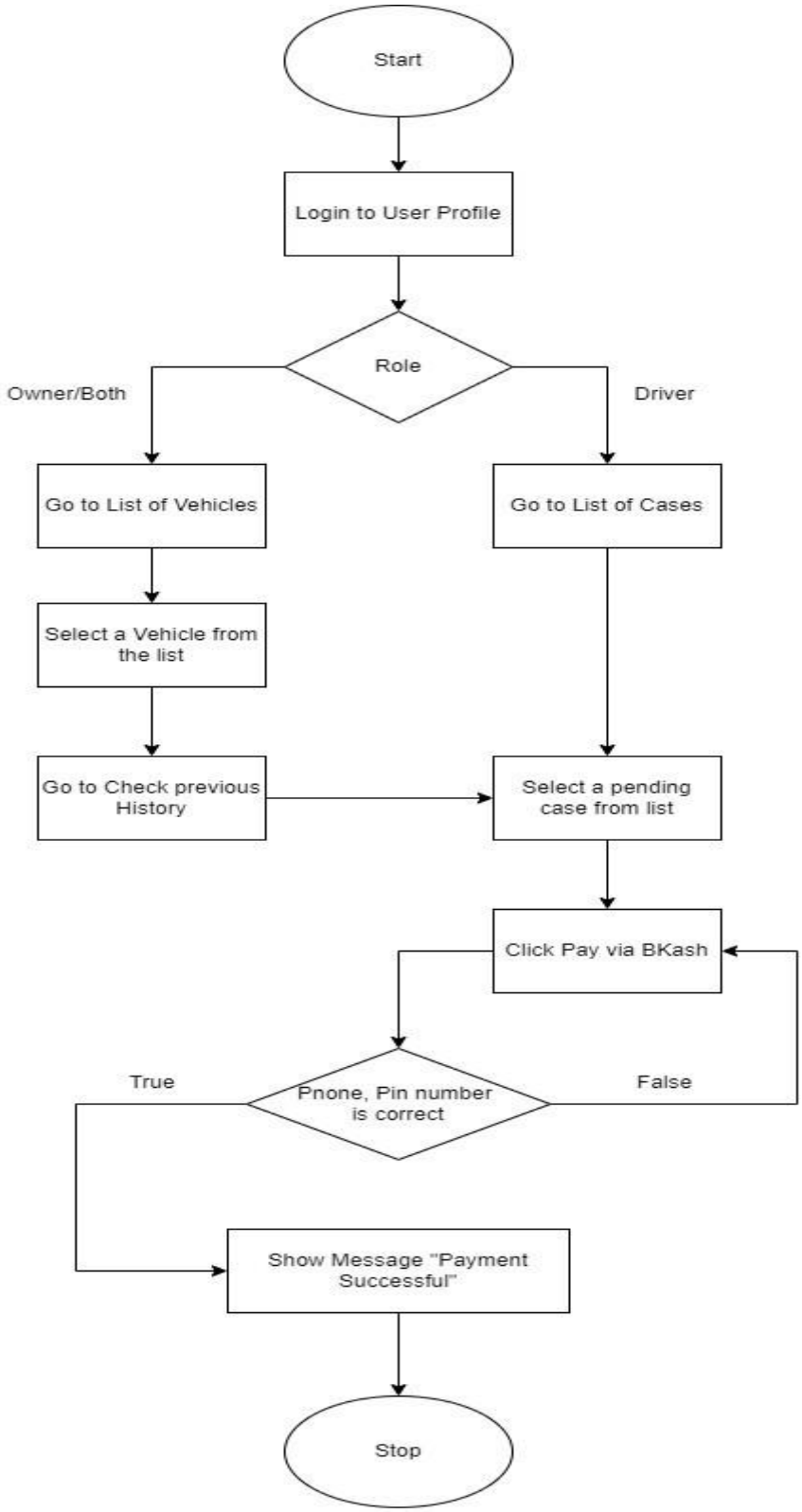


Figure 3.6: Case Filing by a Traffic Sergeant

3.3.3 User Paying Fine

Figure 3.7: User Paying Fine

3.4 Software Development Life Cycle (SDLC)

By general definition, the process model is the assortment of processes of a similar sort that are characterized together into a model. The interaction is a condition that works and changes the condition of a system. By utilizing the interaction model exercise in an application, the whole process can be shown graphically. For getting a decent and helpful system, the interaction must be great as well. In this way, we need to process with the model since the handling is a higher priority than the system. Waterfall Model [2] is a back-to-back or consecutive way where every action is organized in direct request and each cycle is addressed in a different stage. In Waterfall Model, it is an unquestionable requirement to design and plan every one of the exercises before beginning to work on them.

Phases in Waterfall Model-

- Requirement Gathering and Analysis
- System Design
- Implementation
- Integration and Testing
- Deployment of system
- Maintenance

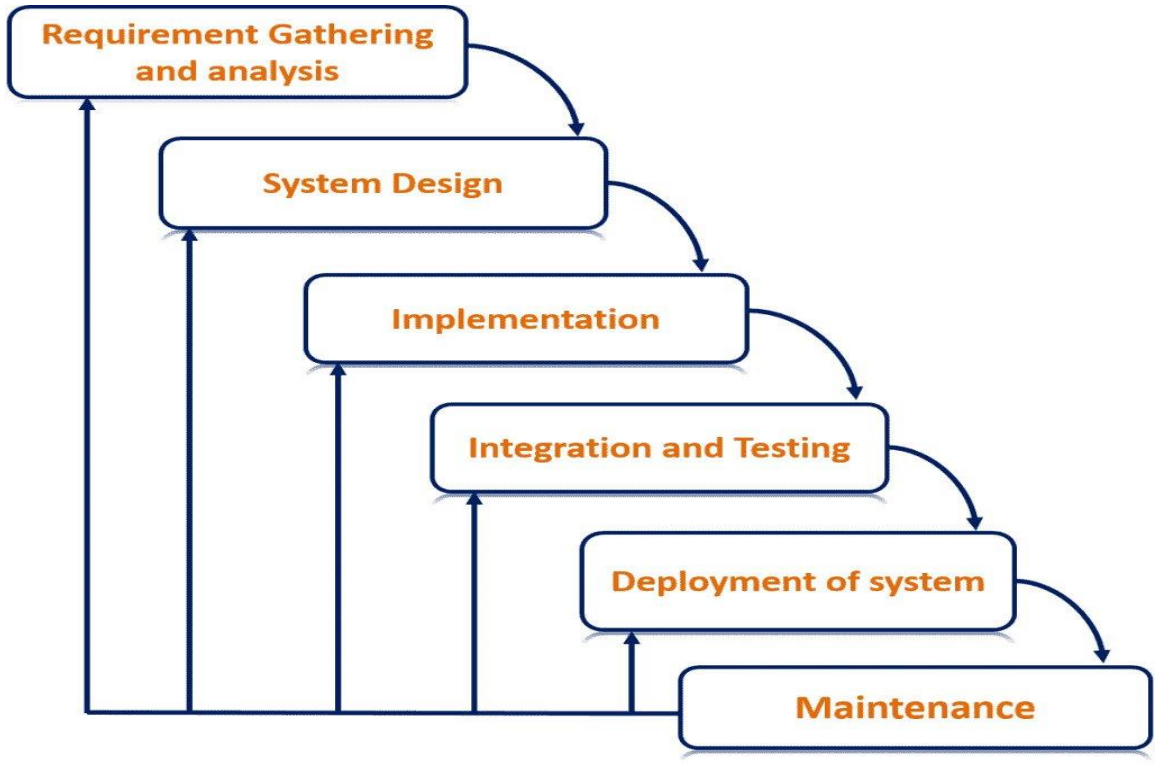


Figure 3.8: Waterfall Model Process

Why Waterfall Model:

We prefer Waterfall Model because of its following advantages:

- A very good approach for small projects.
- Easy to use and follow.
- Cost-effective.
- Each phase completely developed.
- Development is processed sequentially so very little chance to rework.
- Easy to manage the project.
- Easy documentation.

Requirements

This is the first phase of development where all the requirements are gathered and documented. It involves what needs to be designed, what is its function and purpose etc. For “Smart Traffic”, we have first chosen a topic after observing our surroundings. Then, we analyzed the existing applications related to our topic. Next after observing all the features and limitations, we finalized the features for the “Smart Traffic”.

In the beginning, we did not know exactly how traffic sergeants in Bangladesh perform their duties on the roads. The most challenging issue for us to set up this project was what type of law traffic sergeants enforce on the road, what factors they take into consideration and give cases, and, above all, how the whole system works. We have met various traffic sergeants to get all the information right, and they have helped us by providing a lot of valuable information. To verify the authenticity of the information given by them, we met a senior officer of the “Sadarghat Police Bit, Chattogram”, and he put us in touch with another senior officer who is the “Assistant Superintendent of Police, Agrabad Traffic Police”. He gave us all the necessary information on the condition of anonymity.

Finally, we have collected the documents that a person needs to carry with him or her whether he or she is within the legal limits or not. Among these documents, we have separated and used the information that a person needs while driving on the road.

A driver must carry the following documents while driving on the road:

- License document of driver;
- Registration document of the vehicle;
- Fitness document of the vehicle;
- Tax token document of the vehicle;
- Route permit document of the vehicle;

Analysis

In this phase, we gathered all the requirements from the previous step and check if the requirements are valid or not. For “Smart Traffic”, after gathering all the requirements and finalizing the features we have analyzed if the requirements are valid or not. How our traffic system manually works is given below:

1. At first, a traffic sergeant stops a vehicle on the road under the assumption of a violation of the law.
2. Next, the traffic sergeant checks the license of the driver.
3. Then, the traffic sergeant examines the vehicle body and the necessary documents of the vehicle.
4. If the traffic sergeant finds any fault of the driver, then he files a case against the driver’s license as per the section on the prosecution. And, if he finds any defect in the vehicle or the vehicle documents, then he files a case against the owner of the vehicle as per the section on the prosecution.
5. In some cases, the traffic sergeant also imposes imprisonment as per the punishment of the case.
6. Finally, with the receipt of the case given by the traffic sergeant, the driver or the vehicle owner goes to the concerned authority and settles the case by paying the fine.

Figure 3.9: A motionless scene of how our traffic system works manually on the road

System Design:

In this stage, the framework configuration is ready, and the equipment, framework arrangement, and design of the framework are indicated.

Now that we know, how the cases are given on roads to traffic law violators and what documents are needed and used throughout this process, we can begin to design our application. So, for our application we need to:

1. Define roles for users and what they can do in our application.
2. Create user profiles with relevant and verified information.
3. National identity verification before the creation of profiles.
4. Display necessary information on drivers, vehicles, and their documents from a trustworthy source.
5. Make sure every user can be found on the system by their driving license number or vehicle registration number or NID.
6. Make sure that the process for filing cases should be fast, easy, and user-friendly.

To use our system, both the traffic sergeant and the general public need to register on our system. To prevent any fake profile creation, the user must first provide his NID number for verification, and only after successful verification, they can move forward with registration. To accomplish that, one needs to have access to Election Commission's National Identity Database. For our purposes, We will be creating a National Identity Database pre-populated with valid National Identity data and use it to verify each user.

After successful verification of NID, users will proceed to the main registration page where they will enter their user name, password, and phone number and select their role.

To fulfill our needs, our system must have four roles for users. They are:

1. Police: This role is for traffic sergeants with valid police id who will enforce the law.
2. Driver: This role is for users who have a valid driving license, either professional or non-professional.
3. Owner: This role is for users who own vehicles with valid vehicle registration numbers, and employ drivers who don’t possess a driving license.
4. Both: This role is for users who are owners and also have a valid personal driving license.

Depending on their role selection user will have to provide either a valid police id or valid license number or vehicle registration or both. To accomplish that, one needs to have access to both police and BRTA database. For our application’s purpose, we will be creating three databases for police information, driving license information, and vehicle information, pre-populated with valid data and use to verify the information.

After successful verification of each piece of information, user registration will be completed.

To make sure a traffic sergeant can file cases properly, he will need to be able to search by a driving license number or registration number. He will also need to view a user's previous case history to know whether he or she has committed similar acts before or is evading a fine. He will also need a way to verify the documents the driver is carrying.

On the general public side, a vehicle owner will need to be able to view their vehicle details, and cases filed against them, assign drivers to their vehicles after knowing their background and add emergency contact for emergencies. A driver will also need to be able to accept or reject the driving request from owners, view cases filed against them and view which vehicles they are driving. Both drivers and owners should also be able to pay fines for their cases from the application via the payment gateway. They will be notified about their paid and pending cases.

Implementing:

In this phase, the application codes are composed. All the development work is performed and improvement units are given over to the testing group. For "Smart Traffic", the implementation is done here. Java, XML, JSON, PHP, and MySQL have been used in this android application.

Integration and Testing:

When the advancement is finished, the testing stage begins, and in this stage, the application is tested to ensure whether the application is functioning accurately. All the testing exercises are performed in this stage. In this case of "Smart Traffic", we have done both black box testing and white box testing. We have also done different validation checks from each board.

Deployment of System:

Whenever the testing phase is completed, the application is deployed to ensure there is no bug or imperfection. Once an application is deployed to production, the end-user starts using the application. For the "Smart Traffic", we have checked the performance of the application by installing it in various android versions and tried to fix the obtained bugs.

3.5 Software Architecture

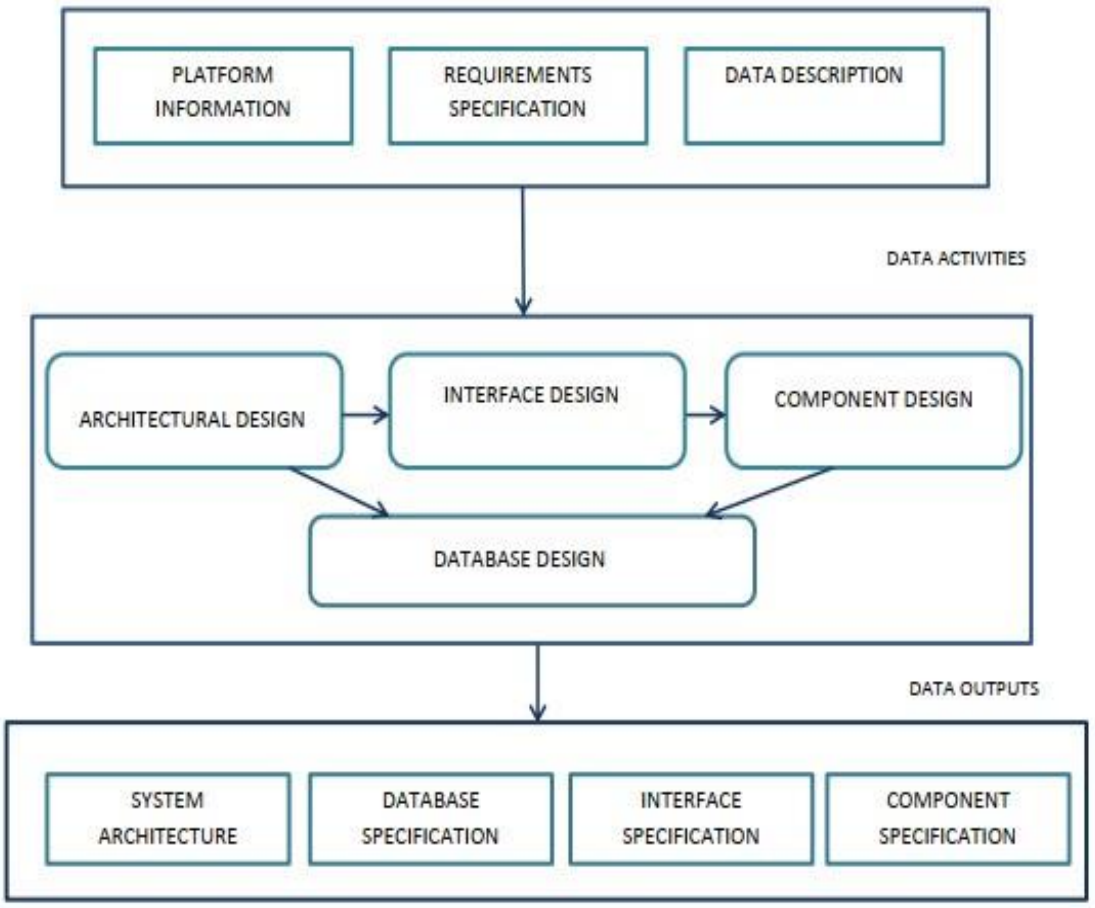


Figure 3.10: Software Architecture

3.6 Application Design Tools

- IDE: Android Studio 4.2.2 & Notepad++ 8.4.3;
- Back-end: Java, JSON, PHP;
- Front-end: XML, HTML/Bootstrap;
- Database: MySQL;

3.6.1 Technical Details of Android

Android is a mobile operating system based on a modified version of the Linux Kernel and other open source software, designed primarily for touchscreen mobile devices such as smartphones and tablets. Android is developed by a consortium of developers known as the "Open Handset Alliance" and commercially sponsored by Google. Below is a diagram showing the major components of the Android operating system:

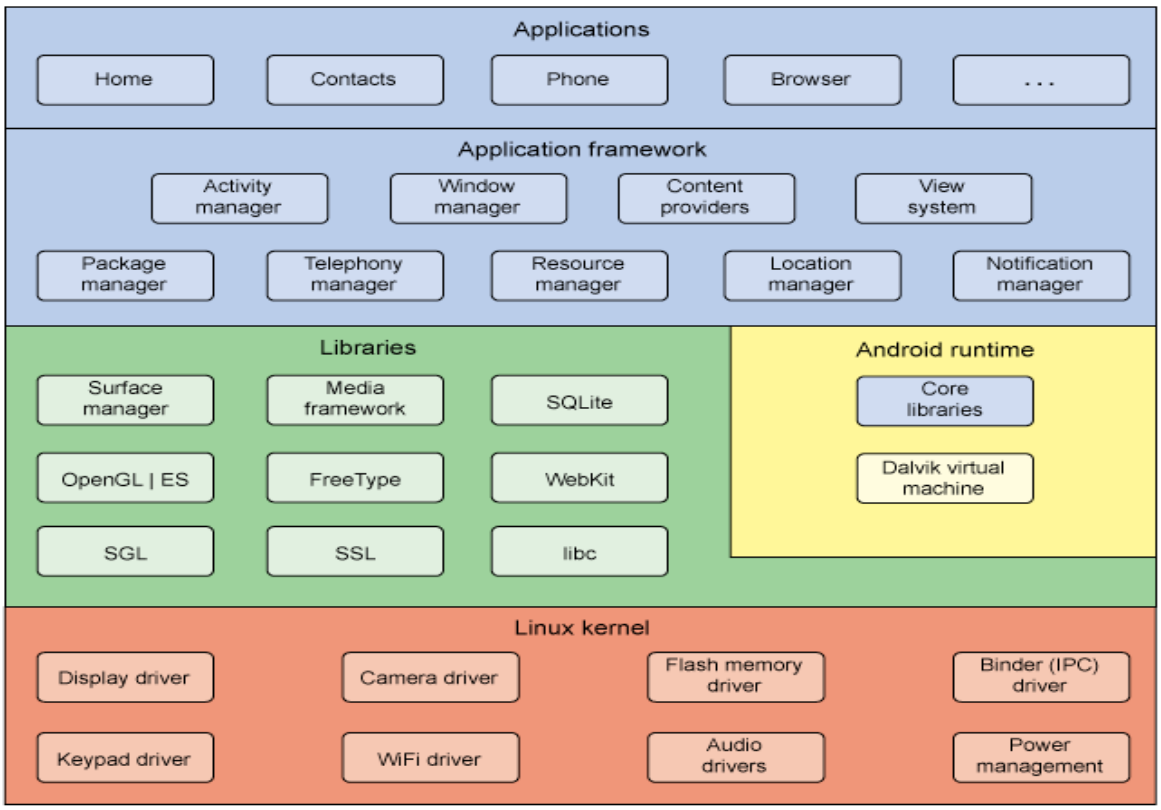


Figure 3.11: How an Android Application Works

3.6.2 XML

XML (Extensible Markup Language) is a markup language similar to HTML, but without predefined tags to use. The concept of "Android User Interface" is defined using the hierarchy of View and View-Group objects. A View-Group is an invisible container that organizes child views and used to make the different parts of UI. One View-Group can have another View-Group as a child element as shown in the figure given below.

In "Smart Traffic", the XML is being used to implement UI-related data as XML tags to define the data and are used to store and organize data.

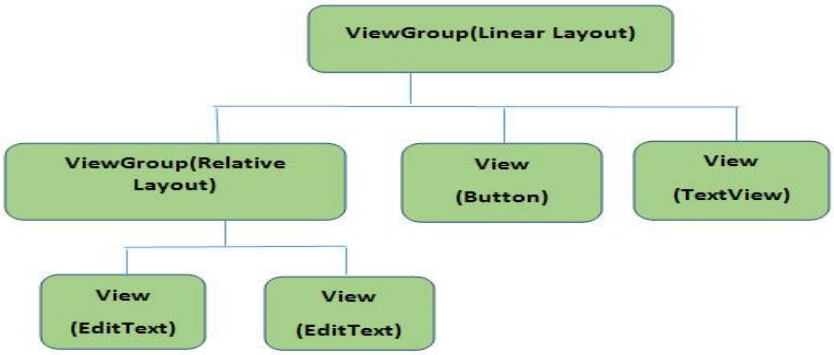


Figure 3.12: How XML Works in an Android Application

3.6.3 JAVA

Java is one of the best programming languages which is based on the concept of objects, and thus, it is also known as the Object-Oriented Programming Language. Moreover, there are some of the striking features that Java provides and hence, it makes programmers use it as one of the most effective and efficient programming languages.

In “Smart Traffic”, Java is being implemented as the core language.

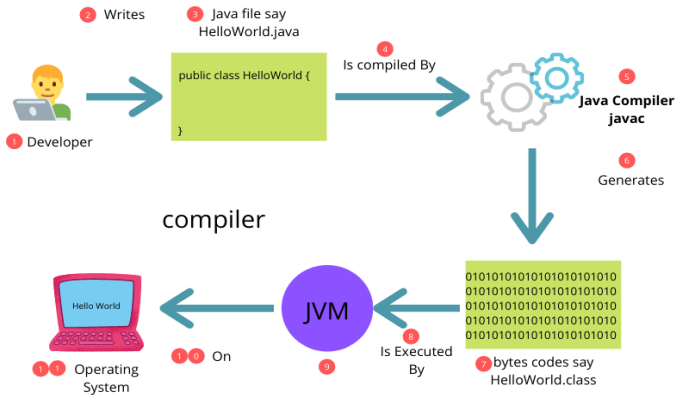


Figure 3.13: How Java Works in an Android Application

3.6.4 JSON

JSON (JavaScript Object Notation) is a lightweight data-interchange format. It is easy for humans to read and write, and easy for machines to parse and generate.

In “Smart Traffic”, the data has to be sent to a server, but the server cannot recognize Java. So, the data has to be converted, and JSON is being used to do this. JSON converts JAVA to PHP and PHP to JAVA.

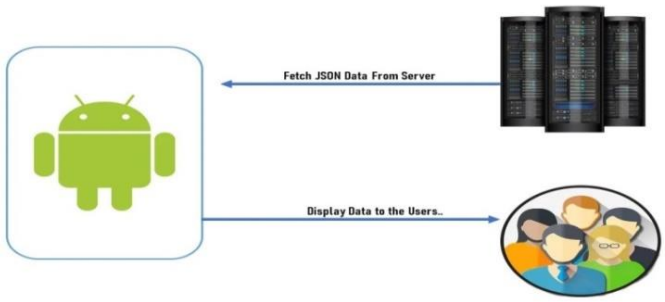


Figure 3.14: How JSON Works in an Android Application

3.6.5 PHP & MySQL

In “Smart Traffic”, PHP is being used to save data from the android app, and retrieve data from the database.

On the other hand, MySQL is being used for creating the table, primary key, and foreign key, and connect one table with another, and recording all kinds of data with this system.

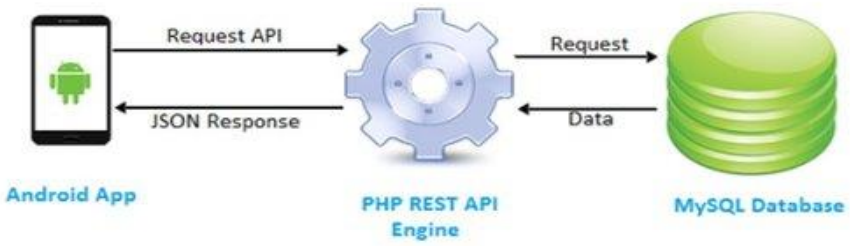


Figure 3.15: How PHP and MySQL work with an Android Application

3.7 Collected Data

3.7.1 Documents that a driver needs to carry while driving


Government of the Peoples Republic of Bangladesh
BANGLADESH ROAD TRANSPORT AUTHORITY (BRTA)
CHANDPUR
ISSUE OF LEARNER DRIVING LICENSE Roll No : 29
License Type : NON-PROFESSIONAL
Vehicle : MOTORCYCLE
Expiry Date : 18/02/2019
Issue Date : 19/11/2018
Area : CHANDPUR
LEARNER NO
Applicant Id
Applicant Name
Father's / Husband
Present Address
Permanent Address
Date of Birth : 17/02/1983
Blood Group : O(+)VE
Phone No
Signature Of Applicant
Signature Of Authority
Test Name | Test Date | Test Time | Test Venue
WRITTEN | 27/03/2019 | 09:00:00 | CHANDPUR BRTA
ORAL | 27/03/2019 | 12:00:00 | CHANDPUR BRTA
PRACTICAL | 27/03/2019 | 02:00:00 | CHANDPUR BRTA

Figure 3.16: Learner Driving License


মোটর ড্রাইভিং লাইসেন্স
Motor Driving Licence
MD ABDUL AHAD
03 JUL 1989
A+
MD ABDUL AZIZ
04 OCT 2015
03 OCT 2025
DK0405837C00000
BRTA, DHAKA METRO-2
Bangladesh Road Transport Authority
VILL- MODDOBAYRA, SHERPUR SADAR, SHERPUR
DK0405837C00000

Figure 3.17: Driving License


রেজিস্ট্রেশন সনদ
Certificate of Registration
বাংলাদেশ রোড ট্রান্সপোর্ট অথরিটি
Bangladesh Road Transport Authority
Registration No. ঢাকা মেট্রো-চ-৮১-০৮৮২
Date 03/11/2013
Vehicle Description PRIME MOVER
Vehicle Class PUBLIC ARTICULATED VEH
Color WHITE
CC 5759
Fuel DIESEL
Seat 3
Engine No. DTH2411538
Chassis No. MB1TLPYB3DRTJ0253
Hire YES
Wheel Base N23
Weight (Kg) 6000 12136
Issuing Authority CHITTAGONG

Figure 3.18: Vehicle Registration Number


গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
বাংলাদেশ রোড ট্রান্সপোর্ট অথরিটি
TAX TOKEN
(Always Keep This In Your Vehicle)
524502
Print Date 12/02/2017 12:03:46 PM
Registration Number DHAKA METRO-THA-13-3000
Registration Date 08-FEB-15
Tax Token Number 172957695
Transaction No. 1702121214356
eTracking No. 1702121274286
Issuing Bank Name BRAC BANK LTD
Issuing Branch/Booth Name MIRPUR BRTA BOOTH
Issuing Teller Name TELLER-17
Chassis Number LETEDCD12CHP20080
Engine Number JX493ZQ4AC3045566
Seats / Laden Wt.(Kg) 5 / 2495 (Kg)
Owner Name CHAIRMAN BRTA.
Father/Husband Name UNDEFINED
Previouse Expiry Date 08-FEB-2017
Issue Date 12-FEB-2017
TAX Period 08-FEB-2017 :-: 08-FEB-2018
Principal Amount(Tk) **45.00**
Fine / Additional(Tk) **7.00**
Total Amount Paid (Tk) **52.00**
----------FOR OFFICIAL USE ONLY----------
Operation & Maintenance by: CNS LIMITED

Figure 3.19: Vehicle Tax Token

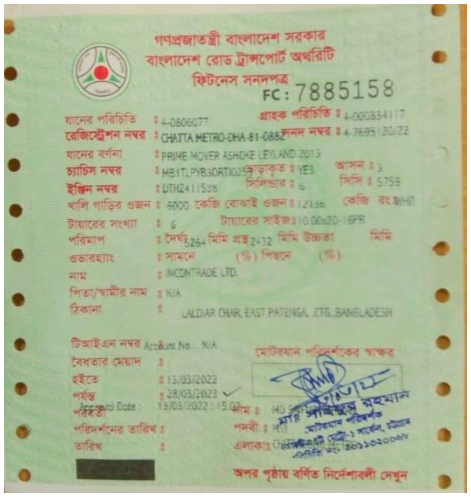

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
বাংলাদেশ রোড ট্রান্সপোর্ট অথরিটি
ফিটনেস সনদপত্র
FC: 7885158
যানের পরিচিতি 4-0806077
গ্রাহক পরিচিতি 4-0008341 17
রেজিস্ট্রেশন নম্বর CHATTA METRO-DHA-81-0882
সনদ নম্বর 4-7695 20/22
যানের বর্ণনা PRIME MOVER ASHOKE LEYLAND 2013
চ্যাসিস নম্বর MB1TLPYB3DRTJ0253
ভাড়াকৃত YES
আসন 3
ইঞ্জিন নম্বর DTH2411538
সিলিন্ডার 6
সিসি 5759
খালি গাড়ির ওজন 6000 কেজি
বোঝাই ওজন 12136 কেজি
টায়ারের সংখ্যা 6
টায়ারের সাইজ 10.00x20-16PR
পরিমাপ দৈর্ঘ্য 5264 মিমি প্রস্থ 2432 মিমি উচ্চতা মিমি
ওভারহ্যাং সামনে (%) পিছনে (%)
নাম INCONTRADE LTD.
পিতা/স্বামীর নাম N/A
ঠিকানা LALDIAR CHAR, EAST PATENGA, CTG.,BANGLADESH
টিআইএন নম্বর Account No : N/A
মোটরযান পরিদর্শকের স্বাক্ষর
বৈধতার মেয়াদ 3
হইতে 13/03/2022
পর্যন্ত 28/03/2023
পরিদর্শনের তারিখ
তারিখ
পদবী
এলাকা
অপর পৃষ্ঠায় বর্ণিত নির্দেশাবলী দেখুন

Figure 3.20: Vehicle Fitness Document

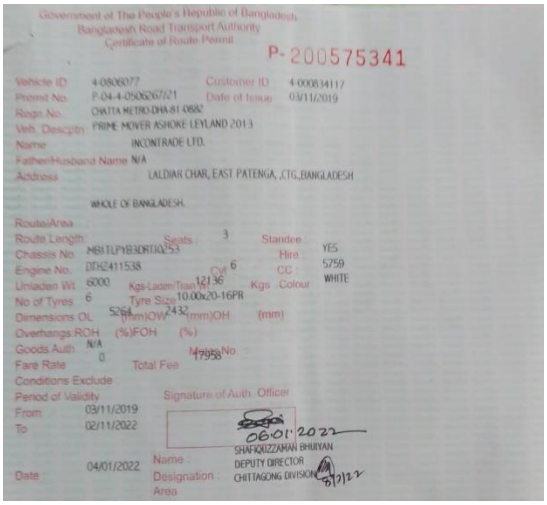

Government of The People's Republic of Bangladesh
Bangladesh Road Transport Authority
Certificate of Route Permit
P- 200575341
Vehicle ID 4-0806077
Customer ID 4-0008341 17
Permit No P-04-4-0506267/21
Date of Issue 03/11/2019
Regn No. CHATTA METRO-DHA-81-0882
Veh. Descptn PRIME MOVER ASHOKE LEYLAND 2013
Name INCONTRADE LTD.
Father/Husband Name N/A
Address LALDIAR CHAR, EAST PATENGA, CTG.,BANGLADESH
WHOLE OF BANGLADESH.
Route/Area
Route Length Seats 3 Standee YES
Chassis No. MB1TLPYB3DRTJ0253 Hire
Engine No. DTH2411538 Cyl 6 CC 5759
Unladen Wt. 6000 Kgs Laden/Train 12136 Kgs Colour WHITE
No of Tyres 6 Tyre Size 10.00x20-16PR
Dimensions OL 5264 (mm) OW 2432 (mm) OH (mm)
Overhangs ROH (%) FOH (%)
Goods Auth N/A
Fare Rate 0 Total Fee 17958 No
Conditions Exclude
Period of Validity Signature of Auth. Officer
From 03/11/2019
To 02/11/2022
06.01.2022
SHAFIQUZZAMAN BHUIYAN
DEPUTY DIRECTOR
CHITTAGONG DIVISION
Date 04/01/2022
Name
Designation
Area

Figure 3.21: Vehicle Route Permit Issue

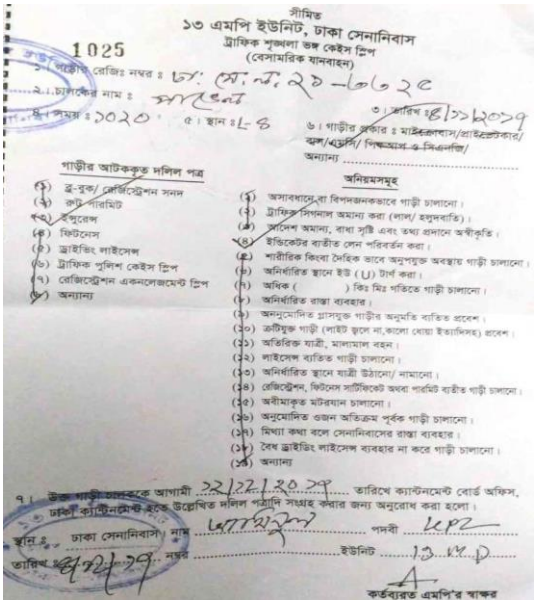

সীমিত
১৩ এমপি ইউনিট, ঢাকা সেনানিবাস
ট্রাফিক শৃঙ্খলা ভঙ্গ কেইস স্লিপ
(বেসামরিক যানবাহন)
1025
১। গাড়ীর রেজিঃ নম্বর ঃ ঢা: মে: নং ২৯-৬৮২৫
২। চালকের নাম ঃ
৩। তারিখ ১৪/১১/২০১৯
৪। সময় ঃ ১০২০ ৫। স্থান ঃ L-8
৬। গাড়ীর প্রকার ঃ মাইক্রোবাস/প্রাইভেটকার/ ভ্যান/ওয়াগন/ পিকআপ ও সিএনজি/
অন্যান্য .....
গাড়ীর আটককৃত দলিল পত্র
(১) ব্লু-বুক/ রেজিস্ট্রেশন সনদ
(২) রুট পারমিট
(৩) লাইসেন্স
(৪) ফিটনেস
(৫) ড্রাইভিং লাইসেন্স
(৬) ট্রাফিক পুলিশ কেইস স্লিপ
(৭) রেজিস্ট্রেশন একনলেজমেন্ট স্লিপ
(৮) অন্যান্য
অনিয়মসমূহ
(১) অসাবধানে/বা বিপদজনকভাবে গাড়ী চালানো।
(২) ট্রাফিক সিগনাল অমান্য করা (লাল/ হলুদবাতি)।
(৩) সাইরেন অমান্য, বাধা সৃষ্টি এবং তথ্য প্রদানে অস্বীকৃতি।
(৪) ইন্ডিকেটর ব্যতীত লেন পরিবর্তন করা।
(৫) শারীরিক কিংবা দৈহিক ভাবে অনুপযুক্ত অবস্থায় গাড়ী চালানো।
(৬) অনির্ধারিত স্থানে ইউ (U) টার্ন করা।
(৭) অধিক ( ) কিঃ মিঃ গতিতে গাড়ী চালানো।
(৮) অনির্ধারিত রাস্তা ব্যবহার।
(৯) অননুমোদিত গ্রাসযুক্ত গাড়ীর অনুমতি ব্যতিত প্রবেশ।
(১০) ত্রুটিযুক্ত গাড়ী (লাইট ভুলে না,কালো ধোয়া ইত্যাদিসহ) প্রবেশ।
(১১) অতিরিক্ত যাত্রী, মালামাল বহন।
(১২) লাইসেন্স ব্যতিত গাড়ী চালানো।
(১৩) অনির্ধারিত স্থানে যাত্রী উঠানো/ নামানো।
(১৪) রেজিস্ট্রেশন, ফিটনেস সার্টিফিকেট অথবা পারমিট ব্যতীত গাড়ী চালানো।
(১৫) অবৈধভাবে মটরযান চালানো।
(১৬) অনুমোদিত ওজন অতিক্রম পূর্বক গাড়ী চালানো।
(১৭) মিথ্যা কথা বলে সেনানিবাসের রাস্তা ব্যবহার।
(১৮) বৈধ ড্রাইভিং লাইসেন্স ব্যবহার না করে গাড়ী চালানো।
(১৯) অন্যান্য
৭। উক্ত গাড়ী চালককে আগামী 22/12/2019 তারিখে ক্যান্টনমেন্ট বোর্ড অফিস, ঢাকা ক্যান্টনমেন্ট এতে উল্লেখিত দলিল পত্রাদি সংগ্রহ করার জন্য অনুরোধ করা হলো।
স্থান ঃ ঢাকা সেনানিবাস নাম ..... পদবী ....
তারিখ 14/11/19 নম্বর ..... ইউনিট .....
কর্তব্যরত এমপি'র স্বাক্ষর

Figure 3.22: Filed Case Paper-01


Dhaka Metropolitan Police
ID No 8917203198
Division-Traffic North[DMP]
Motor vehicles [Admnt.] Act 1988
Trace No.: 008773
Case ID: 1004896077
Previous Case ID:
Accused Person:
FAIZUR R
Acc. Person Father's Nam
FAZLUR R
Phone number:
01615963366
Address Owner/Driver:
947 R5 KAZIPARA MIRPUR DHAKA
Vehicle Reg. No:
Faridpur LA-11-2175
Offenses:140
Case Type: NORMAL
Location: T12
Seized Doc's: I/C
Occurrence Date & Time:
21/May/2019, 04:02:10 PM
Appearance Date:
Within 10/Jun/2019
Comment:
Witness:
2586
TOTAL AMT TK 400.00

Figure 3.23: Filed Case Paper-02

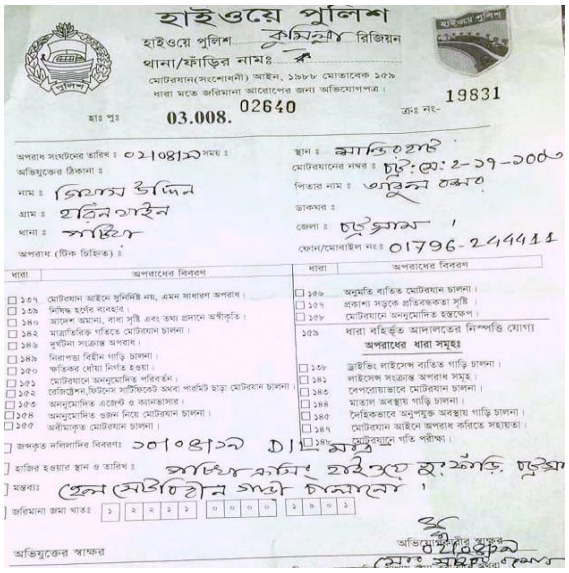

হাইওয়ে পুলিশ
হাইওয়ে পুলিশ কমিলা রিজিয়ন
থানা/ফাঁড়ির নামঃ
মোটরযান(সংশোধনী) আইন, ১৯৮৮ মোতাবেক ১৫৯ ধারা মতে জরিমানা আরোপের জন্য অভিযোগপত্র।
19831
হাঃ পুঃ 03.008. 02640 ক্রঃ নং-
অপরাধ সংঘটনের তারিখ ঃ ০২/০৪/১৯ সময় ঃ
অভিযুক্তের ঠিকানা ঃ
নাম ঃ
গ্রাম ঃ
থানা ঃ
অপরাধ (টিক চিহ্নিত) ঃ
স্থান ঃ
মোটরযানের নম্বর ঃ
পিতার নাম ঃ
ডাকঘর ঃ
জেলা ঃ
ফোন/মোবাইল নং ঃ 01796-244411
ধারা | অপরাধের বিবরণ
১৭৭ মোটরযান আইনে সুনির্দিষ্ট নয়, এমন সাধারণ অপরাধ।
১৭৯ নিষিদ্ধ হর্ণের ব্যবহার।
১৮০ আদেশ অমান্য, বাধা সৃষ্টি এবং তথ্য প্রদানে অস্বীকৃতি।
১৮২ মাত্রাতিরিক্ত গতিতে মোটরযান চালনা।
১৮৯ দুর্ঘটনা সংক্রান্ত অপরাধ।
১৮৯ নিরাপত্তা বিহীন গাড়ি চালনা।
১৯০ ত্রুটিযুক্ত বোঝা নিতে হবেনা।
১৯১ মোটরযানে অননুমোদিত পরিবর্তন।
১৯২ রেজিস্ট্রেশন,ফিটনেস সার্টিফিকেট অথবা পারমিট ছাড়া মোটরযান চালনা।
১৯৩ অননুমোদিত এক্সেল ও ওভারহাঙ্গার।
১৯৪ অননুমোদিত ওজন নিয়ে মোটরযান চালনা।
১৯৫ অবৈধভাবে মোটরযান চালনা।
ধারা | অপরাধের বিবরণ
১৫৮ অনুমতি ব্যতিত মোটরযান চালনা।
১৫৭ প্রকাশ্য সড়কে প্রতিবন্ধকতা সৃষ্টি।
১৫৮ মোটরযানে অননুমোদিত হস্তক্ষেপ।
১৫৯ ধারা বহির্ভূত আদালতের নিষ্পত্তি যোগ্য অপরাধের ধারা সমূহ
১৬৮ ড্রাইভিং লাইসেন্স ব্যতিত গাড়ি চালনা।
১৮১ লাইসেন্স সংক্রান্ত অপরাধ সমূহ।
১৮৩ বেপরোয়াভাবে মোটরযান চালনা।
১৮৪ মাতাল অবস্থায় গাড়ি চালনা।
১৮৫ দৈহিকভাবে অনুপযুক্ত অবস্থায় গাড়ি চালনা।
১৮৭ মোটরযান আইনে অপরাধ করিতে সহায়তা।
১৯৪ মোটরযানে গতি পরীক্ষা।
জব্দকৃত দলিলাদির বিবরণঃ ২০১৯/১১৯ D/
হাজির হওয়ার স্থান ও তারিখ ঃ
মন্তব্যঃ
জরিমানা জমা খাতঃ ১ ২ ২ ১ ০ ০ ০ ১ ৯ ০ ১
অভিযুক্তের স্বাক্ষর
অভিযোগকারীর স্বাক্ষর

Figure 3.24: Filed Case Paper-03

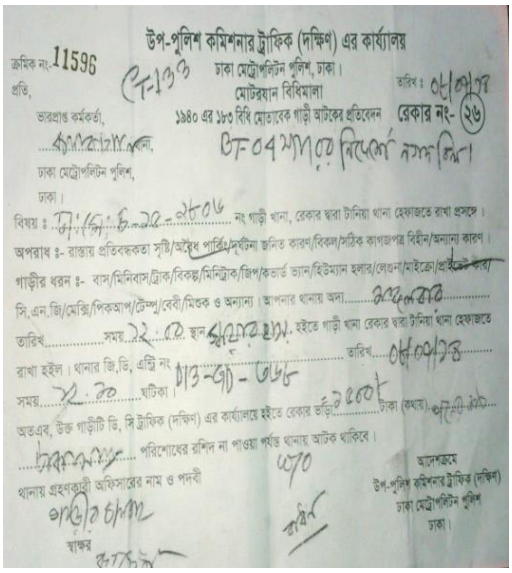

উপ-পুলিশ কমিশনার ট্রাফিক (দক্ষিণ) এর কার্যালয়
ক্রমিক নং- 11596
প্রতি,
ঢাকা মেট্রোপলিটন পুলিশ, ঢাকা।
মোটরযান বিধিমালা
ভারপ্রাপ্ত কর্মকর্তা,
১৯৪০ এর ১৮৩ বিধি মোতাবেক গাড়ী আটকের প্রতিবেদন
রেকার নং- ২৬
ঢাকা মেট্রোপলিটন পুলিশ,
ঢাকা।
তারিখ ঃ
বিষয় ঃ নং গাড়ী থানা, রেকার দ্বারা টানিয়া থানা হেফাজতে রাখা প্রসঙ্গে।
অপরাধ ঃ- রাস্তায় প্রতিবন্ধকতা সৃষ্টি/অবৈধ পার্কিং/দুর্ঘটনা জনিত কারণ/বিকল/সাঁটক কাগজপত্র বিহীন/অন্যান্য কারণ।
গাড়ীর ধরন ঃ- বাস/মিনিবাস/ট্রাক/বিকল/মিল্কট্রাক/জিপ/কভার্ড ভ্যান/হিউম্যান হলার/লেগুনা/মাইক্রো/প্রাইভেট কার/ সি,এন,জি/মেক্সি/পিকআপ/টেম্পু/বেবী/মিডক ও অন্যান্য। আপনার থানায় অদ্য তারিখ সময় স্থান হইতে গাড়ী থানা রেকার দ্বারা টানিয়া থানা হেফাজতে রাখা হইল। থানার জি,ডি, এন্ট্রি নং তারিখ সময় ঘটিকা টাকা (কথায়)
অতএব, উক্ত গাড়ীটি ডি, সি ট্রাফিক (দক্ষিণ) এর কার্যালয়ে হইতে রেকার ভাড়ি টাকা (কথায়)
পরিশোধের রশিদ না পাওয়া পর্যন্ত থানায় আটক থাকিবে।
থানায় গ্রহণকারী অফিসারের নাম ও পদবী
স্বাক্ষর
আদেশক্রমে
উপ-পুলিশ কমিশনার ট্রাফিক (দক্ষিণ)
ঢাকা মেট্রোপলিটন পুলিশ
ঢাকা।

Figure 3.25: Filed Case paper-04

3.7.2 Road Transport Acts- 2018- List of Penalties for cases

Offences under the Road Transport Act 2018 [3] in Bangladesh are given below:

ক্রমিক নঃ	ধারা	অপরাধের ধরন	শাস্তি		জরিমানার পরিমাণ	
			কারাদণ্ড	জরিমানা (অনধিক দণ্ড)	প্রথমবার	পরবর্তী বার
১	৬৬	১. ড্রাইভিং লাইসেন্স না থাকা। ২. মেয়াদ লাইসেন্স ব্যবহার। ৩. ভিন্ন শ্রেণির লাইসেন্স ব্যবহার। ৪. পেশাদার লাইসেন্স ব্যতীত গনপরিবহন চালনা।	৬ মাস	২৫, ০০০/ -	৫, ০০০/ -	১০, ০০০ / -
২	৭২	১. রেজিস্ট্রেশন ব্যতীত মোটরযান চালনা। ২. রেজিস্ট্রেশন থাকা সত্ত্বেও নম্বর প্লেট সংযোজন ও প্রদর্শন ব্যতীত চালনা। ৩. প্রাইমমুভার ও ট্রেইলার উভয়ের পৃথক পৃথক রেজিস্ট্রেশন নম্বর প্লেট না থাকা।	৬ মাস	৫০, ০০০/ -	১০, ০০০/ -	২০, ০০০ / -
৩	৭৫	১. ফিটনেস সনদ না থাকা। ২. মেয়াদহীন ফিটনেস সনদ ব্যবহার। ৩. ইকোনমিক লাইফ অতিক্রান্ত মোটরযান ব্যবহার। ৪. ফিটনেসের অনুপযোগী, ঝুঁকিপূর্ণ বা ক্ষতিগ্রস্ত, রংচটা মোটরযান ব্যবহার। ৫. জরাজীর্ণ, বিবর্ণ বা পরিবেশ দূষণকারী যান চালনা (কালো ধোঁয়া)।	৬ মাস	২৫, ০০০/ -	১০, ০০০/ -	২০, ০০০ / -
৪	৮৪	১. অনুমতি ব্যতীত বাম দিক চালিত স্টেয়ারিং ব্যবহার করা। ২. মোটরযানের দৈর্ঘ্য, প্রস্থ, উচ্চতা পরিবর্তন করা। ৩. আসন বিন্যাস পরিবর্তন করা। ৪. হুইল বেইজ, রিয়ার ওভার হ্যাং,	১ বছর থেকে ৩ বছর	৩, ০০, ০০০/ -	১৫, ০০০/ -	৩০, ০০০ / -

		ফ্রন্ট ওভার হ্যাং, সাইড ওভার হ্যাং পরিবর্তন করা। ৫. চাকার আকৃতি, প্রকৃতি ও অবস্থা পরিবর্তন করা। ৬. ব্রেক ও স্টেয়ারিং গিয়ার, হর্ন সেফটি গ্লাস, সংকেত প্রদান লাইট ও রিফেক্টর, স্পিড গভর্নর পরিবর্তন করা। ৭. ধোঁয়া নির্গমন ব্যবস্থা ও কার্বন নিঃসরণের পরিমাণ, শব্দ নিয়ন্ত্রণের মাত্রা বা সমজাতীয় অন্য কিছু পরিবর্তন করা। ৮. মোটরযানের কোনো কারিগরি, অভ্যন্তরীণ বা ব্যাহিক পরিবর্তনের ক্ষেত্রে অনুমতি গ্রহণ না করা (ইঞ্জিন পরিবর্তন)। ৯. নির্ধারিত রঙ পরিবর্তন করা।				
৫	৮৬	১. অনুমোদিত লেডেন ওজন, ট্রেইন ওজন বা এক্সেল ওজন এর অতিরিক্ত ওজন বহন করা।	১ বছর	১, ০০, ০০০/-	১০, ০০০/-	২০, ০০০/-
৬	৮৭	১. কর্তৃপক্ষ কর্তৃক নির্ধারিত গতিসীমার অতিরিক্ত গতিতে চালনা। ২. বেপরোয়াভাবে চালনা। ৩. বিপজ্জনকভাবে বা অননুমোদিতভাবে ওভারটেকিং করা। ৪. মোটরযান চলাচলে প্রতিবন্ধকতা সৃষ্টি করা (চলন্ত অবস্থায়)।	৩ মাস	১০, ০০০/-	২, ৫০০/-	৫, ০০০/-
৭	৮৯ (১)	১. নির্ধারিত মাত্রার অতিরিক্ত পরিবেশ দূষণকারী ধোঁয়া বা অন্য কোনো নিঃসরণ। ২. পরিবেশ দূষণকারী কোন যন্ত্র বা যন্ত্রাংশ মোটরযানে স্থাপন, পুনঃস্থাপন বা ব্যবহার করা।	৩ মাস	২৫, ০০০/-	২, ৫০০/- (ছোট গাড়ী) ৫, ০০০/- (বড় গাড়ী)	৫, ০০০/- (ছোট গাড়ী) ১০, ০০০/- (বড় গাড়ী)
৮	৮৯ (২)	১. ত্রুটিপূর্ণ (যেমন- গ্লাস ভাঙ্গা বা ফেটে যাওয়া, ইন্ডিকেটর লাইট বিকল বা না থাকা, ওয়াইপার না থাকা, হেড লাইট বা ব্যাক লাইট নষ্ট থাকা ইত্যাদি), ঝুঁকিপূর্ণ বা নিষিদ্ধ ঘোষিত যানবাহন চালনা। ২. সড়কে চলাচলের অনুপযোগী	৩ মাস	২৫, ০০০/-	২, ৫০০/- (ছোট গাড়ী) ৫, ০০০/- (বড় গাড়ী)	৫, ০০০/- (ছোট গাড়ী) ১০, ০০০/- (বড় গাড়ী)

		যানবাহন (নসিমন, করিমন, ভড-ভডি, ইজি-বাইক, মোটর চালিত রিক্সা বা ভ্যান বা অনুরূপ শ্রেণির থ্রি-হুইলার)।				
৯	৯২ (১)	১. মদ্যপান বা নেশাজাতীয় দ্রব্য সেবন করে মোটরযান চালনা। ২. মদ্যপান বা নেশাজাতীয় দ্রব্য সেবন করে কোন কন্ডাক্টর বা মোটরযান শ্রমিক মোটরযানে অবস্থান করা। ৩. কন্ডাক্টর বা মোটরযান শ্রমিক কর্তৃক মোটরযান চালনা। ৪. বিপরীত দিকে মোটরযান চালনা। ৫. গাড়ী থামিয়ে প্রতিবন্ধকতা বা যানজট সৃষ্টি (নির্ধারিত স্থান ছাড়া অন্য স্থানে বা উল্টো পাশে বা ভূল দিকে থামিয়ে প্রতিবন্ধকতা) ৬. মোটরসাইকেলে চালক ব্যতীত এবং উভয়ের হেলমেট পরিধান না করা। ৭. চলন্ত অবস্থায় যাত্রী উঠানামা করা (পথিমধ্যে দরজা খোলা রাখা)। ৮. গণপরিবহনে প্রতিবন্ধী যাত্রীদের অনুকূল সুযোগ সুবিধা না রাখা। ৯. বডির বাহিরে বা ছাদে যাত্রী বা পন্য বা মালামাল বহন করা। ১০. কর্তৃপক্ষের অনুমোদন ব্যতীত মোটরযানে বিজ্ঞাপন প্রদর্শন বা প্রচার করা। ১১. মোটরযান মেরামতের নামে সড়কে বা ফুটপাতে যন্ত্রাংশ, মালামাল বা কোনো দ্রব্য রেখে যানবাহন বা পথচারী চলাচলে বাঁধা সৃষ্টি করা। ১২. ফুটপাতের উপর মোটরযান চালনা। ১৩. মালিক বা কর্তৃপক্ষের অনুমতি ছাড়া মোটরযান চালিয়ে বাহিরে নিয়ে যাওয়া।	৩ মাস	১০, ০০০/-	মোটরসাইকেল থ্রি হুইলার ১, ০০০/-	মোটরসাইকেল থ্রি হুইলার ২, ০০০/-
					অন্যান্য যান ৩, ০০০/-	অন্যান্য যান ৬, ০০০/-

১০	৯২ (২)	১. চলন্ত অবস্থায় চালক কর্তৃক মোবাইল ফোন বা অনুরূপ সরঞ্জাম ব্যবহার (হেডফোন)। ২. চালক কর্তৃক সিটবেল্ট না বাধা। ৩. দূরপাল্লার মোটরযানে অতিরিক্ত যাত্রীবহন করা। ৪. মহিলা, শিশু, প্রতিবন্ধী এবং বয়স্ক যাত্রীর জন্য সংরক্ষিত আসনে অন্য কোনো যাত্রী বসিবেন না। ৫. চালক বা কন্ডাক্টর কর্তৃক যাত্রীর সাথে অসৌজন্যমূলক আচরণ বা হয়রানি করা। ৬. রাত্রি বেলায় হাইবিম ব্যবহার করে বিপরীত দিক থেকে আগত মোটরযান চালনায় বিঘ্ন সৃষ্টি করা।	১ মাস	৫, ০০০/ -	মোটরসাইকেল থ্রি হুইলার ১, ০০০/ -	মোটরসাইকেল থ্রি হুইলার ২, ০০০/ -
					অন্যান্য যান ১, ৫০০/ -	অন্যান্য যান ৩, ০০০/ -
১১	৯৫	সড়ক দুর্ঘটনা ঘটলে চালক/ কন্ডাক্টর/ তাদের প্রতিনিধি তাৎক্ষণিকভাবে নিকটস্থ থানা/ ফায়ার সার্ভিসকে অবহিত না করা এবং আহত ব্যক্তি/ ব্যক্তিবর্গকে নিকটস্থ চিকিৎসা কেন্দ্রে প্রেরণ ও চিকিৎসার ব্যবস্থা না করা।	১ মাস	২০, ০০০/ -	৫, ০০০/ -	১০, ০০০/ -

CHAPTER 04

IMPLEMENTATION

4.1 Overview

In this chapter, the experimental analysis of our developed system for both android and web platforms has been provided. Moreover, depictions of each step have been given that an administrator and clients both can go through. All the user data of the “Smart Traffic” have been presented efficiently. “Smart Traffic” will be used for several important affairs such as making an easy and efficient way to save traffic information in a digital system, manage information of cases, search the valid documents, and make a digital process of keeping traffic registrations.

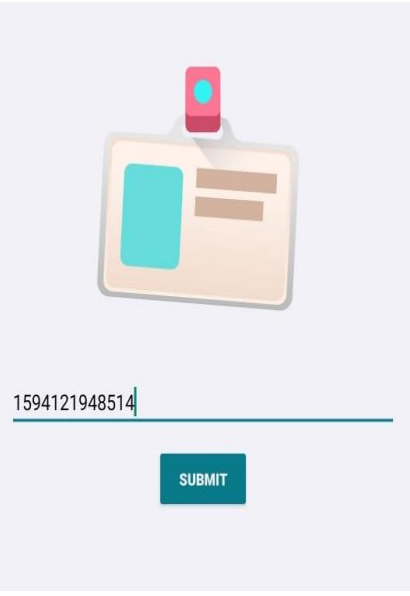
4.2 How Our System Works

4.2.1 Registration Process

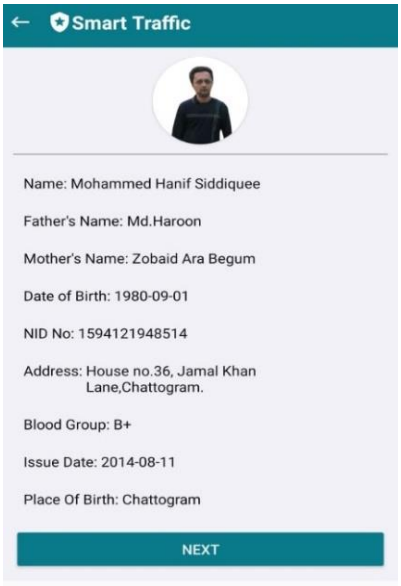
To register on our application, a user first must have a valid Bangladeshi NID. After the successful verification of the user’s NID, he or she will be taken to the main registration screen. There, after the user enters his or her user name, password, and phone number, he or she will have to select his or her role. Based on the selected role, the user will have to enter his or her valid driving license number or vehicle registration number, or both, or his or her police id number if the user is a traffic sergeant.

1. **Create Account**

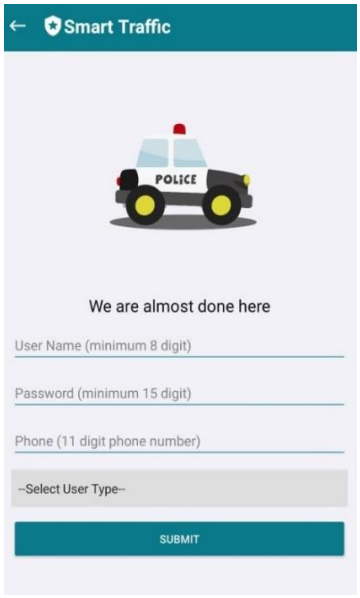
2. **NID Input and Submission**



3. **Successful NID Verification**



4. **Input User Name, Password, Phone No.**



5. **Role Selection**

6. **Input License/Reg./Police ID**

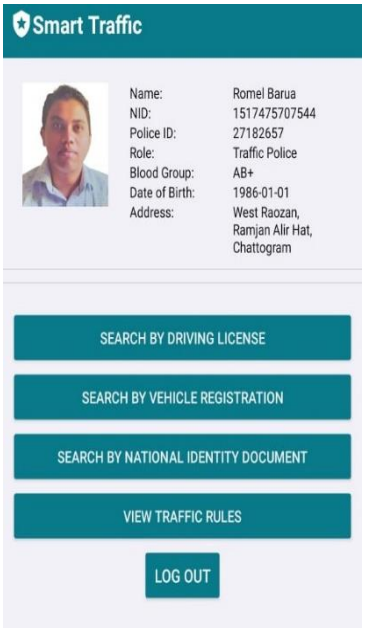
After this information is verified, the user's registration process will be completed, and the user will be taken to the login screen.

Login Page

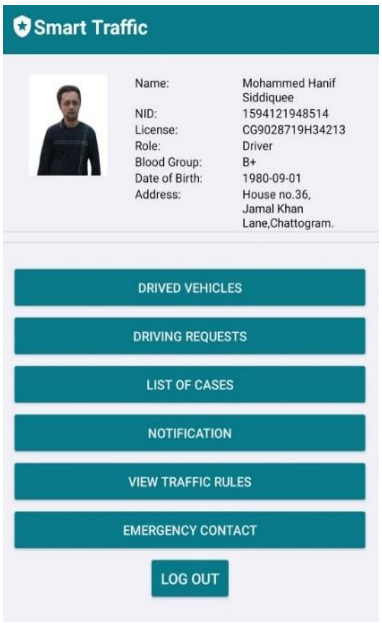
4.2.2 Login Process

On the login screen, the user will have to input his or her correct user name and password and click on the “Log in” button. If the user successfully logs in, his or her profile dashboard will appear based on the role selected during the registration.

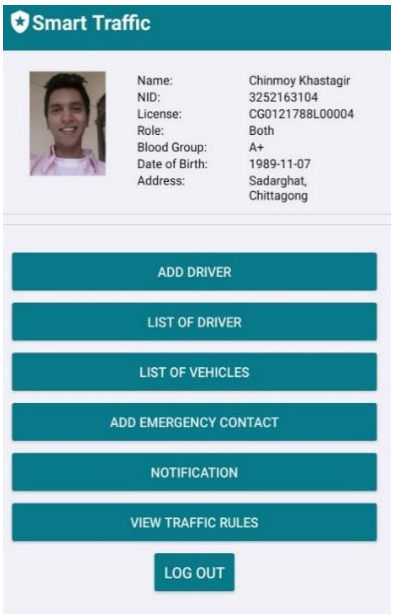
Traffic Sergeant



Driver



Owner/Both



4.2.3 Description of Different User Panels

There will be four user panels in our system:

- Traffic Sergeant Panel
- Vehicle Owner Panel
- Driver Panel
- Both Panel (Vehicle Owner and Driver)

4.2.3.1 Traffic Sergeant Panel

- Search by Driving License;
- Search by Vehicle Registration;
- Search by National Identity Document;
- View Traffic Rules;

A traffic sergeant can check any vehicle registration number or license information digitally using this application. A traffic sergeant can check the drivers' or the vehicles' information by using these options: "Search by Driving License" and "Search by Vehicle Registration Number", and can file a new complaint immediately through this application if needed. The traffic sergeant can also check the user's information by using the "Search by National Identity Card Number" option. Finally, in the "View Traffic Rules" panel, a traffic sergeant can see all the sections of the Bangladesh Road Transport Act.

4.2.3.2 Driver Panel

- Drived Vehicles;
- Driving Requests;
- List of Cases;
- Notifications;
- Add Emergency Contact;
- View Traffic Rules;

At first, a driver can check which vehicles he or she drives currently. Furthermore, a driver can accept or reject the driving requests sent by a vehicle owner. Most importantly, a driver can check his or her entire case history that he or she has encountered a law enforcer. In the "Notifications" panel, a notification will be sent to the user if a case has been filed against the user. In the same way, the user will also get a notification if he or she settles the case by paying the case fine. Then, the driver can also add an emergency number so that in case of an accident on the road, a traffic sergeant can contact the given emergency number. Finally, in the "View Traffic Rules" panel, a driver sergeant can see all the sections of the Bangladesh Road Transport Act.

4.2.3.3 Vehicle Owner Panel

- Add Drivers;
- List of Drivers;
- List of Vehicles;
- Add Emergency Contact;
- Notifications;
- View Traffic Rules;

A vehicle owner can assign more than one driver if the owner possesses more than one vehicle. The user can view and update information about all drivers and vehicles under him using the "List of Drivers" or "List of Vehicles" panel. Like a driver, a vehicle owner can add an emergency number so that in case of an accident on the road, a traffic sergeant can contact the given emergency number. In the "Notifications" panel, a notification will be sent to the user if a case has been filed against the user. In the same way, the user will also get a notification if he or she settles the case by paying the case fine. Moreover, when a request is

sent to a driver to drive a vehicle, the vehicle owner will receive a notification if that driver accepts or rejects the request. The user can see all the sections of the Bangladesh Road Transport Act in this panel.

4.2.3.4 Both Panel (Vehicle Owner and Driver)

- Add Drivers;
- List of Drivers;
- List of Vehicles;
- Notifications;
- Add Emergency number;
- View Traffic Rules;

A user can be both a driver who possesses a driving license and a vehicle owner at the same time. Thus, the user can access the same options as a vehicle owner does.

4.2.4 Traffic Sergeant Filing Case

4.2.4.1 A Typical Traffic Scenario

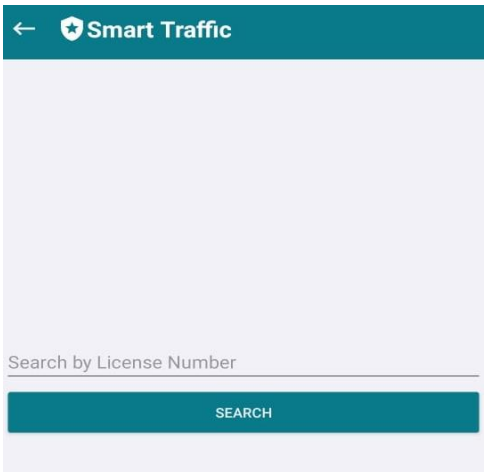
Traffic Sergeant “Romel Barua” is performing his duty on the road. An ambulance is approaching his direction. He notices that the ambulance driver named “Mohammed Hanif Siddiquee” is not wearing his Seat Belt as he should have while driving according to the traffic law. Therefore, the sergeant decides to stop the ambulance, examine both the driver and the vehicle, and file a case against the driver.

4.2.4.2 Checking and Filing a Case

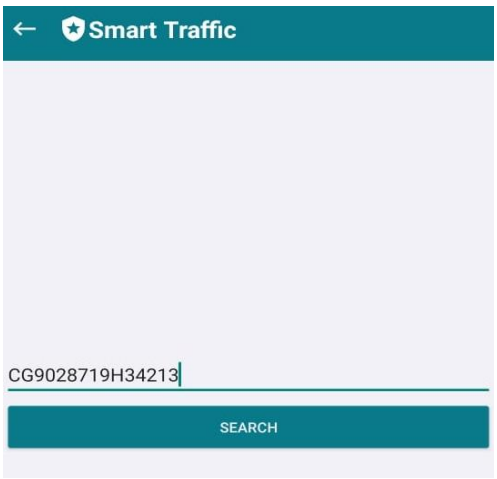
First, the sergeant asks the driver to show his driving license and other relevant documents such as vehicle registration certificate, fitness certificate, route permit document, and tax token certificate. The driver hands him over all the documents for the traffic sergeant to check. Then, the sergeant starts to examine the documents to search for any irregularities. Then, he opens the “Smart Traffic” application to find information about the driver by his license number.

1. **Go to “SEARCH BY DRIVING LICENSE”**

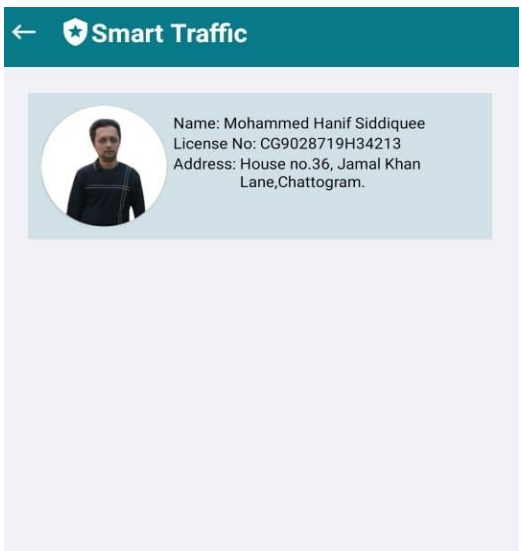
2. **License Search Input Box**



3. **Input License Number**



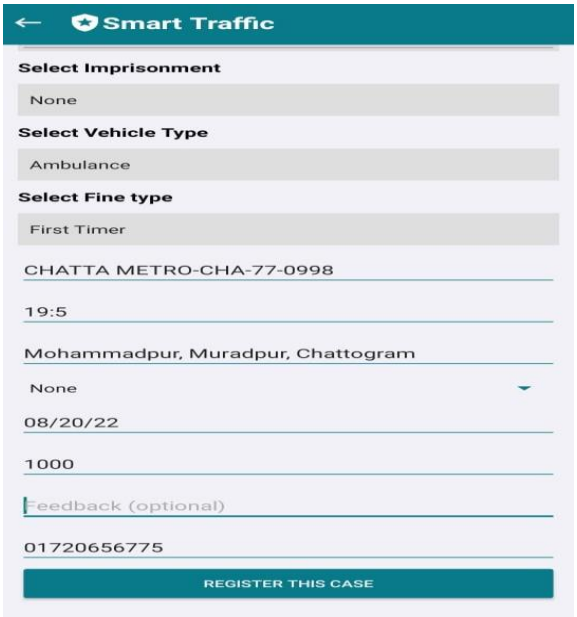
4. **Select from Search Results**



5. **License Holder Information**

After that, he finds that all his documents are valid and the driver has not committed any such action before. Then, he proceeds to file a case against this driving license number.

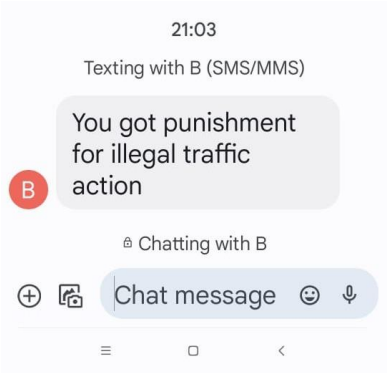
6. Case Filing Process



After filing the necessary information for the case for the committed violation, the traffic sergeant successfully files the case.

4.2.5 Users Paying Fine

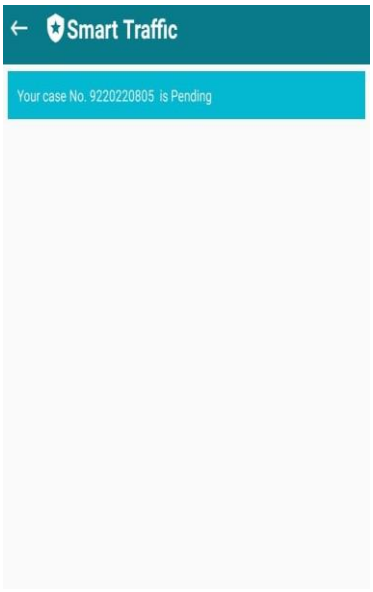
Users will get a text message on their phone every time a new case is filed against them.



After that they will need to log in to their profile to view all details about the case given and pay the fine in case of imposed fine. The process is shown below:

1. User Dashboard

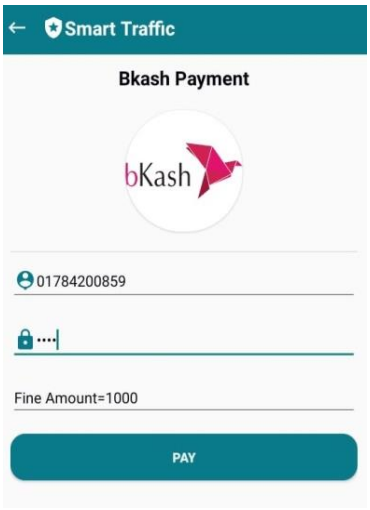
2. Pending Cases



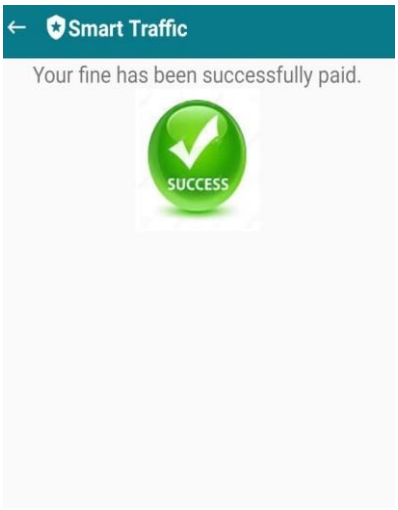
3. Case Overview

4. Pay via bKash

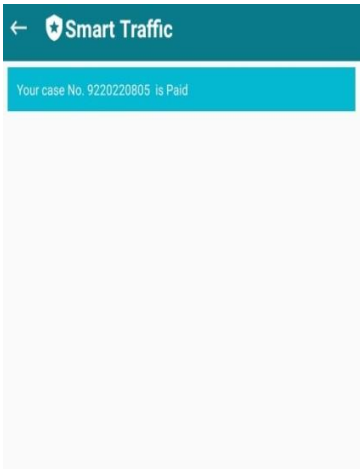
5. Input Phone no. & Pin



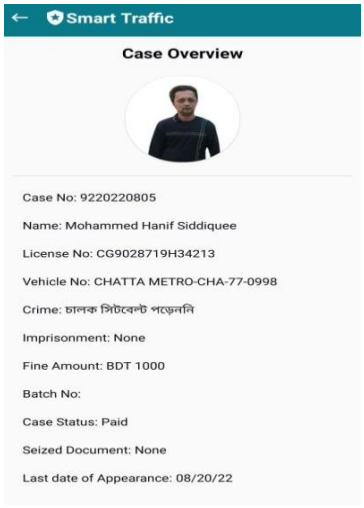
6. Successfully Paid



7. Paid Notifiction



8. Case Resolved



CHAPTER 05

CONCLUSION

In conclusion, our “Smart Traffic” application is a reliable and secure application for the traffic system in Bangladesh. This work will bring a radical change in the traffic system in our country. One of the most agreeable criticisms of our framework is it saves a lot of significant time and energy. It also has a very easy-to-understand interface requiring negligible acquiring and IT abilities. This system will reduce the distance between ordinary people with our traffic sergeants where all kinds of people will get one unique service.

5.1 Limitations

- So far, this application is not a complete alternative to all the documents of a vehicle as it does not contain all the information apart from the necessary information that has been used in this application.
- On-field testing has not been done yet.
- It is entirely dependent on mobile internet whose coverage and effectiveness are not equal in all parts of our country.

5.2 Future Developments

- By performing on-field tests, the application will be designed to make it more user-friendly for the users.
- A feature will be added to inform the users about the road traffic condition based on their current location.
- There will be another new feature for the users to report their complaints to the concerned authority faster.
- The traffic sergeant will be able to make an emergency call through the application.

References:

[1] https://play.google.com/store/apps/details?id=com.cnsbd.brta.goti

[2] Abraham Silberschatz, Henry F. Korth, S. Sudarshan, "Database System Concept", 4th Edition, The McGraw-Hill Companies, NY, USA, 2002. [2nd April 2021]

[3] http://www.brta.gov.bd/site/view/legislative_information/-