A PROJECT REPORT ON

A Centralized Multipurpose Transportation System

SUBMITTED TO THE SAVITRIBAI PHULE PUNE UNIVERSITY , PUNE IN THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE

BACHELOR OF ENGINEERING
(Computer Engineering)

BY

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CERTIFICATE

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A Centralized Multipurpose Transportation System

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Last but not the least, the backbone of our success and confidence lies solely on blessings of dear parents and lovely friends.

Aishwarya Dekhane
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Abstract

Nowadays, the use of the transportation services is a necessity of human living. With the trends in modernization, all the facilities and services also need to be dynamic. Though there are many transportation modes available in the market,not everyone can have vehicles.For this the innovation of transportation services projects came into name.With this, those who dont have vehicles can also use them and gain the services at a low budget. To make these services and facilities reach every home these services are made available as mobile applications so that the facil-ities can be made handy. One solution for this is use of android applications which are designed for smartphones.

The explosive growth of the Android platforms has been a significant win for consumers with respect to market competition and features.The Centralized Multipurpose Transportation System project aims to develop an android application for android operating system (OS) platform that can be used for all transportation facilities required in day-to-day routines.From a twowheeler bike to a 10-wheeler truck can be accessed with ease. Location of mobile devices are in the form of latitude and longitude which is converted into full address by the application that includes country/state, city, and street number details.The Centralized Multi-purpose Systems design shows how to implement and develop this application and has been tested on few mobile devices it well be tested on huge number of mobile devices later.

The barrier of languages has made many users unable to access various services available online. This project aims to discard this language barrier by enabling the native language feature by which every user can understand and use the services made available by this project. With the help of OTP the customer security can be maintained and also any case of fraud between the driver and the customer can be easily handled and good services can be provided.

Keywords

1. Short Message Services
2. Web Server
3. Web Services
4. Mobile Computing
5. Support Vector Machine
6. Shortest Path Algorithm
7. Google APIs
8. Transportation services
9. Transportation modes
10. vehicles
11. payment mode
12. Native languages

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CHAPTER 1
INTRODUCTION

1.1 Overview

Module:

1. User
2. Driver
3. Admin

Select language:

- Hindi
- Marathi
- English

1. User:

- Registration
- First name
- Last name
- Phone no.
- Email Id
- Username
- Password

Send OTP (verify)
Permission (location, contact)
Login :
Username
Password
Login Successful then..
Home Page (Grid View)

Ride:

- Pickup (Source Location)
- Drop (Destination Location)

Select vehicle : (2 wheeler, 3, 4, tracks, transportation all vehicle drop down list)
Book
Request goes to Driver

2. Driver :

- Select language (Hindi, Marathi, and English)
- Registration
- FName

- LName
- Address
- Email id
- Contact
- Driving License No
- Adhar No
- Username
- Password

Send Request to Admin
Login (If Request Accept) :

- Username
- Password

View User Request (Accept/Reject)
Conform (If Accept)
Perform Ride

3. Admin:

Login:

- Username
- Password

Home :

- Check Drivers Request
- Accept or Reject

View Vehicle Location

1.2 Motivation

1. As the trends in modernization are increasing the transportation facilities also need to be enhanced. For moving from one place to other transportation modes and services are the mandatory aspects. After a brief survey our project team analyzed various applications like Ola, Uber,RedBus, Porter, Movers and Packers etc which are entity specific.The existing technologies are providing consumers with major services and facilities to satisfy day-to-day routines. The current transportation system is completely discrete.A centralized approach is the need of todays transportation era.

2. After the survey,we realized most of the applications that are available for transportation,are available in English language.When taken into consideration the common people or the ones with less education are unable to interpret and communicate in this language.The barrier of specific languages has driven many consumers far from seeking the benefits of the available services.

3. There are many large scale companies operating transportation services for import and export of various goods.The services that are been provided are moving towards an inefficient dead end.The services need to be brought on track and it can be done by making or customizing the services and facilities organization specific.

4. After analyzing all these issues,we decided to form a centralized system for the todays available systems merging all the benefits making available to the consumers.The barrier of English language can be discarded by providing the feature of native languages.With the help of native language the consumer usability can be increased to a greater extent.With a centralized approach the services can be enhanced and made memory efficient.The smart phones services can be made much more justifiable and better with this approach.Many organizations can be benefited and their companys progress can be extended to a larger extent.

1.3 Problem Definition and Objectives

To develop a centralized system for multipurpose transportation facilities using Support Vector Machine algorithm,Dijkstra's shortest path algorithm,logistic regression to enhance the customer usability. Many existing technologies are of discrete type and prove to inefficient under consideration of the memory part of the smartphones.With a centralized approach the existing systems can be much more enhanced and the consumer usability can be facilitated.

1.4 Project Scope Limitations

Project Scope:

1. By taking a strategic approach to transportation management, and by improving supply chain vis-ibility and reducing costs, one can provide a high level of customer service across a broad spectrum of clients. Enhance the customer experience with accurate,on-time deliveries and before you know it, those clients will be coming back to one with more frequent and/or larger orders.

2. Manual transportation management approach becomes more challenging. By utilizing a central-ized, focused strategy, one will know that the transportation management will be able to scale up (or down, if needed) to meet the needs of ones growing enterprisebe it for one location or spread through-out dozens of worldwide hubs. By integrating the business units on a common transportation platform, one will be able to effectively manage that growth while maintaining and enhancing firms competitive advantage.

3. Transportation managers and logistics coordinators now have real-time oversight over their drivers as they make their way across the country. Being able to gather data in real-time translates into better decision making (i.e., building future routes that are more quicker and more efficient, determine which drivers and carriers are more efficient than others, etc.) and can help your firm be more strategic in the marketplace.

4. Having a centralized transportation operations team provides a consolidated headcount often un-available through a decentralized team, thereby allowing for reassignment of resources to other areas of need. Also, resources are better utilized in a centralized environment, and transportation coordinators can manage multiple locations, depending on the size, vs. having individual coordinators at each location. Furthermore, centralized employees can cross train and perform multiple functions within the transportation operations.

5. Establishing an entity with clear advancement opportunities allows organizations to retain key op-erational staff members within their supply chain. By creating an environment that provides carriers with a single point of contact to resolve issues, transportation becomes a core competency and not an afterthought at the warehouse or plant.
   Limitations:

1. The results of the study show that it is not sufficient to only consider transport work and emergency deliveries when the environmental effect of a centralization is to be evaluated. It has also been con-cluded that centralization creates an opportunity to make improvements within the distribution system that can prove beneficial from an environmental perspective.

2. Three characteristics besides transport work and emergency deliveries were identified as being of importance when considering the environmental effects of a centralization. These included centralized flow, modal change, and bargaining power.

3. To include all characteristics that can be relevant in an environmental evaluation of a centralization, but rather those that have been found significant it this study. However, the model helps illustrate that there are many aspects that need to be considered in such an evaluation and that depending on the characteristics of the distribution system at hand the results can vary quite extensively.

4. Large data storage is required at centralized information system.

1.5 Methodologies for Problem Solving

1. **Requirement gathering and analysis:**
   In this step of waterfall we identify what are various requirements are need for our project such are software and hardware required, database, and interfaces.

2. **System Design:**
   In this system design phase we design the system which is easily understood for end user i.e. user friendly. We design some UML diagrams and data flow diagram to understand the system flow and system module and sequence of execution.

3. **Implementation:**
   In implementation phase of our project we have implemented various module required of successfully getting expected outcome at the different module levels. With inputs from system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality which is referred to as Unit Testing.

4. **Testing:**
   The different test cases are performed to test whether the project module are giving expected outcome in assumed time. All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.

5. **Deployment of System:**
   Once the functional and non-functional testing is done, the product is deployed in the customer environment or released into the market.

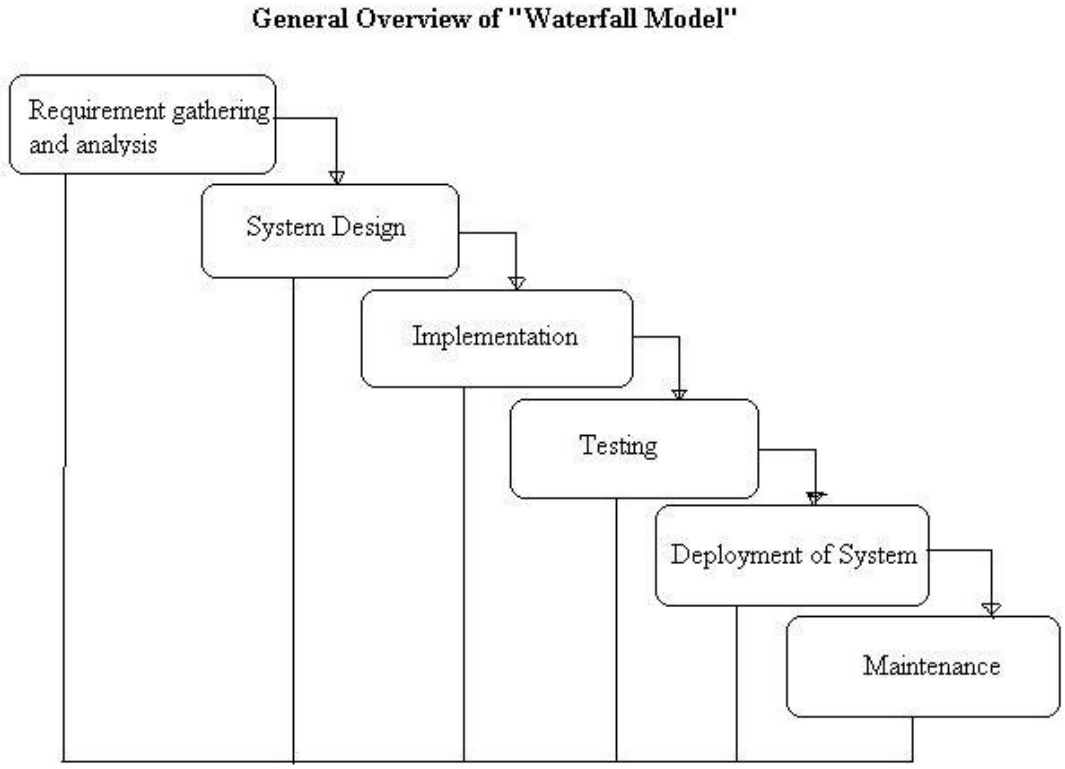

Figure 1.1: Overview of waterfall model

6. **Maintenance:**
   There are some issues which come up in the client environment. To fix those issues patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment. All these phases are cascaded to each other in which progress is seen as flowing steadily downwards like a waterfall through the phases. The next phase is started only after the defined set of goals are achieved for previous phase and it is signed off, so the name "Waterfall Model". In this model phases do not overlap.

CHAPTER 2
LITERATURE SURVEY

1. A Secure Tracking Mobile App Development

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The explosive growth of the Android platforms has been a significant win for consumers with respect to market competition and features. To provide users with the security applications to manage their data in their personal smart phones is very important. In this project we are trying to describe an Android application development which the user can use to keep in touch with the lost phone or lost details if the user has misplaced the mobile or forgot the mobile somewhere and wanted to know the call history, SMS, GPS locations etc. The security solution provided by this application requires the user to install the application with security codes for call logs, SMS and GPS tracking. User has to send an SMS with these secret codes to the mobile in order to retrieve the call logs, messages, GPS locations to the mobile from which the SMS was sent. User can also manage all the personal information such as delete the call logs or the messages. If the SIM card has been changed, the user will be able to receive a notification with that information to the alternate number provided. With this application, users can also manage their personal information remotely and securely. The process and coding created in this research can be used as the platform for other secured Android mobile app development.
Mobile phone security plays a very major role in the present mobile app development, as it involves much of the personal and business information. There are many concerns as most of the businesses and individuals have their information stored on a smart phone, for example, planning of the business meetings, organizing the work and private life etc. This information stored on a smart phone can include highly secure information ranging from personal account passwords to simple reminders. The technologies are changing the today's organizations systems as that they are highly depending on smart devices which have become the new source of threats. Indeed, smart phones also collect and execute an increasing amount of sensitive information to which access must be controlled to protect the privacy of the user and the intellectual property of the company too. Most of the smart phones are targeted by attackers/hackers, as computers, since they account to sensitive information. They mainly target on weaknesses related to communication services on smart phones, for example, Short Message Services (SMS), Multimedia messaging, Wi-Fi networks,Ethernet connections, Bluetooth and GSM etc.

2. A RESEARCH ON MOBILE APPLICATIONS FOR LOCATION TRACKING THROUGH WEB SERVER AND SHORT MESSAGES SERVICES (SMS)

Article November 2015
4 authors, including: Some of the authors of this publication are also working on these related projects: Riaz Ali Shanghai Jiao Tong University 8 PUBLICATIONS 3 CITATIONS

This paper aims to develop an android application for android operating system (OS) platform that automatically sends the current address location of the user to the server database and can also be sent periodically through SMS (short message service) to store mobile numbers by the user. Location of mobile device is in the form of latitude and longitude which is converted into full address by this application that includes country/state, city, and street number. In case of emergency the user can simply press the emergency button and the application will automatically send SMS alert including location address to the store mobile numbers that might be a police station or a close relative. Another way to trace the user is through the web server database which keeps updating the location address as long as the application is connected or sends the last location address. The design shows how to implement and develop this application and has been tested on few mobile devices and it well be tested on huge number of mobile devices later. Keywords: Android Application, Short Message Services, Web Server, Web Services, Mobile Computing. Now-a-days, with the rapid increase of Smart phone devices, the users are also increasing as it becomes a major source of information. It is apparently showing the

interest of users in mobile applications that provide storage, analysis and visualization of all sorts of information. Most of smart phones equipped with computer processing ability are used to access the networks and use different applications developed to meet the user requirement via mobile communication network. In last 7 years, different Android Mobile applications have been developed including top paid and free applications also some are focused on GPS- Global Positioning System are developed. In various research papers focused on Android Applications till March 2015, the different methods are compared in order to use GPS for location tracking and routing. Android-based mobile applications named as GPS phone tracker pro, Mobile Location Tracer, and Location Tracker provides location address of the user and famous applications on Google Play ec but these applications have no advance features but still more than 0.8 million people downloaded these applications. Furthermore applications like Locate My Friends, Family Locator and Family Locator Messaging has also more than 0.6 million user downloaded history and are used for finding friends and family locations but it has a lot of functionality complaints from users, which includes glitches and application crashing. Mobile Caller Location Tracker, All call Location Tracker and SMS Tracker has more than 0.5 million downloads and locates only users location whose mobile phones are connected during call and short message service. There are also some famous mobile applications exit which tracks vehicle location like Vehicle Location Tracker, Find MyCar and Tracker these applications has more than 0.5 downloaded history but user complaints about the features of the applications. Some other applications are also designed with limited functionality to track lost devices for example, Where My Droid, GPS Phone Tracker Pro and Mobile Location Tracker.

3. Success Story of a Start-up A Case Study of OLA Cabs

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Start-ups don't die, they commit suicide. In other words, 90 percent of start-ups fail because of the founders get bored, discouraged, or due something else and they move on to other things;not because of some catastrophe. No matter how dark it is today, things will always better tomorrow." – Justin Kan, Justin.TV. Startup businesses have always played an important role in the global economy, but recently their importance has grown significantly. For this reason, Governments around the world have amended regulation and created incentives to encourage startups development. However, statistics shows that startups have an extremely high mortality rate, often due to a lack of strategic planning, wrong marketing investments or inefficient resource allocation. This paper is the success story of an Indian startup, Ola Cabs. As the competition in the Radio Taxi market is increasing at a very faster rate where the several brands are providing cabs to the customers as per the requirements, this paper is designed to study the success story of Ola cabs which has the greatest market share and provides services in an efficient manner along with the customer satisfaction. The Marketing strategy and the promotion strategy adopted by Ola Cabs is discussed briefly in this research paper.

Keywords: Start-up, promotional strategy, Ola cabs, Taxi aggregator.

Managing and growing a successful startup is ripe with challenges from all the sides from keeping the employees and the investors happy, to raising money and constantly improving your bottom line. Not necessary that every start-up is bound for success.

In actual reality, getting money from an investor is not an easy feat, but when you know what states are the most investor friendly, what investors are looking for and how to build a powerful team around your organization – then you are much more likely to find start-up success.OlaCabs, more popularly known as Ola, is just like any other marketplaces online, but are more specifically into providing Taxi services. Ola, which started as an online cab aggregator in Mumbai, now

Literature Survey			
Sr.No	Title	Author	Summary
1.	A Research On Mobile Applications For Location Tracking Through Web Server And Short Message Services (SMS).	Abdul Wali Khan	To develop an android application for android OS platform that automatically send the current address location of the user to the server database and can also be sent periodically through SMS to store mobile numbers by the user.
2.	Success Story of a Start-up A Case Study of OLA Cabs	1.Dr. Ashok Kumar Panigrahi, 2.ShambhaviShahi, 3. AmarsinghRathore	Startups have an extremely high mortality rate, often due to a lack of strategic planning, wrong marketing investments or inefficient resource allocation.
3.	A Secure Tracking Mobile App Development	Bharath Sai Pochampally and Jiangbo Liu	To provide users with the security applications to manage the data in their personal smart phones is very important.

Table 2.1: Literature Survey Table

resides in the Silicon Valley of India a.k.a. Bangalore and is also known to be one of the fastest growing businesses in India, out-beating its competitors Uber Meru. Coming back to the man behind Ola; simple yet charming Bhavish, with the success of his prodigy has certainly became the talk of the town. But even after becoming a millionaire, he is still not prefering to not buy a car and take a cab (to set an example, we presume) certainly doesnt goes down well with his wife. He believes that, such is a small price that every entrepreneur has to pay.

CHAPTER 3

SOFTWARE REQUIREMENTS SPECIFICATION

3.1 Introduction

This section provides information about the System Implementation plan,software requirements for the project which includes the user classes,functional and non-functional requirements,security and safety requirements,Software and Hardware Interfaces which gives the clear idea about the Platform,Schedules,major tasks to be undertaken and software specification requirements for the implementation of the project.

3.1.1 Project Scope

1. Developing a system that has no barrier to Native Languages.

2. Developing a centralized app so that,no need to download multiple apps for various day-to-day transportation routines.

3. Monitoring the methodologies of available applications for transportation and enhance the existing features to satisfy the customer.

3.1.2 User Classes and Characteristics

User Classes

1. Customer.
Functionalities-The customer should be able to book a cab in efficient manner with no barrier in understanding languages,should be able to communicate efficiently with the driver with appropriate message passing via SMS giving the idea of Source and destination location of the customer.

2. Driver.
Functionalities-The Driver should be able to recieve the appropriate Source and destination location of the customer via SMS and proper authentication of OTP should be done by the driver as,to start the drive in smooth manner.

Characteristics
1. The project is typically for a customer.
2. The project will have a unique set of requirements that need to be delivered within the boundaries of this project.
3. The project can be more of a once off endeavour,rather than something that's happening all the time in repeated fashion.

3.2 Assumptions and Dependencies

Assumptions
1. Key project members performance.
2. Budget limitations.
3. Accuracy of the project schedule dates.

Dependencies
1. Finish To Start (FS).
Predecessor must finish before Successor can start. [Required Software requirements(PC,installation of android studio,configuring Database connectivity) should be equipped before the start of the

project.]
2. Finish To Finish (FF).
Predecessor must finish before Successor can finish. [Analysis and design should be ready before implementation.]
3. Start To Start (SS).
Predecessor must start before Successor can start. [Analysis should start before design.]
4. Start To Finish (SF).
Predecessor must start before Successor can finish. [Analysis should start before design finsh.]

3.3 Functional Requirements

3.3.1 System Feature 1

Selection of appropriate Native Languages.

3.3.2 System Feature 2

Generation of OTP.

3.3.3 System Feature 3

Correct sending and receiving of SMS.

3.4 External Interface Requirements (if any)

3.4.1 User Interfaces

1. Registration.
The customer should first register with his/her required details in order to maintain security.
2. Sign Up.
The customer should then Sign Up with appropriate credentials.
3. Login.
The customer should then Login in-order to book a cab.
4. Selection of Native languages.
The customer and driver should choose appropriate language in-order to carry out smooth communication between both. 5. Book a ride.
Then the customer can click on the Book ride button.
6. Send current and destination location to the driver.
The customer should send his/her appropriate source and destination details via SMS

3.4.2 Hardware Interfaces

1. Servers.
A server is a computer program or a device that provides functionality for other programs or devices, called "clients". This architecture is called the clientserver model, and a single overall computation is distributed across multiple processes or devices.
2. Remote control.
A remote control or clicker is a component of an electronic device used to operate the device from a distance, usually wirelessly.

3.4.3 Software Interfaces

Languages

1. Core Java

Java is a general-purpose computer-programming language that is concurrent, class-based, object-oriented,and specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA),meaning that compiled Java code can run on all platforms that support Java without the need for recompilation.Java applications are typically compiled to bytecode that can run on any Java virtual machine (JVM) regardless of computer architecture.

2. XML

Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable. The W3C's XML 1.0 Specification and several other related specificationsall of them free open standardsdefine XML.An XML document is a string of characters. Almost every legal Unicode character may appear in an XML document.

3. HTML

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript, it forms a triad of cornerstone technologies for the World Wide Web.

4. CSS.

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language like HTML.[1] CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.

Platform-Linux

Linux is a family of free and open-source software operating systems built around the Linux kernel. Typically, Linux is packaged in a form known as a Linux distribution (or distro for short) for both desktop and server use.Linux was originally developed for personal computers based on the Intel x86 architecture, but has since been ported to more platforms than any other operating system.Because of the dominance of the Linux kernel-based Android OS on smartphones, Linux has the largest installed base of all general-purpose operating systems.Linux is also the leading operating system on servers and other big iron systems such as mainframe computers, and the only OS used on TOP500 supercomputers (since November 2017, having before gradually eliminated all competitors)

3.4.4 Communication Interfaces

Native Languages.
Native Languages include all languages(eg-English,Marathi,Hindi,German,etc..) as to avoid language barrier during communication.

3.5 Nonfunctional Requirements

1. Performance.

Performance is an important activity in project communication management. It involves collecting and disseminating project information, communicating project progress, utilization of resources, and forecasting future progress and status to various stakeholders, as decided in the communication management plan.

2. Security.
Security is the defense of digital information and IT assets against internal and external, malicious and accidental threats. This defense includes detection, prevention and response to threats through the use of security policies, software tools and IT services.

3. Serviceability.
Serviceability refers to the ability of technical support personnel to install, configure, and monitor computer products, identify exceptions or faults, debug or isolate faults to root cause analysis, and provide hardware or software maintenance in pursuit of solving a problem and restoring the product into service. Incorporating serviceability facilitating features typically results in more efficient product maintenance and reduces operational costs and maintains business continuity.

4. Manageability.
Manageability aims to,how efficiently and easily a software system can be monitored and maintained to keep the system performing, secure, and running smoothly.

3.5.1 Performance Requirements

1. Efficiency
Efficiency testing tests the amount of resources required by a program to perform a specific function. In software companies, this term is used to show the effort put in to develop the application and to quantify its user-satisfaction.

2. Flexibility
A flexibility study aims to objectively and rationally uncover the strengths and weaknesses of an existing business or proposed venture, opportunities and threats present in the natural environment, the resources required to carry through, and ultimately the prospects for success.

3. Security.
Security is the defense of digital information and IT assets against internal and external, malicious and accidental threats. This defense includes detection, prevention and response to threats through the use of security policies, software tools and IT services.

4. Usability.
Usability is the ease of use and learnability of a human-made object such as a tool or device. In software engineering, usability is the degree to which a software can be used by specified consumers to achieve quantified objectives with effectiveness, efficiency, and satisfaction in a quantified context of use.

3.5.2 Safety Requirements

1. Correct and matching generation of OTP.
A one-time password (OTP), also known as one-time pin, is a password that is valid for only one login session or transaction, on a computer system or other digital device. OTPs avoid a number of shortcomings that are associated with traditional (static) password-based authentication; a number of implementations also incorporate two factor authentication by ensuring that the one-time password requires access to something a person has (such as a small keyring fob device with the OTP calculator built into it, or a smartcard or specific cellphone) as well as something a person knows (such as a PIN).

2. Correct appropriate sending and receiving of SMS.

SMS (short message service) is a text messaging service component of most telephone, internet, and mobile-device systems.It uses standardized communication protocols to enable mobile devices to exchange short text messages.

3.5.3 Security Requirements

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SMS (short message service) is a text messaging service component of most telephone, internet, and mobile-device systems.It uses standardized communication protocols to enable mobile devices to exchange short text messages.

3.5.4 Software Quality Attributes

1. Usability.
Usability is the ease of use and learnability of a human-made object such as a tool or device. In software engineering, usability is the degree to which a software can be used by specified consumers to achieve quantified objectives with effectiveness, efficiency, and satisfaction in a quantified context of use.

2. Portability.
Portability, in relation to software, is a measure of how easily an application can be transferred from one computer environment to another. A computer software application is considered portable to a new environment if the effort required to adapt it to the new environment is within reasonable limits.

3. Security.
Security is the defense of digital information and IT assets against internal and external, malicious and accidental threats. This defense includes detection, prevention and response to threats through the use of security policies, software tools and IT services.

4. Feasibility. A feasibility study aims to objectively and rationally uncover the strengths and weaknesses of an existing business or proposed venture, opportunities and threats present in the natural environment, the resources required to carry through, and ultimately the prospects for success.

5. Testability.
Software testability is the degree to which a software artifact (i.e. a software system, software module, requirements- or design document) supports testing in a given test context.

6. Correctness.
Correctness from software engineering perspective can be defined as the adherence to the specifications that determine how users can interact with the software and how the software should behave when it is used correctly.

7. Efficiency.

Efficiency testing tests the amount of resources required by a program to perform a specific function. In software companies, this term is used to show the effort put in to develop the application and to quantify its user-satisfaction.

3.6 System Requirements

1. IDE - Android Studio 3.2 version.
Android Studio is the officialintegrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development.It is available for download on Windows, macOS and Linux based operating systems.It is a replacement for the Eclipse Android Development Tools (ADT) as the primary IDE for native Android application development.

2. Platform - Linux.
Linux is a family of free and open-source software operating systems built around the Linux kernel. Typically, Linux is packaged in a form known as a Linux distribution (or distro for short) for both desktop and server use.Linux was originally developed for personal computers based on the Intel x86 architecture, but has since been ported to more platforms than any other operating system.Because of the dominance of the Linux kernel-based Android OS on smartphones, Linux has the largest installed base of all general-purpose operating systems.Linux is also the leading operating system on servers and other big iron systems such as mainframe computers, and the only OS used on TOP500 supercomputers (since November 2017, having before gradually eliminated all competitors)

3.6.1 Database Requirements

1. Database - MySQL.
Every web application, howsoever simple or complicated, requires a database for storing collected data. MySQL, which is open source, is the worlds most popular database management system. It powers everything from hobbyist websites to professional platforms like WordPress. You can learn how to master PHP with this free MySQL database for beginners course.

2. Server - Apache2 Web server.
Apache is the most commonly used Web server on Linux systems.
The most common protocol used to transfer Web pages is the Hyper Text Transfer Protocol (HTTP). Protocols such as Hyper Text Transfer Protocol over Secure Sockets Layer (HTTPS), and File Transfer Protocol (FTP), a protocol for uploading and downloading files, are also supported.
Apache Web Servers are often used in combination with the MySQL database engine, the HyperText Preprocessor (PHP) scripting language, and other popular scripting languages such as Python and Perl. This configuration is termed LAMP (Linux, Apache, MySQL and Perl/Python/PHP) and forms a powerful and robust platform for the development and deployment of Web-based applications.

3.6.2 Software Requirements

Platform: Linux.
Linux is a family of free and open-source software operating systems built around the Linux ker-

nel. Typically, Linux is packaged in a form known as a Linux distribution (or distro for short) for both desktop and server use.Linux was originally developed for personal computers based on the Intel x86 architecture, but has since been ported to more platforms than any other operating system.Because of the dominance of the Linux kernel-based Android OS on smartphones, Linux has the largest installed base of all general-purpose operating systems.Linux is also the leading operating system on servers and other big iron systems such as mainframe computers, and the only OS used on TOP500 supercomputers (since November 2017, having before gradually eliminated all competitors)

Software Specification

Android-Studio 3.2 version.
Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development.It is available for download on Windows, macOS and Linux based operating systems.It is a replacement for the Eclipse Android Development Tools (ADT) as the primary IDE for native Android application development.

3.6.3 Hardware Requirements

1. Computer.
A computer is a device that can be instructed to carry out sequences of arithmetic or logical operations automatically via computer programming. Modern computers have the ability to follow generalized sets of operations, called programs.
2. Mobile Phone.
A mobile phone, known as a cell phone in North America, is a portable telephone that can make and receive calls over a radio frequency link while the user is moving within a telephone service area.A mobile phone is mandatory as the application can be accessed by the user via the mobile phone.
3. RAM.
Random-access memory (RAM) is a form of computer data storage that stores data and machine code currently being used. A random-access memory device allows data items to be read or written in almost the same amount of time irrespective of the physical location of data inside the memory. In contrast, with other direct-access data storage media such as hard disks, CD-RWs, DVD-RWs and the older magnetic tapes and drum memory, the time required to read and write data items varies significantly depending on their physical locations on the recording medium, due to mechanical limitations such as media rotation speeds and arm movement.

3.7 Analysis Models:SDLC Model to be applied

Waterfall Model

1. Requirements gathering.
1.1 Collection of Base Papers.
1.2 Collection of Native Languages.
2. Analyzing user requirements.
3. Designing the program.
3.1 Software Specification-Android-Studio.
4. Coding the program.
4.1 Languages-Java,HTML,CSS,XML.
5. Documentation and testing of the system.
6. Operation and maintenance of the system.

3.8 System Implementation Plan

Input
1. Native Languages.
2. Design Requirements.
3. UI Design Requirements.

Activities
1. Interpretation of inputs.
2. Defining the scope,goals,objectives.
3. Analyzing the requirements.
4. Analyzing the algorithms.
5. Design of UI
6. Selecting appropriate database.
7. Verifying and Validating it.
8. Evaluation of payments.

Major Tasks
1. Implementation of the modules.
2. Database connectivity.
3. Hosting the application.

Implementation Resources List
1. Data about the market investment and the success of the market to make evaluation and enhancements.
2. Linux OS/Windows OS/MAC.
3. IDE-Android-Studio 3.2 version
4. Database-MySQL

CHAPTER 4
SYSTEM DESIGN

4.1 System Architecture

1.EXISTING SYSTEM

Nowadays as the life is dynamic and competitive each and every person is in need to travel for work and is in hope that they should get to the designated place on time, so people expect to have a cab or taxi to travel which is possible by using the existing taxi apps, but people might also want to carry their goods or luggage through the vehicle by booking a macro taxi or truck so in our sector of system the above services can be provided, so the people can book two-to-ten wheeler as their need and travel to their designated place. As no every person understands English language so, this may create the barrier when using the existing system, so we are enhancing the proposed system by providing native languages to the customers, so as they can use the proposed system in the language they know and understand. Disadvantage of existing system is it is not customizable, so as to attract more customers we are making the proposed system more customizable by providing the services from two-ten wheeler as per their needs and the customer can use the proposed system in the language the customer knows and understand.

2.PROPOSED SYSTEM

Above block diagram depicts the overall description of the system to be implemented. Inputs needed during implementation are stated in the above figure like; the option of Native languages will be available for smooth communication between customer and driver. The various modes of transportation will be available on the user Interface ranging from two to ten wheelers; so there is no need to download multiple apps for various transportation modes.

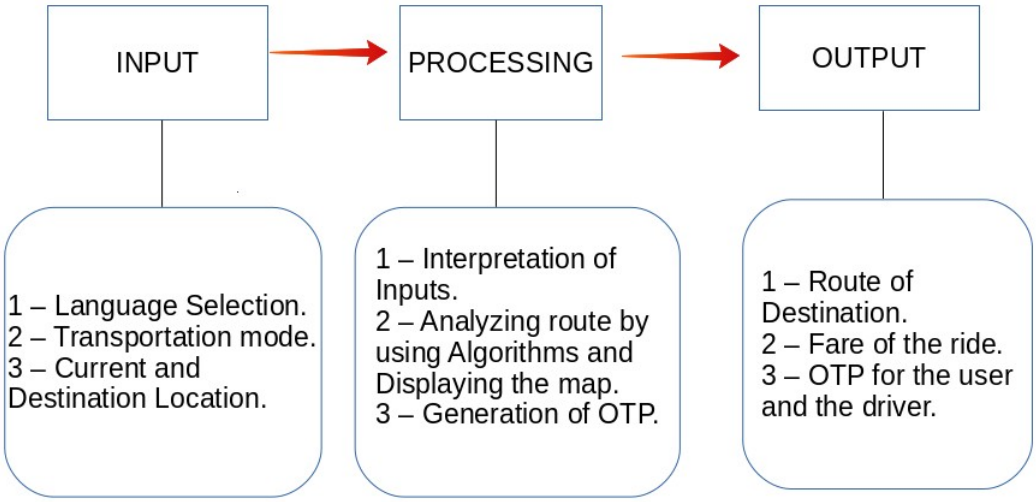

Figure 4.1: Generalized model of the system

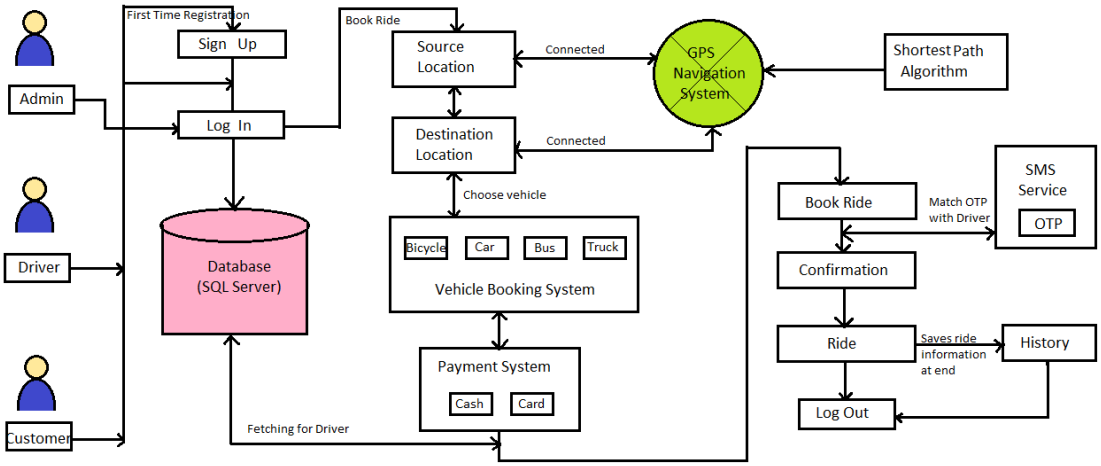

Figure 4.2: Architectural block diagram

Online vehicle booking system uses SQL server at backend to execute queries which is connected to front end via PHP. We are providing two to ten vehicles for the ease of customer on same platform. Various Algorithms are used to analyze the routes from source to destination. Also there are different logins for admin, customer and driver. Admin have full authority to access all functionalities. When we are login as a customer we need to sign up for the first time. While from next time the customers details are saved automatically in database so no need to sign up again, just login into the system. Enter the destination location and choose the type of vehicle you want to book. There are multiple options for transportation mode like by car, bus, bicycle, truck etc. For the payment system there are two options cash and card. You need to enter Account number and CVV for card payment and confirm your ride. The request will be send to driver automatically and then system will fetch for driver. Appropriate generation of OTP (SMS Service) to start the ride, once driver accept your ride, you need to confirm the OTP with driver and as soon as you get confirmation your ride begins. After completion of ride, history will be saved in the system automatically.

4.2 Mathematical Model

Let S be the Whole system which consists:
S= IP, Dr, A,Pro,OP, L

Where,
A. IP is the input of the system.
B. Pro is the procedure applied to the system to process the given input.
C. OP is the output of the system.
D. L is the Language of the system.

1. Registration:
U=U1, U2, U3, Un
U Is the user set that register in our system.
OTP = otp1,otp2,otp3,otp4,.otpn
OTP is the set of OTP Send for system after Registration to verify location.

L=L1, L2, L3, Ln
L is the set of language to select the user and Driver.
R= R1,R2,R3,.Rn
R is the set of Ride
User add pickup and drop location,select vehicle, book vehicle.
D= D1,D2,D3,.Dn
D is the set of driver.
Driver accept request send conform request perform ride.
Input: Request
Output: Accept/reject

2. Admin:
Input: check driver Request
Output :accept/reject

4.3 Data Flow Diagrams / UML Diagrams

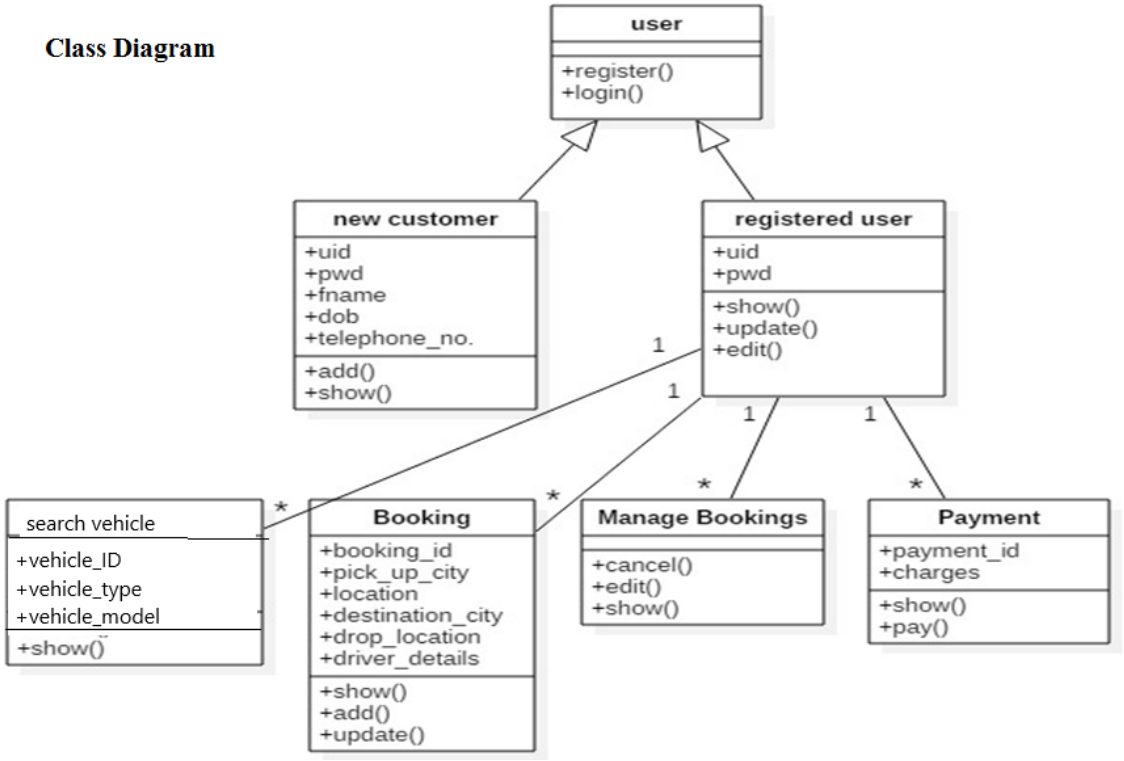

Figure 4.3: Class diagram

The class diagram is the main building block of object-oriented modeling. It is used for general conceptual modeling of the systematic of the application, and for detailed modeling translating the models into programming code. Class diagrams can also be used for data modeling. The classes in a class diagram represent both the main elements, interactions in the application, and the classes to be programmed. In the diagram, classes are represented with boxes that contain three compartments: The top compartment contains the name of the class. It is printed in bold and centered, and the first letter is capitalized. The middle compartment contains the attributes

of the class. They are left-aligned and the first letter is lowercase. The bottom compartment contains the operations the class can execute. They are also left-aligned and the first letter is lowercase. A class with three compartments. In the design of a system, a number of classes are identified and grouped together in a class diagram that helps to determine the static relations between them. With detailed modelling, the classes of the conceptual design are often split into a number of sub classes.

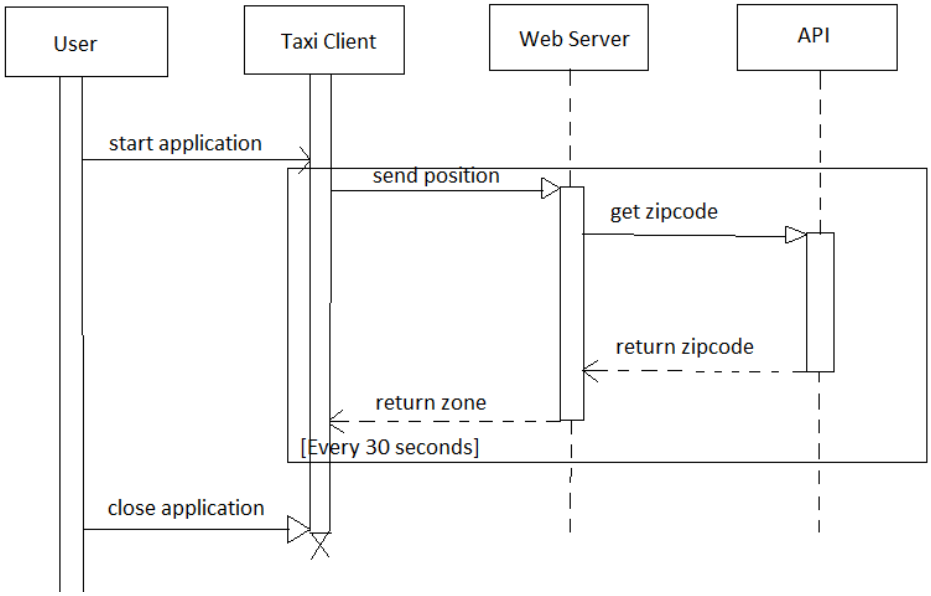

Figure 4.4: Sequence diagram

A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the Logical View of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios.

A sequence diagram shows, as parallel vertical lines (lifelines), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur. This allows the specification of simple runtime scenarios in a graphical manner. If the lifeline is that of an object, it demonstrates a role. Leaving the instance name blank can represent anonymous and unnamed instances.

Messages, written with horizontal arrows with the message name written above them, display interaction. Solid arrow heads represent synchronous calls, open arrow heads represent asynchronous messages, and dashed lines represent reply messages. If a caller sends a synchronous message, it must wait until the message is done, such as invoking a subroutine. If a caller sends an asynchronous message, it can continue processing and doesnt have to wait for a response. Asynchronous calls are present in multithreaded applications, event-driven applications and in message-oriented middleware. Activation boxes, or method-call boxes, are opaque rectangles drawn on top of lifelines to represent that processes are being performed in response to the message (Execution Specifications in UML).

Use Case Diagram for transportation system

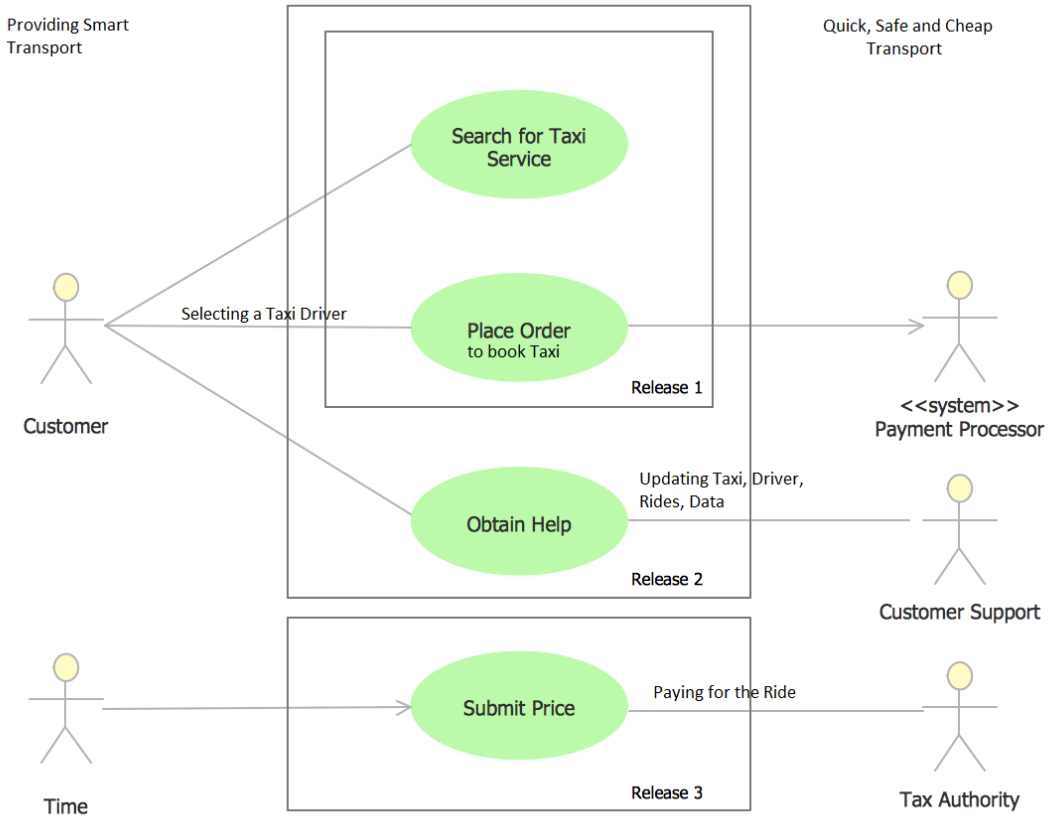

Figure 4.5: Use Case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. A use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses.
While a use case itself might drill into a lot of detail about every possibility, a use-case diagram can help provide a higher-level view of the system. It has been said before that "Use case diagrams are the blueprints for your system".They provide the simplified and graphical representation of what the system must actually do.
Due to their simplistic nature, use case diagrams can be a good communication tool for stakeholders. The drawings attempt to mimic the real world and provide a view for the stakeholder to understand how the system is going to be designed. Siau and Lee conducted research to determine if there was a valid situation for use case diagrams at all or if they were unnecessary. What was found was that the use case diagrams conveyed the intent of the system in a more simplified manner to stakeholders and that they were "interpreted more completely than class diagrams".
The purpose of the use case diagrams is simply to provide the high level view of the system and convey the requirements in terms for the stakeholders. Additional diagrams and documentation can be used to provide a complete functional and technical view of the system.

4.4 Entity Relationship Diagrams

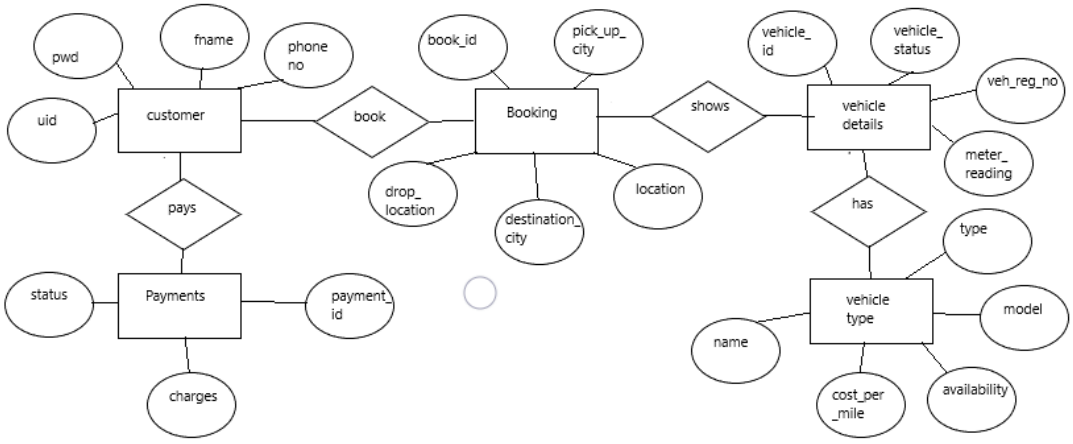

Figure 4.6: ER diagram

An entity relationship model (or ER model) describes interrelated things of interest in a specific domain of knowledge. A basic ER model is composed of entity types (which classify the things of interest) and specifies relationships that can exist between entities (instances of those entity types).

An entity relationship model is usually the result of systematic analysis to define and describe what is important to processes in an area of a business. It does not define the business processes; it only presents a business data schema in graphical form. It is usually drawn in a graphical form as boxes (entities) that are connected by lines (relationships) which express the associations and dependencies between entities. An ER model can also be expressed in a verbal form, for example: one building may be divided into zero or more apartments, but one apartment can only be located in one building.

Entities may be characterized not only by relationships, but also by additional properties (attributes), which include identifiers called "primary keys". Diagrams created to represent attributes as well as entities and relationships may be called entity attribute relationship diagrams, rather than entity relationship models.

An ER model is typically implemented as a database. In a simple relational database implementation, each row of a table represents one instance of an entity type, and each field in a table represents an attribute type. In a relational database a relationship between entities is implemented by storing the primary key of one entity as a pointer or "foreign key" in the table of another entity
There is a tradition for ER/data models to be built at two or three levels of abstraction. Note that the conceptual logical physical hierarchy below is used in other kinds of specification, and is different from the three schema approach to software engineering.

CHAPTER 5
PROJECT PLAN

5.1 Project Estimate

The Waterfall Model was first Process Model to be introduced. It is also referred to as a linear-sequential life cycle model. It is very simple to understand and use. In a waterfall model, each phase must be completed fully before the next phase can begin. This type of model is basically used for the for the project which is small and there are no uncertain requirements. At the end of each phase, a review takes place to determine if the project is on the right path and whether or not to continue or discard the project. In this model the testing starts only after the development is complete. In waterfall model phases do not overlap.

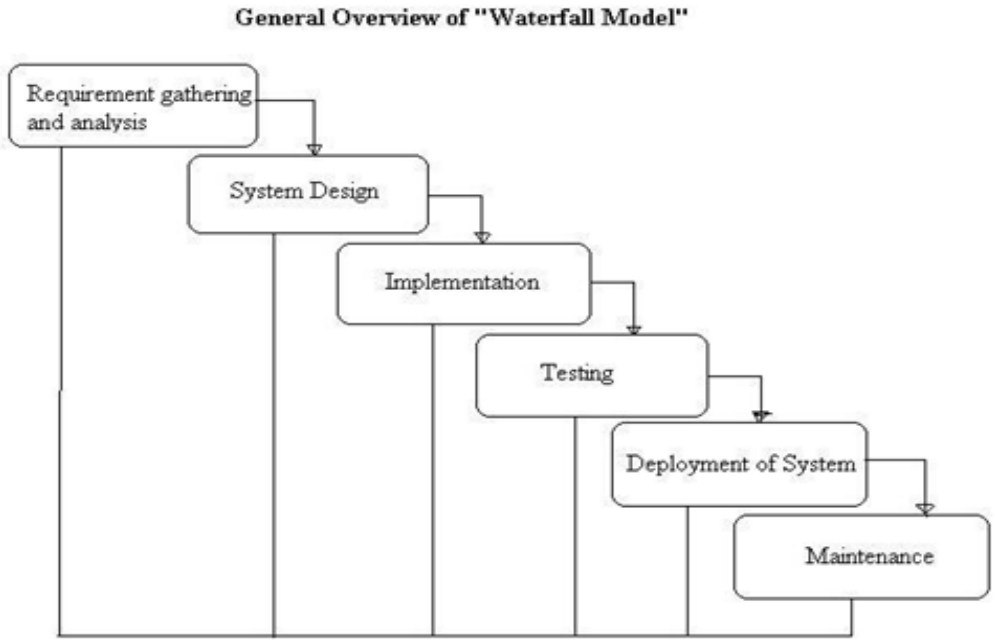

Figure 5.1: Waterfall Model

5.1.1 Reconciled Estimates

5.1.1.1 Cost Estimate

Cost of project
C=N*Cp
C=3*8000
C=24,000
The Cost of the project is approximately up to 24000.

5.1.1.2 Time Estimates

Line of Code (LoC):

Estimating LOC for this project is difficult at estimation stages this project is of innovative type project. Average estimation of this project is 10000 to 12000 line of code.

LOC based Estimation:
Efforts in Person in months
$E = 3.2 * (KLOC)^1.05$
$E = 3.2 * 9.0^1.05 to 11.0 * 4.2^1.05$

Function	**Estimated KLOC**
GUI design	1.1-1.3
Logical code	1.5-2.0
Location Based code	1.1-1.3
Directory matching code	1.0-1.3
Business logic	2.2-2.5
Testing	1.1-1.2
Re-correct Code	1.0-1.2
Total	9.0-10.11

Table 5.1: LOC Based estimation

Man Month Utilization:
Estimation of the man month is divide into following sub activities:
1. Technical training of the team member: This will take nearly 1 months. This will include Advance Java,MySQL,serialization etc.
2. Research: Being an innovative project research for the project is an important part currently it seems to have 1 to 1.5 months

5.1.2 Project Resources

- **Hardware Resources Required:**

  1. Processor:Intel i3
  2. Hard Disk:Minimum 100GB
  3. RAM:4GB

- **Software Resources Required:**

  1. Platform:Windows7 and above.
  2. Backend: MySQL 5.5.0
  3. Front End:JAVA.

When solving problems we have to decide the difficulty level of our problem. There are three types of classes provided for that. These are as follows:

- P class
- NP-Hard Class
- NP Complete Class

P Class:-
In computational complexity theory, P, also known as PTIME or DTIME(nO(1)), is a fundamental complexity class. It contains all decision problems that can be solved by a deterministic Turing machine using a polynomial amount of computation time, or polynomial time.P class problems are deterministic problems i.e. P class problems can be solve by deterministic Turing Machine.

Np class:-
In computational complexity theory Equivalently, the formal definition of NP is the set of decision problems solvable in polynomial time by a theoretical non-deterministic Turing machine. This second definition is the basis for the abbreviation NP, which stands for "non deterministic, polynomial time." However, the verifier-based definition tends to be more intuitive and practical in common applications compared to the formal machine definition. The two definitions are equivalent because the algorithm for the machine definition consists of two phases, the first of which consists of a guess about the solution, which is generated in a non-deterministic way, while the second phase consists of a deterministic algorithm that verifies or rejects the guess as a valid solution to the problem

NP Hard Class:-

- NP-hardness stands for Non-deterministic polynomial-time hard.
- Informally, "at least as hard as the hardest problems in NP" are called as NP hard class problem.

5.1.3 Risk Identification

For risks identification, review of scope document, requirements specifications and schedule is done.

1. Have top software and customer managers formally committed to support the project?
   Ans: All the required softwares are freely available and hence development will be possible.

2. Are end-users enthusiastically committed to the project and the system/product to be built?
   ans:The end user will be developers itself.

3. Are requirements fully understood by the software engineering team and its customers?
   Ans:Yes.All the requirements are fully understood by our team.

4. Have customers been involved fully in the definition of requirements?
   Ans:this is academic level project. So that whatever requirement be specify it should be by our team members and our guide.

5. Do end-users have realistic expectations?
   Ans: Yes.

6. Does the software engineering team have the right mix of skills?
   Ans: Yes,we have.

7. Are project requirements stable?
   Ans: All the basic requirements for this project are stable, from though some being variable but can be fulfilled.

8. Is the number of people on the project team adequate to do the job?
   Ans:Yes.

9. Do all customer/user constituencies agree on the importance of the project and on the requirements for the system/product to be built?
   Ans: Yes.

5.1.4 Risk Analysis

The risks for the Project can be analyzed within the constraints of time and quality

ID	Risk Description	Probability	Impact		
			Schedule	Quality	Overall
1	Deadline Risk	medium	Low	High	High
2	Technical skill Risk	medium	Low	High	High
3	Camera Failure Risk	high	high	medium	high
4	Accuracy Risk	medium	medium	low	high

Table 5.2: Risk Table

Probability	Value	Description
High	Probability of occurrence is	$> 75\%$
Medium	Probability of occurrence is	$26 - 75\%$
Low	Probability of occurrence is	$< 25\%$

Table 5.3: Risk Probability definitions

Impact	Value	Description
Very high	$> 10\%$	Schedule impact or Unacceptable quality
High	$5 - 10\%$	Schedule impact or Some parts of the project have low quality
Medium	$< 5\%$	Schedule impact or Barely noticeable degradation in quality Low Impact on schedule or Quality can be incorporated

Table 5.4: Risk Impact definitions

5.1.5 Overview of Risk Mitigation, Monitoring, Management

Following are the details for each risk.

Risk ID	1
Risk Description	Development Deadline Risk
Category	Development Environment.
Source	Software requirement Specification document.
Probability	Low
Impact	High
Response	Mitigate
Strategy	Team Work distribution and Task plan.
Risk Status	Occurred

Table 5.5: Development Deadline Risk

Risk ID	2
Risk Description	Technical skill risk
Category	Requirements
Source	Software Design Specification documentation review.
Probability	Low
Impact	High
Response	Mitigate
Strategy	Self study and Internet will be best source for technology knowledge
Risk Status	Identified

Table 5.6: Technical Skill Risk

Risk ID	3
Risk Description	Camera Failure
Category	Requirements
Source	Software Design Specification documentation review.
Probability	Low
Impact	High
Response	Mitigate
Strategy	Check whether camera is accurately fit or not according to knowledge
Risk Status	Identified

Table 5.7: Design Risk

5.2 Project Schedule

5.2.1 Project task set

Major Tasks in the Project stages are:

- Task 1.1: Checking Feasibility of product
- Task 1.2: Scope of Product
- Task 1.3: Product Planing
- Task 1.4: Technical Risk
- Task 1.5: Proof of product
- Task 1.6: Implementation
- Task 1.7: Costumer Feedback

5.2.2 Task network

Project tasks and their dependencies are noted in this diagrammatic form.

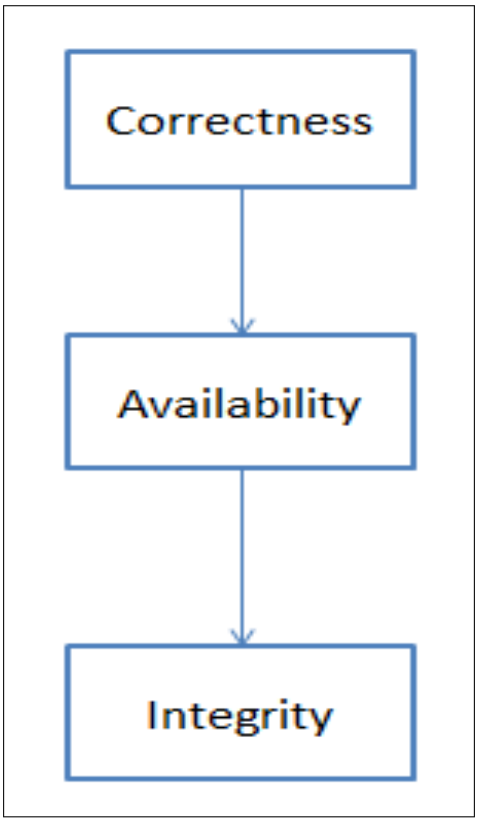

Figure 5.2: Task Network

5.2.3 Timeline Chart

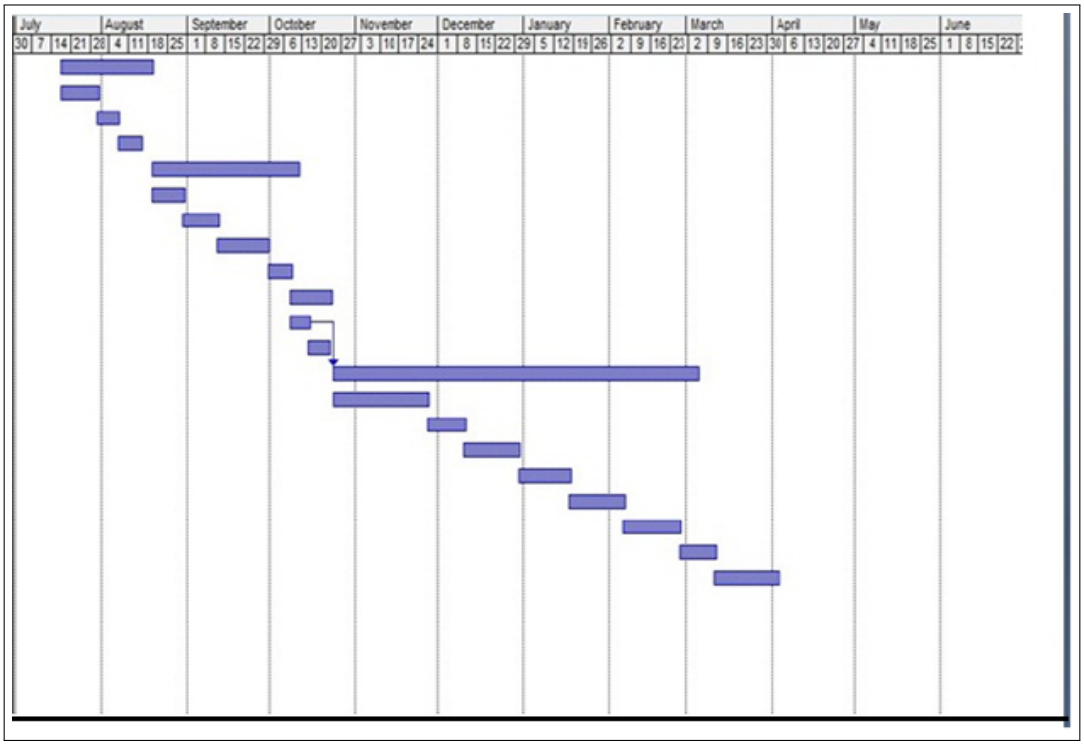

Figure 5.3: Time line Chart

5.3 Team Organization

Team Member Details:-
1. Sakshi Gatagat.
2. Aishwarya Dekhane.
3. Akansha Gore.

5.3.1 Team structure

The team structure for the project is identified. Roles are defined. Our team have three members. We select this topic after discussing with each other. All the members performing all the task whatever tasks are assign to the members.

Name	Role
Sakshi Gatagat	Schedule all plan of project. Manage the team. Divide the work in team. The deadline are assign. Consider the all requirements and as per requirement gathering develop the module and design the layouts.
Aishwarya Dekhane	Arrange the developing tool i.e platform, language, software, hardware and make the system architecture. Write the code of every module and apply the appropriate use case to test the plan.
Akansha Gore	Test the each module if result is correct then combine all module and again test. After deployment manages the feedback report and correct some corrections.

Table 5.8: Team work distribution

5.3.2 Management reporting and communication

Well planning mechanisms are used for progress reporting and inter/intra team communication are identified as per requirements of the project.
The process of reporting performance includes collecting, analyzing and distributing performance information to compare the baseline and actual data for the purpose of communicating the project progress and performance and forecasting the project results. During the process, both simple and detailed performance reports may be created and submitted to the concerned and permitted audience on a regular or exceptional basis. Performance reports can show percentage complete; analysis of past performance; current status of risks and issues; work completed or to be completed; summary of changed applied; etc. Complete performance reports should include actually completed project work and forecasted project completion.
If to be more specific, the following components should be included in the final performance report on the project communications management plan:

- Current deliverables status with reference to the schedule progress and costs incurred.

- Comparisons between actual and planned values related to technical performance, cost performance and schedule performance.
- Performance report formats and templates.
- Policies and rules applied to creation of the performance report Measures and indicators to be used in the report.
- Communication methods and techniques used during the project managing process.
- Variance analysis that allows identifying the difference between the baseline and actual performance. Variance analysis includes information on the project quality, the resources consumed, the working time spent. The analysis also lets define the impact of the variances.
- Forecasting methods that allow considering time, casual metrics, intuitive judgment and other information to estimate future outcomes.
- Reporting system for capturing, storing and distributing performance reports.
- Performance reports are used to generate change request and analyze lessons learnt.
- The process of reporting performance may cause changes to the project, and it is used to make recommendations.

CHAPTER 6
PROJECT IMPLEMENTATION

6.1 Overview of Project Modules

To have many modules in one project, and they shouldn't be just Java. You can have one module for a Java application and another module for a Ruby on Rails application or for any other supported technology.
An application that consists of a client side and a server side is a good example a two-module project.
The client side (the client-common module) might comprise the desktop-gui, mobile-gui, and command-line modules.
The server side (the web-service module) might consist of several other modules, for example: web service, servlets, and rest-api.

Online vehicle booking system uses SQL server at backend to execute queries which is connected to front end via PHP. We are providing two to ten vehicles for the ease of customer on same platform. Various Algorithms are used to analyze the routes from source to destination. Also there are different logins for admin, customer and driver. Admin have full authority to access all functionalities. When we are login as a customer we need to sign up for the first time. While from next time the customers details are saved automatically in database so no need to sign up again, just login into the system. Enter the destination location and choose the type of vehicle you want to book. There are multiple options for transportation mode like by car, bus, bicycle, truck etc. For the payment system there are two options cash and card. You need to enter Account number and CVV for card payment and confirm your ride. The request will be send to driver automatically and then system will fetch for driver. Appropriate generation of OTP (SMS Service) to start the ride, once driver accept your ride, you need to confirm the OTP with driver and as soon as you get confirmation your ride begins. After completion of ride, history will be saved in the system automatically.

6.2 Tools and Technologies Used

Tools

Android Studio

- Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development.It is available for download on Windows, macOS and Linux based operating systems.It is a replacement for the Eclipse Android Development Tools (ADT) as the primary IDE for native Android application development.

  Android Studio was announced on May 16, 2013 at the Google I/O conference. It was in early access preview stage starting from version 0.1 in May 2013, then entered beta stage starting from version 0.8 which was released in June 2014.The first stable build was released in December 2014, starting from version 1.0.

  Since 7 May 2019, Kotlin is Googles preferred language for Android app development. Still, other languages are supported, including by Android Studio.

- The following features are provided in the current stable version:

  Gradle-based build support. Android-specific refactoring and quick fixes. Lint tools to catch performance, usability, version compatibility and other problems. ProGuard integration and app-signing capabilities. Template-based wizards to create common Android

designs and components. A rich layout editor that allows users to drag-and-drop UI components, option to preview layouts on multiple screen configurations. Support for building Android Wear apps Built-in support for Google Cloud Platform, enabling integration with Firebase Cloud Messaging (Earlier 'Google Cloud Messaging') and Google App Engine Android Virtual Device (Emulator) to run and debug apps in the Android studio. Android Studio supports all the same programming languages of IntelliJ (and CLion) e.g. Java, C++, and more with extensions, such as Go;[18] and Android Studio 3.0 or later supports Kotlin and "all Java 7 language features and a subset of Java 8 language features that vary by platform version."External projects backport some Java 9 features. While IntelliJ that Android Studio is built on supports all released Java versions, and Java 12, it's not clear to what level Android Studio supports Java versions up to Java 12 (the documentation mentions partial Java 8 support). At least some new language features up to Java 12 are usable in Android.

XAMPP

- XAMPP stands for Cross-Platform (X), Apache (A), MySQL (M), PHP (P) and Perl (P). It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing purposes. Everything you need to set up a web server server application (Apache), database (MySQL), and scripting language (PHP) is included in a simple extractable file.
  XAMPP is also cross-platform, which means it works equally well on Linux, Mac and Windows. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server is extremely easy as well. Web development using XAMPP is especially beginner friendly.

  XAMPP has four primary components. These are:

- Apache: Apache is the actual web server application that processes and delivers web content to a computer. Apache is the most popular web server online, powering nearly 54 percent of all websites.

- MySQL: Every web application, howsoever simple or complicated, requires a database for storing collected data. MySQL, which is open source, is the worlds most popular database management system. It powers everything from hobbyist websites to professional platforms like WordPress. You can learn how to master PHP with this free MySQL database for beginners course.

- PHP: PHP stands for Hypertext Preprocessor. It is a server-side scripting language that powers some of the most popular websites in the world, including WordPress and Facebook. It is open source, relatively easy to learn, and works perfectly with MySQL, making it a popular choice for web developers.

- Perl: Perl is a high-level, dynamic programming language used extensively in network programming, system admin, etc. Although less popular for web development purposes, Perl has a lot of niche applications. Different versions of XAMPP may have additional components such as phpMyAdmin, OpenSSL, etc. to create full-fledged web servers.

Technologies

Java Programming Language

The Java Platform

A platform is the hardware or software environment in which a program runs. Weve already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that its a software-only platform that runs on top of other hardware-based platforms.
The Java platform has two components:
The Java Virtual Machine (Java VM)
The Java Application Programming Interface (Java API)

MYSQL
A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or the vast amounts of information in a corporate network. To add, access, and process data stored in a computer database, you need a database management system such as MySQL Server. Since computers are very good at handling large amounts of data, database management systems play a central role in computing, as standalone utilities, or as parts of other applications.

MySQL is written in C and C++. Its SQL parser is written in yacc, but it uses a home-brewed lexical analyzer. MySQL works on many system platforms, including AIX, BSDi, FreeBSD, HP-UX, eComStation, i5/OS, IRIX, Linux, macOS, Microsoft Windows, NetBSD, Novell NetWare, OpenBSD, OpenSolaris, OS/2 Warp, QNX, Oracle Solaris, Symbian, SunOS, SCO OpenServer, SCO UnixWare, Sanos and Tru64. A port of MySQL to OpenVMS also exists.
The MySQL server software itself and the client libraries use dual-licensing distribution. They are offered under GPL version 2, or a proprietary license.

Support can be obtained from the official manual. Free support additionally is available in different IRC channels and forums. Oracle offers paid support via its MySQL Enterprise products. They differ in the scope of services and in price. Additionally, a number of third party organisations exist to provide support and services, including MariaDB and Percona.

MySQL has received positive reviews, and reviewers noticed it "performs extremely well in the average case" and that the "developer interfaces are there, and the documentation (not to mention feedback in the real world via Web sites and the like) is very, very good". It has also been tested to be a "fast, stable and true multi-user, multi-threaded sql database server".

MySQL was created by a Swedish company, MySQL AB, founded by David Axmark, Allan Larsson and Michael "Monty" Widenius. Original development of MySQL by Widenius and Axmark began in 1994. The first version of MySQL appeared on 23 May 1995. It was initially created for personal usage from mSQL based on the low-level language ISAM, which the creators considered too slow and inflexible. They created a new SQL interface, while keeping the same API as mSQL. By keeping the API consistent with the mSQL system, many developers were able to use MySQL instead of the (proprietarily licensed) mSQL antecedent.

6.3 Algorithm Details

6.3.1 Algorithm

Google Map Calculates Shortest Path Google uses algorithms to determine our best routes. In order for these algorithms to work properly, it needs the correct form of input. Let us first consider what concept makes the most sense to apply to the problem of finding the shortest path. A network of roads is the best displayed in a top-down view, such as in a satellite image. Every intersection and every location of interest can be regarded as a vertex of the graph and the roads that connect vertices are then the edges.

Figure 6.1: The edges of the graph and the circles are the nodes

Denote the set of edges by E and the set of vertices by V. For each edge eE we denote its edge weight by Ce. In the case of a road and maps network, the edge weights represent the time it takes to go from one vertex u to its neighbor v is the edge u, v, which represents road that leads from u to v. The task of finding the shortest way from point A to point B can thereby be reduced to finding the shortest path on a weighted graph. There are a lot of different algorithms that can do this but we only want to discuss the one introduced by Dijkstra. (Google Maps most likely uses A search.)

Dijkstras algorithm was published in 1959 by Edsger W. Dijkstra. The algorithm is important in the area of path finding. As some have mentioned computing a route a long way across a large map can be expensive and slow. So optimizations of the Dijkstra are needed:

A* has been an important concept in traditional AI, and many route calculation algorithms include it. But, in my experience in developing the algorithms, A* has offers only a minor improvement in performance maybe 30 .
For other applications in Artificial Intelligence, the graphs might be very different in such a way the A* provides a larger performance advantage, but not much for road networks.

Bi-directional is a more effective optimization and almost all route calculation algorithms in the industry use it but not primarily for the performance advantage it brings. It means that the route is computed both forward from the origin (with Dijkstra, A*, reach-based routing, highway hierarchies, contraction hierarchies, or other methods) and backward from the destination. Like A*, the technique reduces the area searched, but more importantly, some more important algorithms require to work. But bi-directional route in the network computations bring their own complications the algorithm must determine when the two searches have met at a point on an optimum or near optimum route and thats more complex than it sounds.

Using the road network hierarchy, this is the most important performance optimization. Reach based routing brought concept into academia and spawned further research producing algorithms like Highway Hierarchies and Contraction Hierarchies.
At each iteration of its main loop, A* needs to determine its partial paths to expand into one or longer paths; so based on an estimate of the cost (total time taken) to go to the goal node. Specifically, A* selects the path that minimize.

f (n) = g(n) + h(n) f(n) = g(n) + h(n)

where, n is the destination node on the path, g(n) is the cost of the path from the start node to n, and h(n) is a heuristic that estimates the shortest path from source to the destination. The heuristic is problem-specific.

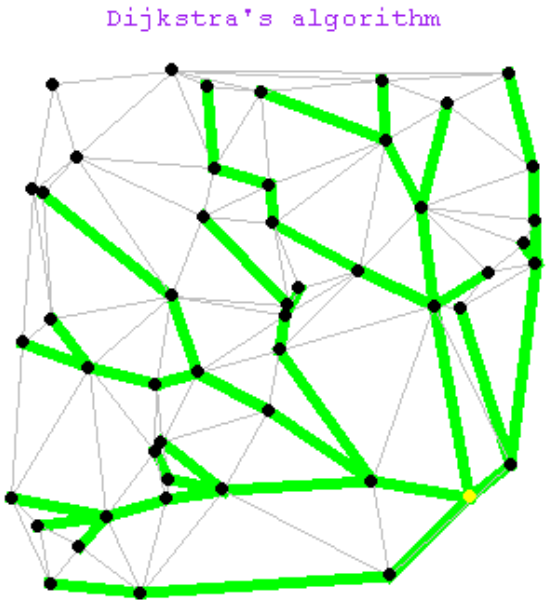

Figure 6.2: Dijkstra's Algorithm

CHAPTER 7
SOFTWARE TESTING

7.1 Types of Testing

The different types of testing that may be carried out in the project are as follows:
1. Unit testing
2. Integration Testing
3. System Testing
4. Validation Testing
5. White Box Testing
6. Black Box Testing
7. GUI Testing

Unit Testing:
Individual components are tested independently to ensure their quality. The focus is to uncover errors in design and implementa- tion, including
1. Data structure in component.
2. Program logic and program structure in a component.
3. Component interface.
4. Functions and operations of a component.

Integration Testing :
A group of dependent components are tested together to ensure their quality of their integration unit. This approach is to do in- cremental integration to avoid bigbang problem. That is when the entire program is put together from all units and tested as a whole. The big-bang approach usually results in chaos which in- cremental integration avoids. Incremental integration testing can be done in two different way top down and bottom up. Then there is also the possibility of regression integration.

The top down integration is when modules are integrated by mov- ing downwards through the control hierarchy, beginning with the main control module. Modules subordinate to the main control module are incorporated into main structure n either depth-first or breadth-first manner. The top down integration verifies major controls or decision points early in the test process. If major con- trol problems do exist, early recognition is essential. Bottom-up integration testing begins construction and testing with the lowest levels in the program structure. Because modules are integrated from the bottom-up,processing required for modules subordinate to a given level is always available and the need for test stubs is eliminated.

The focus is to uncover errors in:

- Design and construction of software architecture
- Integrated functions or operations at sub-system level
- Interfaces and interaction and or environment integration

System Testing :
The system software is tested as a whole. It verifies all element mesh properly to make sure that all system functions and performance are achieved in the target environment.
The focus areas are:

- System functions and performance
- System reliability and recoverability (recovery test)
- System behavior in the special conditions (stress and load test)

- System user operations (acceptance test/alpha test)
- Hardware and software integration collaboration
- Integration of external software and the system

Validation Testing:
Validation can be defined in many ways, but a simple definition is that succeeds when software functions in a manner that can be reasonably expected by the customer. Software validation is achieved through a series of black-box tests that demonstrate con- formity with requirements. A test plan outlines the classes of tests to be conducted and a test procedure defines specific test cases that will be used to demonstrate conformity with requirements. Both the plan and procedure are designed to ensure that all func- tional requirements are satisfied, all behavioral characteristics are achieved, all performance requirements are attained, documenta- tion is correct, and human engineered and other requirements are met.

White Box Testing:
White-box test design allows one to peek inside the box, and it focuses specifically on using internal knowledge of the software to guide the selection of test data. Synonyms for white-box include: structural, glass-box and clear-box. White box testing is much more expensive than black box testing. It requires the source code to be produced before the tests can be planned and is much more laborious in the determination of suit- able input data and the determination if the software is or is not correct. This testing is concerned only with testing the software product; it cannot guarantee that the complete specification has been implemented.

Black Box Testing:
Black-box test design treats the system as a black-box, so it doesnt explicitly use knowledge of the internal structure. Black-box test design is usually described as focusing on testing functional re- quirements. Synonyms for black box include: behavioral, func- tional, opaque-box, and closed-box. Black box testing is concerned only with testing the specification; it cannot guarantee that all parts of the implementation have been tested. Thus black box testing is testing against the specification and will discover faults of omission, indicating that part of the specification has not been fulfilled.

GUI Testing:
Graphical User Interface (GUIs) present interesting challenges for software engineers. Because of reusable components provided as part of GUI development environments, the creation of the user interface has become less time consuming and more precise. But, the same time, the complexity of GUIs has grown, leading to more difficulty in the design and execution of the test cases. Because many modern GUIs have the same look and same feel, a series of test cases can be derived.

7.2 Test Cases Test Results

7.2.1 Test Cases

A TEST CASE is a set of conditions or variables under which a tester will determine whether a system under test satisfies requirements or works correctly. The process of developing test cases can also help find problems in the requirements or design of an application.

Software to be tested:
After implementation of project software will be tested by tester.

Testing of project problem statement using generated test data (us- ing mathematical models, GUI, Function testing principles, if any) se- lection and appropriate use of testing tools, testing of UML diagrams reliability.

Module-ID:-01
Modules to be tested:-Registration
1. Enter the case insensitive Username click on Submit button.
Expected: It should display error.
2. Enter the case sensitive Username click on Submit button.
Expected: It should accept.
3. Enter the case insensitive Password click on Submit button.
Expected: It should display error.
4. Enter the case sensitive Password click on Submit button.
Expected: It should accept.
5. Enter the case insensitive Mobile Number click on Submit button.
Expected: It should display error.
6. Enter the case sensitive Mobile Number click on Submit button.
Expected: It should accept.
7. Enter the wrong address and click on Submit button.
Expected: It should display error.
8. Enter the correct address and click on Submit button.
Expected: It should accept.

Test Case_ID	Description	Test case I/P	Actual Result	Expected result	Test case criteria (P/F)
101	Enter the case insensitive Username click on Submit button.	Username	Error comes	Error Should come	P
102	Enter the case sensitive Username click on Submit button.	Username	Accept	Accept Username	P
201	Enter the case insensitive Password click on Submit button.	Password	Error comes	Error Should come	P
202	Enter the case sensitive Password click on Submit button	Password	Accept	Accept	P
301	Enter the case insensitive Mobile Number click on Submit button	Mobile Number	Error comes	Error Should come	P
302	Enter the case sensitive Mobile Number click on Submit button.	Mobile Number	Accept	Accept	P

Module-ID:-2

Modules to be tested:- Login

1. Enter the correct username and wrong password click on Submit button.
Expected: It should display error.
2. Enter the wrong username and correct password and click on Submit button.
Expected: It should display error.
3. Enter the correct username and password and click on Login button
Expected: It should display welcome page.
4. After login with valid credentials click on back button.
Expected: The page should be expired.
5. After login with valid credentials copy the URL and paste in another browser.
Expected: It should not display the users welcome page.
6. Check the password with Lower case and upper case.
Expected: Password should be case sensitive.

Test Case_ID	Description	Test case I/P	Actual Result	Expected result	Test case criteria (P/F)
001	Enter the correct username and wrong password click onLogin button.	Username Password	Error comes	Error Should come	P
002	Enter the wrong username and correct password click onLogin button,	Username Password	Error comes	Error Should come	P
003	Enter the correct username and password and click on Login button.	Username Password	Accept	Accept	P

Module-ID:-3

Modules to be tested:- connect DB

1. Enter the wrong Username and click on Submit button.
Expected: It should display error.
2. Enter the correct Username and click on Submit button.
Expected: It should accept.
3. Enter the wrong Host and click on Submit button.
Expected: It should display error.
4. Enter the correct Host and click on Submit button.
Expected: It should accept.
5. Enter the wrong Database type and click on Submit button.
Expected: It should display error.
6. Enter the correct Database type and click on Submit button.
Expected: It should accept.

Test Case_ID	Test Case	Test case I/P	Actual Result	Expected result	Test case criteria (P/F)
001	Enter the wrong username click on Submit button	Username	Error comes	Error Should come	P
002	Enter the correct username click onLogin button	Username	Accept	Accept	P
001	Enter the wrong Host and click on Submit button.	Host	Error comes	Error Should come	P
002	Enter the correct Host and click on Submit button.	Host	Accept	Accept	P
001	Enter the wrong Database type and click on Submit button.	Database	Error comes	Error Should come	P
002	Enter the correct Database type and click on Submit button	Database	Accept	Accept	P

7.2.2 Test Results

Unit Testing:
It is the testing of individual software units of the application.It is done after the completion of an individual unit before integration. Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration Testing:
Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

CHAPTER 8

RESULTS

8.1 Outcomes

- Proper Interpretation of the language selected.
- Generation of path to the destination.
- Generation of fare for the ride by analyzing the distance.
- Generation of confirmation OTPs for the driver and the user.

8.2 Screen Shots

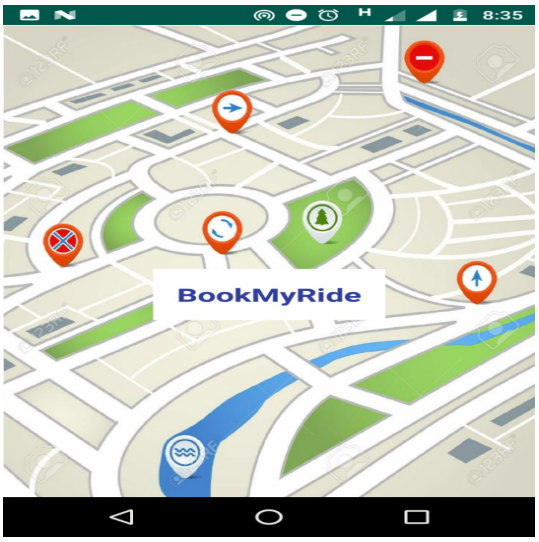

Figure 8.1: Splash screen

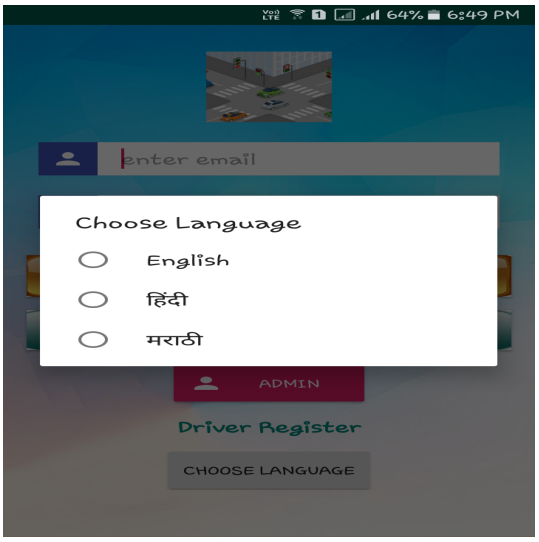

Figure 8.2: Native Language Selection.

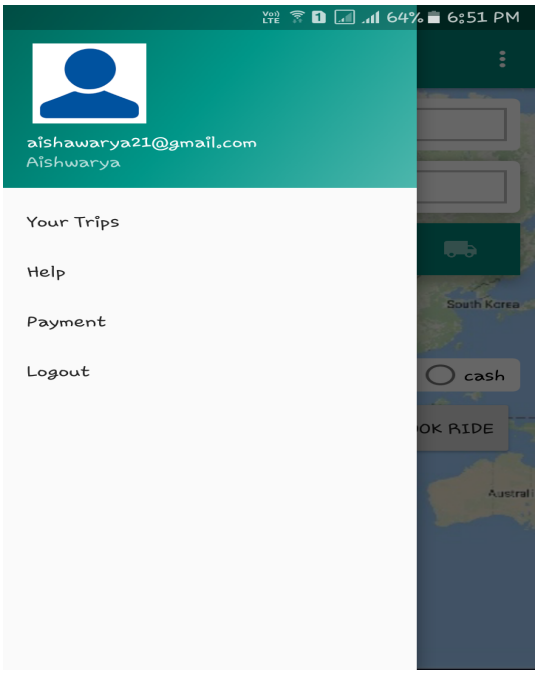

Figure 8.3: User Login

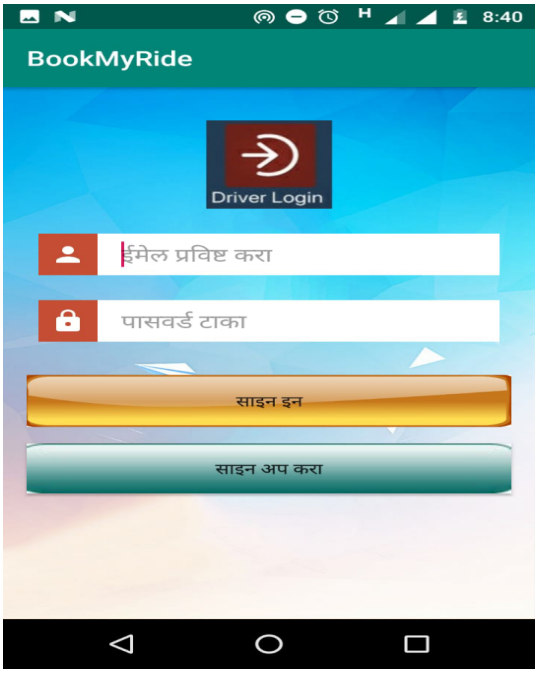

Figure 8.4: Driver Login.

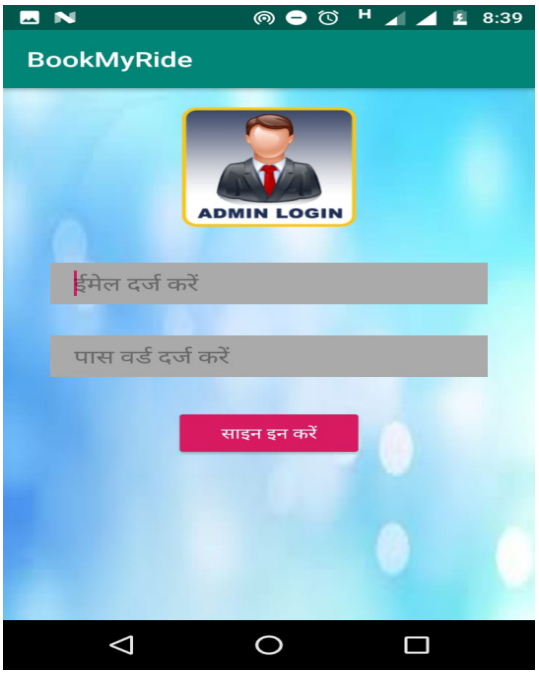

Figure 8.5: Admin Login.

Figure 8.6: Execution in native language i.e.in Marathi.

Figure 8.7: Execution in native language i.e.in Hindi.

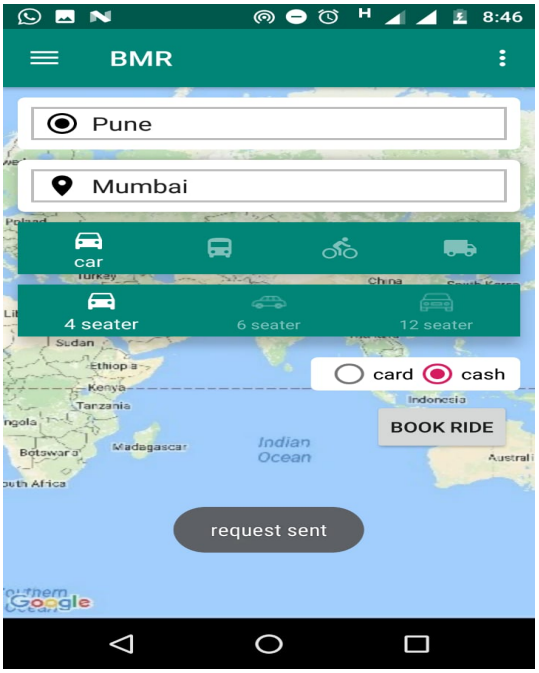

Figure 8.8: Execution of book ride.

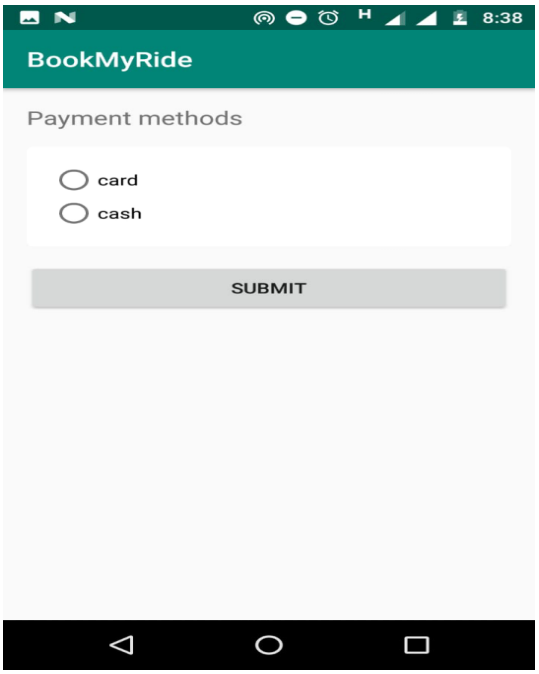

Figure 8.9: Payment methods.

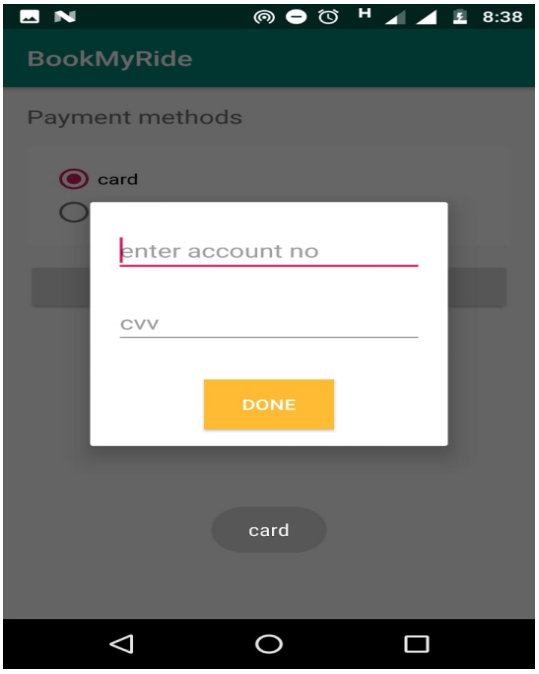

Figure 8.10: Payment Process.

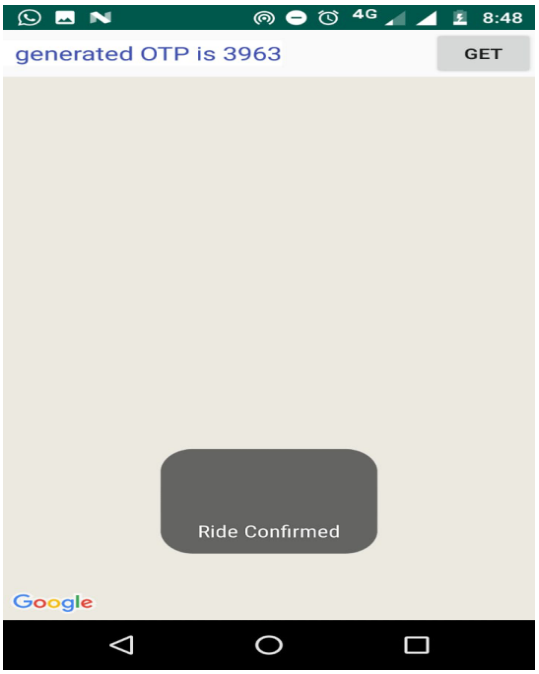

Figure 8.11: OTP Generation.

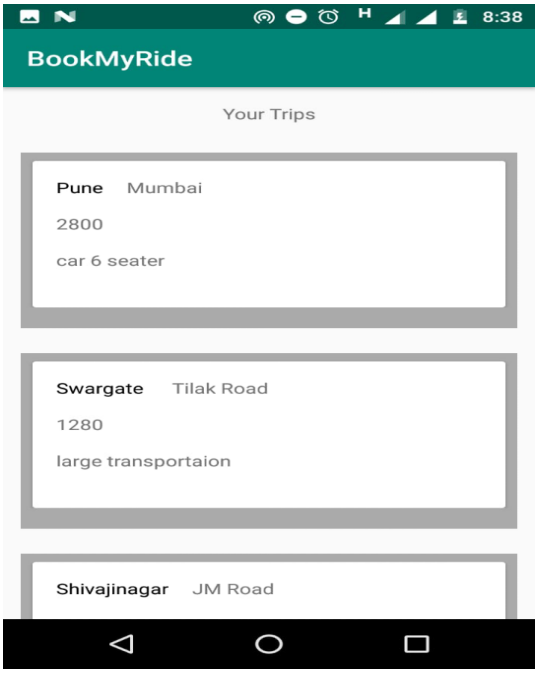

Figure 8.12: Trip history.

CHAPTER 9
CONCLUSIONS

9.1 Conclusions

There are many kinds of systems that exhibit similar properties, but have hidden underpinnings that fundamentally differ the way they op- erate. The purpose of this project is to attempt to learn some-thing fundamental about the structure of systems and the structure of the organization that controls or develops them. When a task is too complex to be carried out by a single person, a team, company or organization is put in place in order to, collaboratively, carry it out. These groups establish rules and procedures in a formal or informal way. Besides the skills of its members, the structure of an organi-zation has a great impact on the success it has. The hypothesis is that systems that are structured or centrally designed are different than those that are un- structured or emerge in an evolutionary fashion. The approach to an- alyze this issue was to observe transportation networks and knowledge networks using network analysis tools and compare results to determine if any specific behavior emerged. The role of smartphones in traffic applications is typically limited to front-end interface. Although smartphones have significant computa- tional resources, which are most likely to increase further in the near future, most of the computations are still performed on servers. After the study of computational performance of centralized, decentralized, and hybrid architectures for intelligent transportation sys-tem applications.For implementation,After the conclusion Android Software De- velopment Kit (SDK) and Android Native Development Kit (NDK) will be used. Numerical results show that recent smart-phones take less than 1s to estimate the speed for each road segment in a network of 10 000 links from speed measurements at 1000 links. The proposed centralized architecture significantly reduces the overhead of the com- munication network and paves the way for new cooperative traffic ap- plications and operations. When applying a transportation system to business solutions, one will find different levels of inte-gration. Some of them immediately agree on full integration, giving themselves a chance to gain data that finds real results. These results are exact. The TMS is an electronic paper trail, offering increased ability to tweak their capabilities and collaborate. When a transportation management software is not fully integrated, it can easily overlook problems, as visibility is limited. Centralizing transportation management lets optimize opportunities and find bet- ter communication among carriers and vendors. Fully-integrated TMSsoftware reduces mistakes, enhances operations, delivers better cus- tomer service and leads to improved decision-making.

9.2 Future Work

Some of the possible amendments and improvements in the system can be,

- Support for more than three types of native languages.
- Transportation facility for multipurpose requirements.
- The system will be enhanced with real-time features.

9.3 Applications

Agent-oriented techniques offer a new approach to support the whole software development process. All the phases in the soft- ware development process are treated with a single uniform con- cept, namely that of agents, and a system modelled by a collection of agents is called a multi-agent system. AOTs as a new advance in information technology can help to respond to the growing inter- est in making traffic and transportation more efficient, resource- saving and ecological. The authors give an overview of a diverse range of applications where multi-agent systems promise to create a great impact in this domain. To demonstrate the ideas behind AOTs and their applicability in this domain, two applications cur- rently under development at Daimler-Benz Research are described in some detail.

Road crashes are a growing concern of governments and are rising to become one of the leading preventable causes of death, espe- cially in developing countries. The ubiquitous presence of smart phones provides a new platform on which to implement sensor networks and driver-assistance systems, as well as other intelligent transportation system (ITS) applications. In this study, existing approaches of using smart phones for ITS applications are ana- lyzed and compared. Particular focus is placed on vehicle-based monitoring systems, such as driving behaviour and style recogni- tion, accident detection and road condition monitoring systems. Further opportunities for use of smart phones in ITS systems are highlighted, and remaining challenges in this emerging field of re- search are identified.

Spend Control Centralization can help you get control of your spend. A team dedicated to trans-portation is more likely to se- lect the proper carrier for a lane rather than simply give the load to whoever is the most convenient. Monitoring premium freightspend and a carriers acceptance performance are two key compo- nents to battling spend creep, and centralization makes keeping tabs on them easier. Centralization is also s great enabler to take over your inbound freight moves, which almost always leads to savings.

ANNEXURE A

Problem statement feasibility assessment using, satisfiability analysis and NP Hard, NP-Complete or P type using modern algebra and relevant mathematical models.

There are computational problems that can not be solved by algorithms even with unlimited time. For example Turing Halting problem (Given a program and an input, whether the program will eventually halt when run with that input, or will run forever). Alan Turing proved that general algorithm to solve the halting problem for all possible program- input pairs cannot exist. A key part of the proof is, Turing machine was used as a mathematical definition of a computer and program (Source Halting Problem). Status of NP Complete problems is another failure story, NP complete problems are problems whose status is unknown. No polynomial time algorithm has yet been discovered for any NP complete prob-lem, nor has anybody yet been able to prove that no polynomial-time algorithm exist for any of them. The interesting part is, if any one of the NP complete problems can be solved in polynomial time, then all of them can be solved.

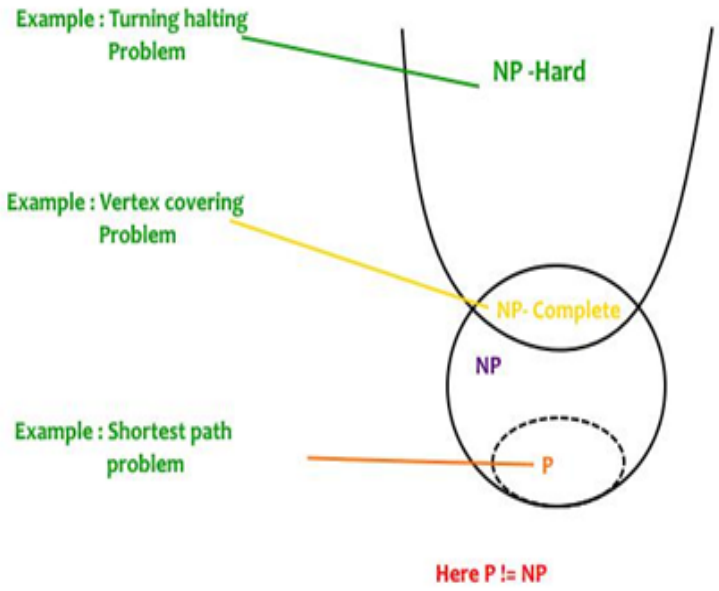

Figure A.1: NP-Completeness.

P is set of problems that can be solved by a deterministic Turing ma- chine in Polynomial time. NP is set of decision problems that can be solved by a Non-deterministic Turing Machine in Polyno-mial time. P is subset of NP (any prob- lem that can be solved by deterministic machine in polynomial time can also be solved by non-deterministic machine in polynomial time). Informally, NP is set of decision problems which can be solved by a polynomial time that always makes a right guess among the given set of choices. NP-complete problems are the hardest problems in NP set. A decision problem L is NP-complete if: 1) L is in NP (Any given solution for NP-complete problems can be verified quickly, but there is no efficient known solution). 2) Every problem in NP is reducible to L in polynomial time (Reduction is de- fined below). A problem is NP-Hard if it follows property 2 mentioned above, doesnt need to follow property 1. Therefore, NP-Complete set is also a subset of NP-Hard set.

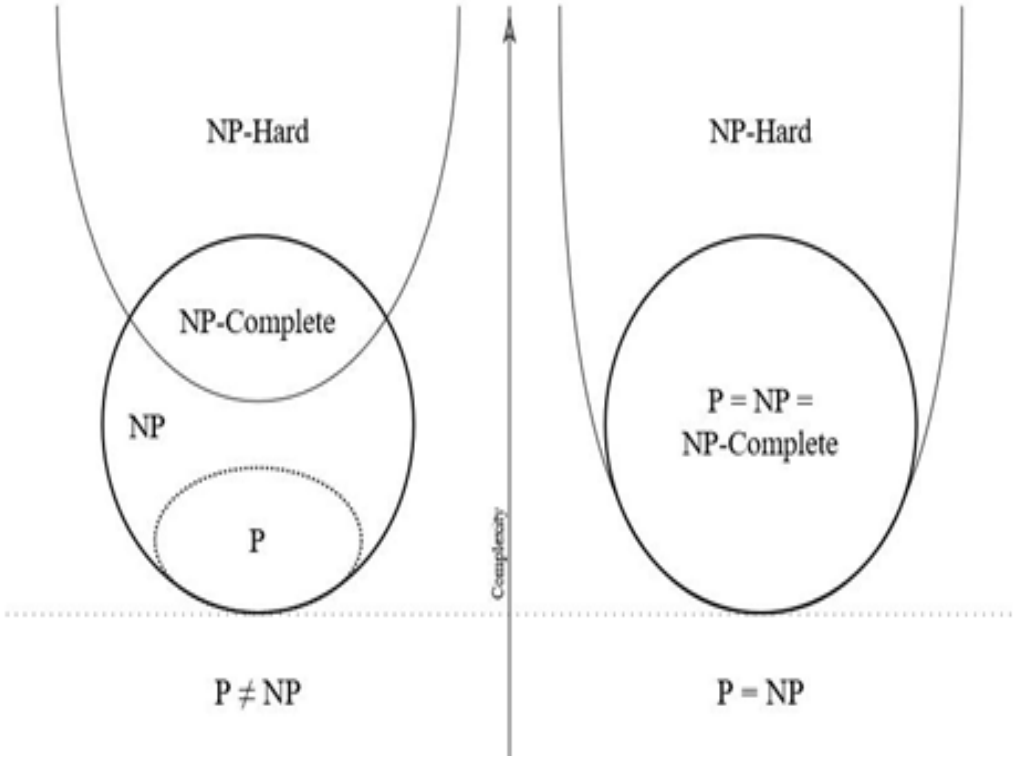

Figure A.2: NP-Hardness.

Decision vs Optimization Problems NP-completeness applies to the realm of decision problems. It was set up this way because its easier to compare the difficulty of decision problems than that of optimization problems. In reality, though, being able to solve a decision problem in polynomial time will often permit us to solve the corresponding opti- mization problem in polynomial time (using a poly-nomial number of calls to the decision problem). So, discussing the difficulty of decision problems is often really equivalent to discussing the difficulty of op- timization problems. For example, consider the vertex cover problem (Given a graph, find out the minimum sized vertex set that covers all edges). It is an optimization problem.

Dijkstras Algorithm

Dijkstras algorithm is an algorithm for finding the shortest paths be-
tween nodes in a graph, which may represent, for example, road net- works. It was conceived by Dutch computer scientist Edsger W. Dijk- stra in 1956 and published three years later. The algorithm exists in many variants; Dijkstras original variant found the shortest path between two nodes, but a more common variant fixes a single node as the source node and finds shortest paths from the source to all other nodes in the graph, producing a shortest-path tree.

Dijkstras original algorithm does not use a min-priority queue and runs in time
O (V 2)
O(jV j2) O(jV j2)
(where jV jjV jjV jis the number of nodes):
The idea of given algorithm was developed in 1957:
O (E + V log V) O(jEj+ jV jlog jV j) O(jEj+ jV jlog jV j)
(where jEj is the number of edges)
can indeed be improved further as detailed in Specialized variants:

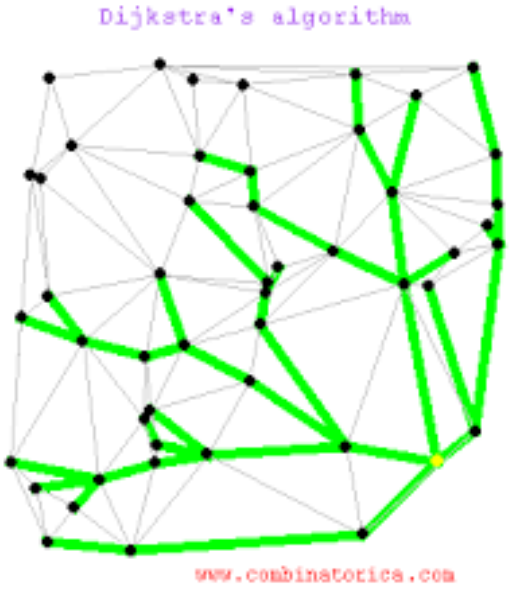

Figure A.3: Dijkstra's Working

ANNEXURE B

Name of publisher : International Research Journal of Engineering and Technology (IRJET)

Manuscript published in International Research Journal of Engineering and Technology

www.irjet.net

Title of paper : A Research Paper on a Centralized Multipurpose Transportation System.

Authors :

1. Aishwarya Dekhane
2. Sakshi Gatagat
3. Akansha Gore

Guide : Mr. Santosh Nagargoje

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ANNEXURE C

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	His constant guidance and advice played very important role in making the execution of	-
	He always gave us his suggestions, that were crucial in making this report as	-

Figure C.1: Plagiarism report

CHAPTER 10
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