

Software Automated Solutions for UML Diagrams

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Abstract

In this competitive world the mobile communication became the easiest accessible way to meet these challenges in a tactful way. The mobile nature and today's mobile administration requires immediate information access and total flexibility towards the users for a successful infrastructural accomplishment for this fast growing world.

This technology comes through as the optimal portable solution for the information access, management and improved communication, while providing the strongest security measures in the market today. Attaining of the current position by a mobile phone by its user whether he is stationary or moving is very important aspect in this fast moving world. Mobile positioning, which includes location based service that discloses the actual coordinates of a mobile phone bearer, is a technology used by telecommunication companies to approximate where a mobile phone, and thereby also its user (bearer), temporarily resides. The more properly applied term locating refers to the purpose rather than a positioning process. Such service is offered as an option of the class of location-based services.

One of that is road traffic system and route finding system of determination. Road traffic congestion is a growing problem in many cities around the world. Added with rising fuel cost, people are more than ever interested in road traffic information. Conventional methods to acquire road traffic condition, such as surveillance cameras, have several limitations in large scale implementation including high investment cost and limited coverage. With regards of the above mentioned theme a data base system and a proper scheme for real time path and vehicle guidance has been proposed and produced. This System includes a unit equipped position determining system adapted to determine their present position with the processed information regarding precise location of the roads

and land marks which can be retrieved via the mobile phones continuously.

In this paper, we present our work that uses mobile phones as a probing device to collect the cell site data for road traffic information and variable routes and distance to a destination point with an effective transportation service with voice commands. This approach appears to be a good alternative solution because the use of android mobile phones has become so prevalent in today society, especially in the city. Clients should be permitted to access the system anytime, anywhere and at any instance through android mobile.

In EMTsystem of identification of pathways to a destination and transportation services were locked safely and available with a mapping of route location and voice commands. The current location is sensed and retrieved after the user has logged on our portal. Then once the user has entered the preferred destination point he will be showed by the nearest route with the distance and voice commands. Further if the user wish to offer a transportation service provided by the version he can be suggested in terms of cost effectiveness and the services will be arranged after a request made by a call or sms.

The inspiration for this research is to solve the problems of the client regarding the location where he/she on, paths towards the destination point, provide the voice alerts through mobile phones, inform the Client about the pre-planned road blocks, accidents, place descriptions and provide better transport services to the Client. With regards to the above problems, our team comes across with the solution called E-mobile tracking system with traffic Management. This would broadcasts the update traffic patterns in real time, thereby enabling the Clients to dynamically calculate the desired optimal travel paths.

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Acronyms and Abbreviations

Term	Definition
ERMS	E-Road Management System
EMT	E-Mobile Tracker
EPI	E-Path Identifier
EDMS	E-Destination Management System
ESA	E-Statistical Analyzer
MySQL	MySQL is a relational database management system (RDBMS), which has More than 11 million installations. The program runs as a server providing, Multi-user access to a number of databases.
Database	Information relating to the registered users logins, statistical details and transport service details, client details, and reservation place details.
Client	A person or the organization who requests to developed system.
SMS	Short Message Service
3G	Third generation of mobile phone standards and technology, superseding 2G.
GPRS	General Packet Radio Service.
GUI	Graphical User Interface.

Table 0.1: Abbreviations

Chapter 1

INTRODUCTION

1.1 Purpose of the document

This document is created to outline represents the development of your ideas and how they are inter-related.a research review on the project we selected for the E-Mobile Tracker (EMT) under E-Road Management System (ERMS).the report is An orderly, objective message used to convey information from one organisational area to another or from one institution to another.

The main objective of this document is to give the reader a consistent and complete insight to all aspects of the project. The document describes the working process of the system giving the different users a better idea of how the system functions. It also includes all details on research fields as well as a detailed description on the planning, design, development and functionalities of the entire “E-Mobile Tracker”. In particular this document will demonstrate an innovative, practical and efficient system.

The purpose of this document is represents the development of your ideas and how they are inter-related. It will try to provide a clear picture from the end user perspective on how the end product will function according to given scenarios. This document will also try exploit on the technological background and provide on how the developing technology will be applied to the solution that is been proposed. Within this document we are suppose to give all the requirements and preferred solution.

As the end result, this document will lead the developers to come up with a successful final product. Majorly, this document will give its reader an idea about how the research was and is being actually Carried out, up to which part has been finished so far, how this project is going to use for the users, what design will be used and how the implementation of the E-Mobile Tracker (EMT) and the whole system which is E-Road Management.

1.2 Background Context

The e-mobile tracking system refers to the attaining of the current position of a mobile phone, stationary or moving. Localization may occur either via multi-lateration of radio signals between (several) radio towers of the network and the phone, or simply via GPS. Mobile positioning, which includes location based service that discloses the actual coordinates of a mobile phone bearer, is a technology used by telecommunication companies to approximate where a mobile phone, and thereby also its user (bearer), temporarily resides.

The more properly applied term locating refers to the purpose rather than a positioning process. Such service is offered as an option of the class of location-based services (LBS). The intelligence transportation refers to information and communication technology (applied to transport infrastructure and vehicles) that improve transport outcomes such as transport safety, transport productivity, travel reliability, informed travel choices, social equity, environmental performance and network operation resilience.

Interest in this system comes from the problems caused by traffic congestion and a synergy of new information technology for simulation, real-time control, and communications networks. Traffic congestion has been increasing worldwide as a result of increased motorization, urbanization, population growth, and changes in population density. Congestion reduces efficiency of transportation infrastructure and increases travel time, air pollution, and fuel consumption.

1.3 Research Problem

Anyone should be able to share resources and exchange ideas through the internet. The inspiration for this research is to solve the problems of the client regarding

the location where he/she on, paths towards the destination point, provide the voice alerts through mobile phones, inform the Client about the pre-planned road blocks, accidents, place descriptions and provide better transport services to the Client.

With regards to the above problems, our team comes across with the solution called E-Road Management System. The ERMS unit broadcasts the update traffic patterns in real time, thereby enabling the Clients to dynamically calculate the desired optimal travel paths.

In SriLanka, there are no cab services available via the mobile phones. If a person wants cab service, then he has to browse the website in the computer and can obtain the cab service telephone no .then only he has to call to cab service. So it is very time consuming process and also in this fast growing world no one doesn't have this much time to spend. So this is not effective to users.

For example a person wants cab service that is in road and also there is no computer facility. Then no way to know about cab services and also couldn't get the facility and he may be going to work and immediately he wants.

Majority of people don't have English knowledge and non-educated.but if they want to get the cab service via the internet then they must know at least simple basic knowledge. it is difficult to them. So this service couldn't reach all people. This behavior is not good for any successful developed system.

1.4 *Research Gap*

There are many software packages available in the market to help to manage projects. This software get the input such as tasks, required resources, duration of each tasks and provide a plan. Most of these packages are used by the project managers so that they can plan the activities accordingly. Some packages are customized to provide tracking facilities.However,very few of them help to develop proper mobile application.

Other parts of the developing world remain largely rural but are rapidly urbanizing and industrializing. In these areas a motorized infrastructure is being developed alongside motorization of the population. Great disparity of wealth means that only a fraction of the population can motorize, and therefore the

highly dense multimodal transportation system for the poor is cross-cut by the highly motorized transportation system for the rich.

The urban infrastructure is being rapidly developed, providing an opportunity to build new systems that incorporate an effective transportation system at early stages. By sensing this moral responsibility to make an effective transportation we combine the path finding way for android mobile phones.

Android delivers a complete set of software for mobile devices: an operating system, middleware and key mobile applications. Android was built from the ground-up to enable developers to create compelling mobile applications that take full advantage of all a handset has to offer. It was built to be truly open. For example, an application can call upon any of the phone's core functionality such as making calls, sending text messages, or using the camera, allowing developers to create richer and more cohesive experiences for users.

Android is built on the open Linux Kernel. Furthermore, it utilizes a custom virtual machine that was designed to optimize memory and hardware resources in a mobile environment. Android is open source; it can be liberally extended to incorporate new cutting edge technologies as they emerge. The platform will continue to evolve as the developer community works together to build innovative mobile applications.

Android does not differentiate between the phone's core applications and third-party applications. They can all be built to have equal access to a phone's capabilities providing users with a broad spectrum of applications and services. With devices built on the Android Platform, users are able to fully tailor the phone to their interests. They can swap out the phone's home screen, the style of the dialer, or any of the applications. They can even instruct their phones to use their favorite photo viewing application to handle the viewing of all photos.

Android breaks down the barriers to building new and innovative applications. For example, a developer can combine information from the web with data on an individual's mobile phone such as the user's contacts, calendar, or geographic location to provide a more relevant user experience. With Android, a developer can build an application that enables users to view the location of their friends and be alerted when they are in the vicinity giving them a chance to connect. Android provides access to a wide range of useful libraries and tools that can be used to build rich applications.

For example, Android enables developers to obtain the location of the device, and allows devices to communicate with one another enabling rich peer-to-peer social applications. In addition, Android includes a full set of tools that have been built from the ground up alongside the platform providing developers with high productivity and deep insight into their applications.

Mobile companies are getting your glorious time the particular mobile know-how simply because it was anticipated so far. For instance alternative touch screen phone equipment as well as Systems, Android is furthermore seeking it is strategies the actual touch screen phone current market. While Smartphone sector is prospering, Android's market place profile provides moved up several steps with the turmoil brand-new models .Considering that going to a mobile community, Android have been encouraging coders acquire impressive in addition to dynamic purposes.

Since then Android has become roiling a smart data phone industry. Remaining introduced out there two years rear. It could possibly scarcely offer a competitor in order to iPhone 3gs along with other sensible gadgets. However with the recent lot of new android equipment continuous progress is an occurrence. Plus Android coders can also be increasing the means folks browse around intended for apps on the search engines Android Market place. As things are a podium open to all, the idea contains the assistance of huge developers' on-line community. Android can be configured to be able to auto-scale all things in most all cases, however if templates usually are specific together with actual pixel prices instead of the alternative encouraged solutions the coders may easily make the necessary alterations by using publicized articles. The help for porting legacy of software to add aid intended for bigger or maybe more compact monitor is reasonably much easier regarding Android.

The main focus of introducing this system is to get cab services, path, current location and distance efficiently without any interrupt. This system is a totally new attempt which is going to be an android application program mainly used to provide better transport services.

1.5 *Solution Outline*

- In EMT system there are so many possible way to overcome those above problems. In SriLanka, since there is no mobile phone transport services like our system.
- Voice guiding is the best outcome of our project. This is most help to blind people also.
- In this system most of the cab services are implemented. So anyone can easily get those services from anywhere. Because only the nearest cab services are displayed when you are accessing the cab services. It is providing by using current location.
- For example : The current location is “mallika lane colombo06”,then split this address in to three parts like “mallika”,”lane”, and ”colombo06”.according to this, the third variable send to query .so only Colombo cab services will be displayed.
- This is very efficient solution to consume time and faster access the system.
- There will be also cost comparison among those cab services .so the user can easily select the cheapest one and also display the distance between cab service center and user’s current location.therefore,can select nearest .
- There are so many illiterate people in rural areas. They have no idea about general language. It is difficult to communicate via the internet. But through EMT system all functions are auto in the phone not like manual as usual. Auto generate sms is also there. So no need to feed any details about request since all the information are repossessed robotically. But if you want to add any supplementary information, to that have editing ability also.
- Frequently voice alerts is use full to new comers for the country or area. It is working like when a person is moving from one place to another, then every 10 minutes the alert will occur.
- The proposed system will be preferred by people in this competitive world rather than internet accessing services which are require acquaintance of general language and time.

Chapter 2

Literature Review

2.1 E – Mobile Tracker in Local and Foreign countries

2.1.1 E-Mobile Tracker in Foreign countries

The United States, for example, saw large increases in both motorization and urbanization starting in the 1920s that led to migration of the population from the sparsely populated rural areas and the densely packed urban areas into suburbs. The industrial economy replaced the agricultural economy, leading the population to move from rural locations into urban centers. At the same time, motorization was causing cities to expand because motorized transportation could not support the population density that the existing mass transit systems could.

Suburbs provided a reasonable compromise between population density and access to a wide variety of employment, goods, and services that were available in the more densely populated urban centers. Further, suburban infrastructure could be built quickly, supporting a rapid transition from a rural/agricultural economy to an industrial/urban economy.

In SriLanka and in the developing world, the migration of people from rural to urbanized habitats has progressed differently. Many areas of the developing world have urbanized without significant motorization and the formation of suburbs. In these areas a high population density is supported by a multi-modal system of walking, bicycle transportation, motorcycles, buses, and trains. A small portion of the population can afford automobiles, but the automobiles

greatly increase the congestion in these multimodal transportation systems. They also produce a considerable amount of air pollution, pose a significant safety risk, and exacerbate feelings of inequities in the society.

Other parts of the developing world remain largely rural but are rapidly urbanizing and industrializing. In these areas a motorized infrastructure is being developed alongside motorization of the population. Great disparity of wealth means that only a fraction of the population can motorize, and therefore the highly dense multimodal transportation system for the poor is cross-cut by the highly motorized transportation system for the rich. The urban infrastructure is being rapidly developed, providing an opportunity to build new systems that incorporate an effective transportation system at early stages.

2.1.2 E-Mobile Tracker in Local countries

Sri Lanka does not have an automated system to monitor or to control the traffic. Policemen in the cities and/or the traffic light systems control the traffic. According to this system it is difficult for us to know where the traffic is blocked in advance. Therefore, we have no way of getting out of it or to avoid it until we reach the destination.

In the mornings and in the afternoons (peak hours) some electronic media both radio and television announces the roads that are blocked at the time. These announcements make the people a little amount of help avoiding busy roads and selecting alternative routes without much delay. The problem here is that announcements are made only at a particular time.

Association of Automobiles has taken steps to make their members aware of damaged roads. This approach is restricted to their members and also to certain areas. There is no any mobile application developed to send traffic alerts or something similar to it.

2.2 History of Classical E-Mobile Tracker Problems

This study describes a location-based guiding and tracking service in public transit especially for individuals with cognitive impairments. In a previous study, a mobile social network service prototype system was developed to help people

with severe mental illness. We have found that this system does not work well with subjects who travel more than an hour and change transportation modes two or three times before they arrive at the workplace.

Not only their parents/guardians but also their job coaches worry about the travelers' ability to make such trips. The system that we proposed is expected to reduce anxiety and frustration by making essential information available ubiquitously. For the purpose of guiding and tracking individuals, a lot of commercial navigation devices which are based on a GPS signal have been developed. We have ourselves proposed an outdoor GPS-based and web-based tracking service for people with mental illness [18, 19]. Unfortunately, we have found that these systems do not work for the many travelers who take the underground MRT because, in that case, the GPS fails.

This proposed system makes use of the Wi-Fi network. Taipei is the first city in the world with area-wide Wi-Fi usage. By July 2006, 90% of the city's population had access to the Wi-Fi network, which comprises more than 4,200 access points (AP). In addition, hundreds of APs have been set up for proprietary use. The abundance of information available through APs is adopted to build this guiding and tracking service. In other words, our approach adopts the existing information from APs and does not carry a huge cost to setup infrastructures for indoor positioning. The Taipei Mass Rapid Transit (MRT) where more than 1000 APs have been set up in 68 stations was first chosen as the test environment.

Chapter 3

Methodology

There should be specific tasks to be performed in order to improve quality of the final product as well as to make the development process traceable and easier for the developers. Selecting the most suitable methodology for a software development project is very crucial as the success of the entire project depends on it. In SLIIT, as the final year student, CDAP is the compulsory subject.

The main intention of this subject is carry out the research project. For this research 12 credit points are allocated. Four end of the year. The given sections of this chapter describes the flow of the project giving a clear idea about the procedures followed for the successful implementation of EMT system.

The areas covered under this chapter include:

- Providing Transport Services.
- Providing path and current location.
- Sending auto SMS.
- Calculate the distance.

3.1 Feasibility Study

A feasibility study is defined as an evaluation or analysis of the potential impact of a proposed project or program. A feasibility study is conducted to assist decision-makers in determining whether or not to implement a particular project or program. The Feasibility study is based on extensive research on both the current practices and the proposed project/program and its impact on E-Mobile Tracker. The feasibility study will contain extensive data related to financial and operational impact and will include advantages and disadvantages of both the current situation and the proposed plan.

This phase was carried out to determine whether the project is financially worth-while and technically feasible. Financial feasibility of this project was not the concern as it is done as a research. In order to check the technical feasibility of the project, researchers considered the team capabilities, GUIs and the development processes the first task, a group leader was appointed. A self evaluation form was generated and shared among the researchers to get to know about capabilities of each and every member of the group and to find out their fields of interest. With this self evaluation, each member's capabilities and interests were identified. This specific task helped to ease the process of work allocation among members.

The discussions about the design phase, the technologies to be used and the possibility to use those suggested technologies to design the system interfaces were carried out. Some members were found familiar with the technology chosen whereas somewhere not. Therefore, referring tutorials and other relevant materials to gather the necessary knowledge needed became the top priority. As the next step, development tools needed depending on their usage were identified.

3.2 Requirement Phase

The requirements development phase may have been preceded by a feasibility study, or a conceptual analysis phase of the project. The requirements phase may be broken down into requirements elicitation (gathering, understanding, reviewing, and articulating the needs of the stakeholders), analysis (checking for consistency and completeness), specification (documenting the requirements) and validation (making sure the specified requirements are correct).

In this phase, sufficient data have been gathered to help identifying the existing Problem and enhancing the solution. Therefore, the project's success or failure was Depending on this phase. More attention was given to this area because, due to lack of experience of team members, there would be a possibility to miss some important areas or data which might impact the quality of the software ultimately. As the output of this phase, SRS was generated with the detailed description of the system features and functionalities.

3.2.1 Requirement Gathering

Requirements were gathered through discussions, interviews and by referring to the sources published in the internet. Some key personnel at SLIIT were interviewed to get a thorough idea about the processes of the Students' PM system followed. Several discussions were carried out with both the supervisor and co-supervisor regarding the issues of mobile application in current situation. System and the changes they require reducing the stress caused by the workload. The Focus of the discussions was about the development of the system, essential Functions and features.

Well scoped research topics were searched under selected research domains. Difficulty in managing several projects which are done in parallel. An analysis about how these major projects are managed and evaluated by limited number of academic staff within a specific period of time in other educational institution was performed.

3.2.2 Requirement Analysis

After gathering enough information, the collected data was clarified by the potential client: SLIIT. Therefore, few staff who know the process of the final year project management has been interviewed. They offered their help to identify the ambiguities, inconsistencies and incompleteness found in the information which has been gathered in previous interviews and discussions.

After ensuring that the data we collected was accurate, an analysis was done for better understanding in order to come up with a best solution. All gathered information were documented, therefore, it could be used as future references. Once the requirements had been gathered and documented, it was

relatively easy to classify Them as functional and non-functional requirements.

After the analysis, each requirement has been sorted according to the priority given by the target users. The requirements with high priority needed more planning and effort as they were considered to be the critical functions of this system.

3.3 Designing

This is the process of solving the problems and planning a software solution. This is another important phase in our project life cycle because the success of the implementation phase is based upon this. If the system is designed properly, it would help other phases like maintenance as well.

The system was planned to be developed in a way that it can cater the needs of each user of the system. Each identified problem is highlighted together with its solution and mapped to make the implementation easy. When considering the design, the focus was on the system design, database design and interface design.

3.3.1 System Design

As the first task, the system overview was mapped to explain its architecture. The system was split into two independent modules. The main modules and components were identified and put in a class diagram for better understanding. Each major function was identified together with all its sub operations and were put into the use case diagram and activity diagrams. In this way, the logical design of the system was completed.

3.3.2 Database Design

Data flow of the system was identified and storage of the information was determined according to the needs. The entities were identified and so do their attributes and states. The data schema were designed and refined. The importance of personalized views, data duplication, ambiguity and access privileges of users were also considered.

3.3.3 Interface Design

Users interact with the system through interfaces. Therefore, it is required to have simple, attractive and user-friendly interfaces. As the EMT systems target users are All people in the country, so the interfaces were designed as more attractive. The rough sketches of interfaces were designed before coming up with the dynamic and interactive GUIs. The sketches were later transformed to actual interfaces using android application in eclipse software. The image as well as the description of the interfaces are provided under chapter 5 .

3.4 Implementation

This is the phase where coding the back end of the system started. Good programming practices have been followed, and therefore, the codes are reusable and help us the maintenance of the system. Following software packages are used for the development of EMT System.

- Eclipse
- J2ME
- Android Mobile Application

3.5 Integration and Testing

Integration is the process by which all components of a system are brought together to form the final and the comprehensive solution while testing checks the system to verify that it satisfies its stated requirements and to find and minimize the number of software bugs within the system. Bugs that are detected during the testing phase were corrected and re-tested to ensure the systems reliability and accuracy. The test scenarios have been created and the test cases were checked and assured that they perform as the way they were supposed to. The test cases are listed under chapter 5 as section.

3.5.1 Unit Testing

Each individual component or module of the system was tested to verify that the detailed design for the unit has been correctly implemented. The records which were entered, deleted, and modified through forms were double checked to avoid the system state errors. This was carried out by the developer of the module. Any error detected at this point, was fix by the developer.

Each individual component or module of the system was tested to verify that the detailed design for the unit has been correctly implemented. The records which are entered, deleted, modified and flows through forms are double checked to avoid the system state errors. Any errors detected at this point, are easy to fix than correcting them in the later stages.

3.5.2 Integration Testing

This is the testing where individual software modules are combined and tested as a group. Through this any incompatibilities within the modules can be easily identified and sorted. The inter communication within the functions can also be monitored.

Once the unit testing is done, after integrating two different units, integration testing is done to make sure there no defects occur due to integration.

3.5.3 System Testing

This is the test performed with the fully integrated system to ensure that all the stated functional requirements are met and the system satisfies the non-functional requirements such as availability, reliability and accuracy. The system was tested in order to find out whether it has the desired functions and they provide the correct.

Once the system is completely integrated the system testing is done to identify defects in the overall system. This is the test performed with the fully integrated system to ensure that all the stated functional requirements are met and the system satisfies the nonfunctional requirements such as availability, reliability and accuracy. The system was tested in order to find out whether it has

the desired functions and they provide the correct output.

Black Box Testing

Black box testing is carried out by giving some sample inputs to the system and checked, whether the expected result is achieved by the system or not.

Evaluation

i. Assessment of the Project results:

By using many test cases and testing methods, the whole system was analyzed but in the report, described only the main functions of the test cases & testing methods. The team managed to compare the work accomplished with the project schedule, time to time. Few tasks were identified as running behind the schedule, and necessary actions were taken to complete the tasks on time. Team members managed to gain experience in working as a team and how to work with a real world problem as most of the members had no prior experience in developing real world software.

ii. Lessons Learned:

As development team, initial designing was difficult, in order to start the project with a proper, planned scope. But with the help of the project supervisor the team managed to come up with an effective initial design ultimately which led us to implement an effective automated system. In development process, many problems were occurred specially in the implementation phase (coding). Sometimes fixing a bug led to another problem, which was a great experience for all the team members, as it encouraged the members to find solutions.

Since the development of the project spanned for approximately one year, it was essential that the group members functioned as one unit. Learnt that the group being as one unit helped the successful completion of the project. Assigns tasks to group members, meeting deadlines and being responsible for the assigned were some qualities learnt during this time.

3.6 Deployment

Still the system is not deployed on any server for use. It will be first deployed at SLIIT for the usage as a trial.

3.7 Maintenance

This phase starts soon after the deployment of the system. Since this phase is considered to be the longest phase in the software development life cycle, it should be planned well and carried out in a proper manner. According to the feedbacks of the users, system should be refined maintained with necessary updates in order to maintain the quality of the product.

According to the feedback from users, and other friendly team members new features will be added and implemented during this maintenance period.

Chapter 4

Research Findings

In this competitive world the mobile communication became the easiest accessible way to meet these challenges in a tactful way. The mobile nature and today's mobile administration requires immediate information access and total flexibility towards the users for a successful infrastructural accomplishment for this fast growing world.

This technology comes through as the optimal portable solution for the information access, management and improved communication, while providing the strongest security measures in the market today. Road traffic congestion is a growing problem in many cities around the world. Added with rising fuel cost, people are more than ever interested in road traffic information. Conventional methods to acquire road traffic condition, such as surveillance cameras, have several limitations in large scale implementation including high investment cost and limited coverage.

In this paper, we present our work that uses mobile phones as a probing device to collect the cell site data for road traffic information. This approach appears to be a good alternative solution because the use of mobile phones has become so prevalent in today society, especially in the city.

4.1 Challenges

We produced a combine system provides the location of the user whether stationary or moving, provides the information regarding the easiest path or alternative path and guiding towards a transportation service via the mobile tracking system. Thus the proposed system is going to be used in the environment as an integrated system, using the facilities provided by other existing systems as well. It acts through mainly GSM and GPS, position determining map by provide the information via them android mobile phone for the clients. Ultimately the client can get the precise location and easiest way for his destination in an effective manner within a short time and more accurate way. Thus it should need a global system by getting the information of all locations in a defined area for the client and conveyed via GSM providers at the same time for the user. Thus the revelation of our project is to provide our client with an accurate and efficient way to solve the existing problem domain.

Automate their services by this mobile based web, helps the relevant person to update the system by just login to their account through our software via the android mobile phone, and they can easily keep the details of their location, exit points, paths to the destination point, and availability of transportation services through our proposed finalized system. To make their existing website more user friendly, we decided to use Google map with the position determining system, moreover updating via a login process continuously in an android mobile phone. Android delivers a complete set of software for mobile devices: an operating system, middleware and key mobile applications.

Android was built from the ground-up to enable developers to create compelling mobile applications that take full advantage of all a handset has to offer. It was built to be truly open. For example, an application can call upon any of the phone's core functionality such as making calls, sending text messages, or using the camera, allowing developers to create richer and more cohesive experiences for users. Furthermore, it utilizes a custom virtual machine that was designed to optimize memory and hardware resources in a mobile environment. Android is open source; it can be liberally extended to incorporate new cutting edge technologies as they emerge. The platform will continue to evolve as the developer community works together to build innovative mobile applications.

By using the eclipse software we designed the interfaces. For our web based mobile access system initially the place and area of our research will be

defined in terms of precise location using longitude and latitude. We have selected the whole nations which have the mobile network that can be easily accessible in various ways with the optimal transportation to the destination points. After the definition of the area the information regarding the entry points, exit ways and information of roads will be collected by web access basis by Google map and the data regarding the transportation collected manually from the service providers. As doing this, the most effective care on our clients and travelers kept in mind for their easily accessible paths in a quick web access basis via the GSM providers while they travelling.

After collecting all the data, the map of the area was processed and the collected data was entered to our database in terms of longitude, latitude, location, distance of the roads and landmarks. Then entering data will be synthesized in a clear manner for an easy detection purpose to save the time in a quick access way. After processing all these data the map has retrieved with the geographical distribution by using the proper indemnification system as in the same way which has mentioned universally at present. The identification marks will be put on clearly first then they will be noticed with their own names.

Then only the client can easily palatable for our system in various occasions i.e. the user friendly accessibility. For an example after the logon process the user can identify the precise location of that point and for the mapping of a land mark o The precise location in longitude and latitude o The road name with the voice commands.

After the user entered the destination he can see the :-

- the starting of the road
- its end point
- the direction of the road
- geographical distribution (longitude & latitude)

The directions to and fro the destination and start points With these fixed points we are keen on collecting the transportation facilities available in that area which can be used by the clients, then the ways of getting the transportation from the current location of the client has been showed in the mobile with the request of the client by a call or sms. And ultimately the transportation will be provided

with the request of the client with the easiest paths to the destination. Also the existing location of the client is continuously updated by means of Google map and voice commands. All the tribulations of the clients and the solutions of the problems has been digested by the fastest mobile communication and they will be processed in the central database system and the final solutions can be retrieved by the client at the same instance with the minimal lag time.

Chapter 5

RESULTS AND DISCUSSION

5.1 *Results*

Through this implemented system person can find the current location with voice recording, find the path and destination between two places and also get the better efficient transport services through the mobile phone.

5.1.1 Step by Step Process

- Login the system through the android mobile
- Get the current location
- If a person want to know the path, then give the destination place.
- System will show the path through Google map with distance between those both places.
- System will display the Transport service menu.
- According to the distance, the person can select the transport services which is suitable for travel.
- The person can get to know your current location as voice alert. like Hi Darshi(Login name),you are in Malabe(Current location) now.

5.1.2 Followings are major functions of our system:

- Provide the current location: After login the system, the system will automatically detect the current location using latitude longitude of the landmark using Google map.
- Provide path: After giving the destination point ,the path will be displayed in the street map view .
- Provide destination .
- display the distance between two places.
- Provide the cab services : Provide nearest and cheapest cab service .

5.2 *Evidence*

5.2.1 Use Cases

To verify that the developed system works as expected, the project outcomes need to be analyzed . To ensure that the system satisfies all the requirements that were stated, team had to carry out unit testing, integration testing system testing and black box testing. Testing was another method used by the development team to evaluate the system. By using many test cases and testing methods, the whole system was analyzed but in the report, described only the main functions of the test cases. Once all modules were successfully tested, they were integrated. After performing an integration test to ensure the correctness of the integrated system, system test method was carried out. Finally, team was able to ensure the overall performance and quality of the system is as expected.

Use Case	Path Request
Summary	Find the path
Actor	Mobile User, System
Precondition	System is working in order
Description	User has to enter from where to where he/she wants to go, to require for the path between these two places.
Alternative	User request path between two places where there is no roads like forests.
Post condition	User preferences (places) are saved at the database and have to update and provide the path through Google map graphically.

Table 5.1: Path request

02.

Use Case	Finding current location
Summary	Find the current location
Actor	Mobile User, System
Precondition	System is working in order
Description	User has to enter from where she wants to go, to require .
Post condition	User preferences (places) are saved at the database and have to update and provide the path through Google map graphically.

Table 5.2: Finding current location

03.

Use Case	Request for transport services
Summary	Got the transport service
Actor	Mobile User, Transport service
Precondition	System is working in order
	The mobile user should be registered
	Transport services are available at that time
Description	The Mobile user has to enter transport service type and other preferred details such as currently he/she is locating and destination point.
Alternative	Request for transport service for a place where there is no roads to travel.
Post Condition	Got the transport service as what mobile user wants.

Table 5.3: Request for transport service

5.3 User Interfaces

5.3.1 Login Page:

have to enter user name and password to access the system.

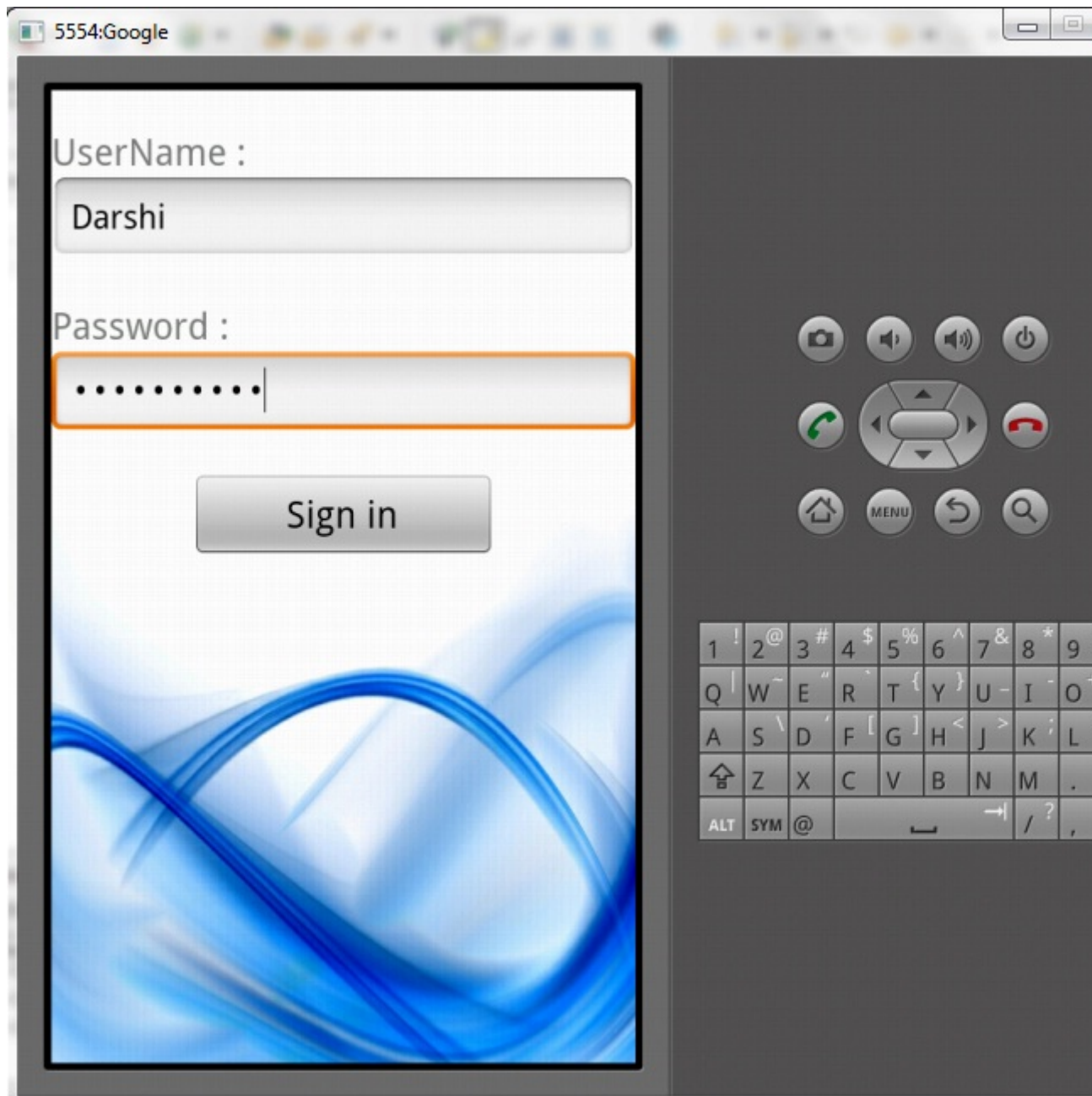


Figure 5.1: Login

5.3.2 Finding path:

After click on that button, can view the path between current location and destination point

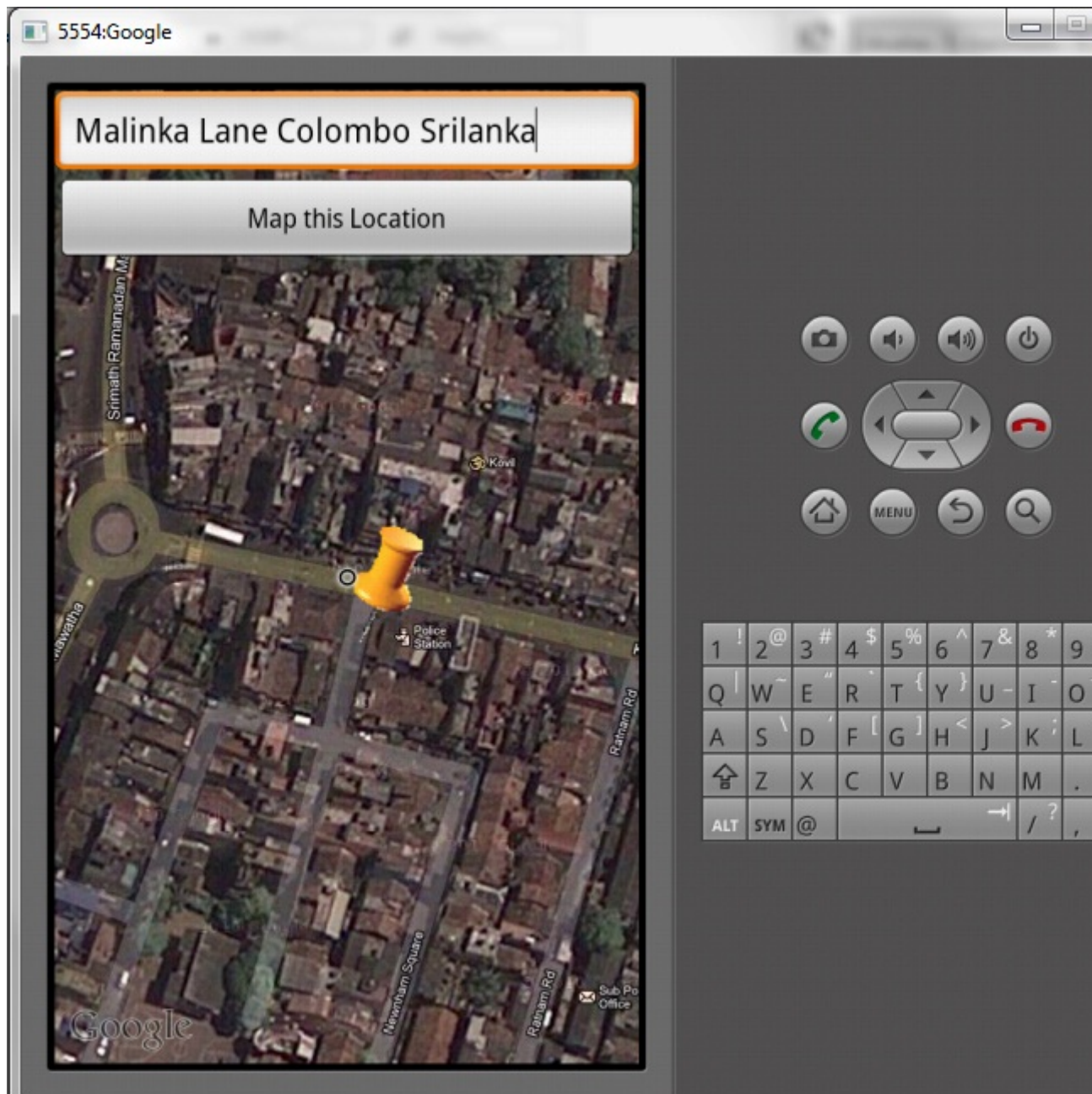


Figure 5.2: Find Path

5.3.3 displaying the path

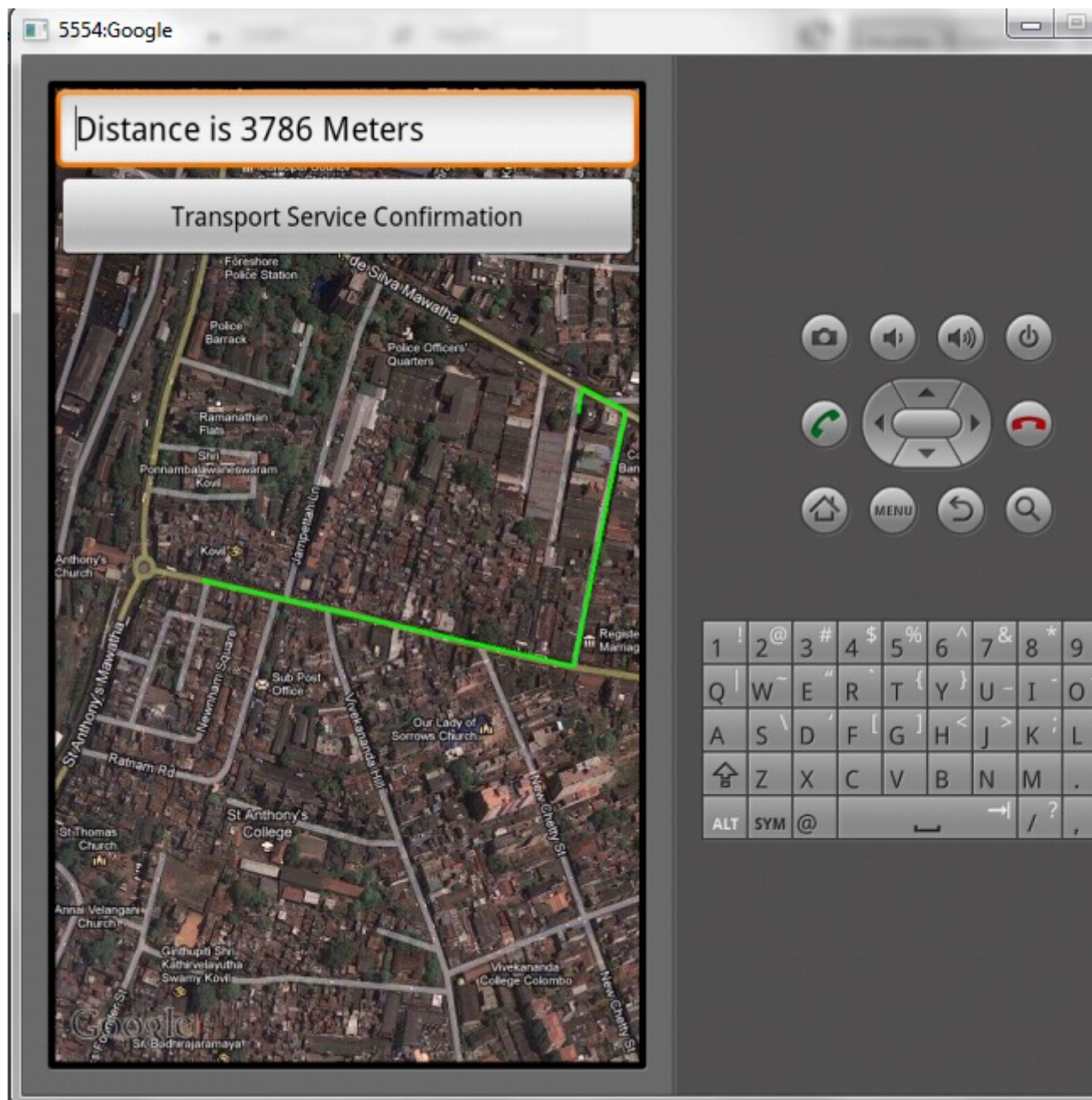


Figure 5.3: Display path

5.3.4 Selecting for transport service:

if a person want any transport services then can click on “yes” button.

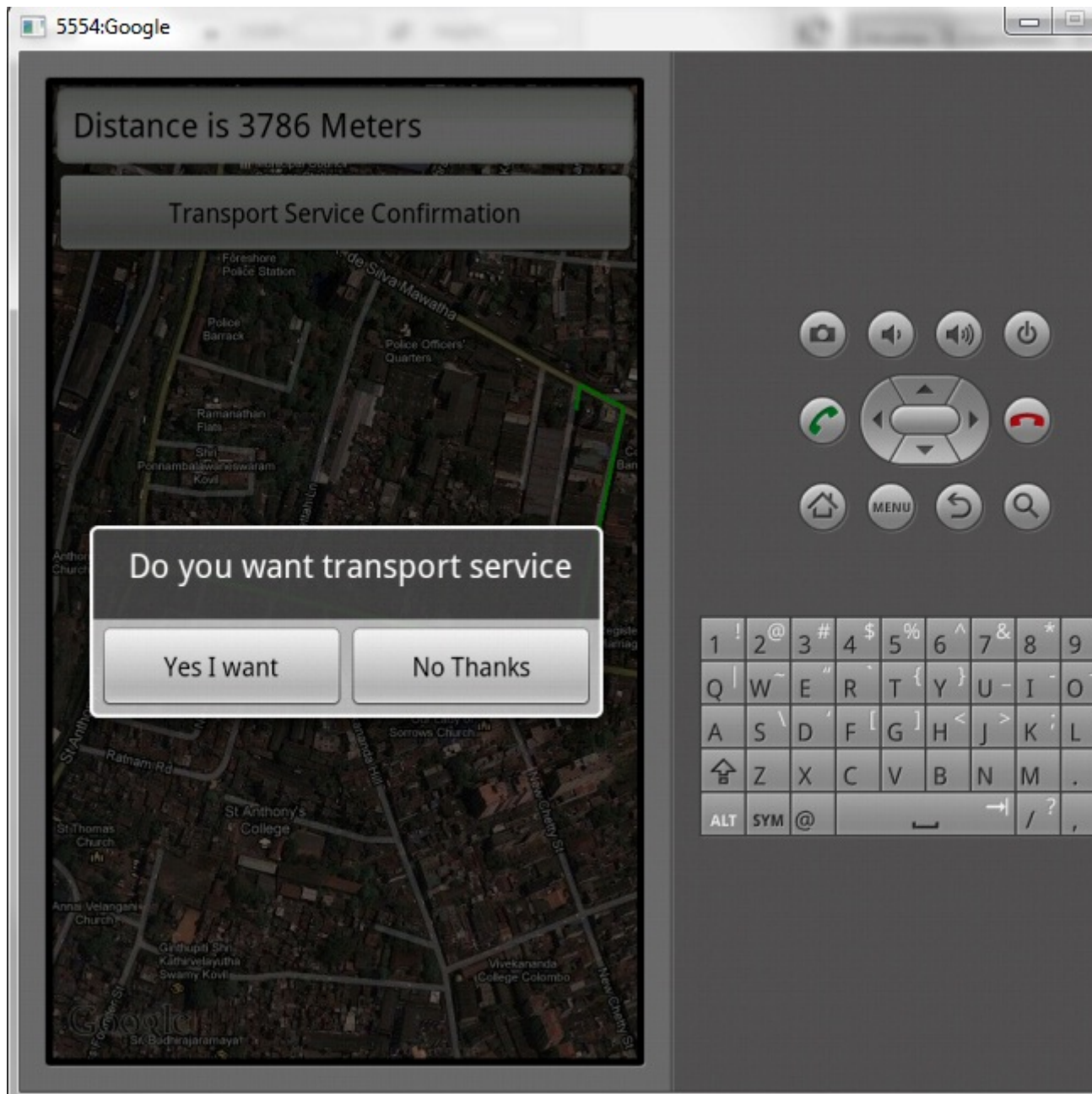


Figure 5.4: Select transport service

5.3.5 Transport service option:

Can select the transport service which is suitable

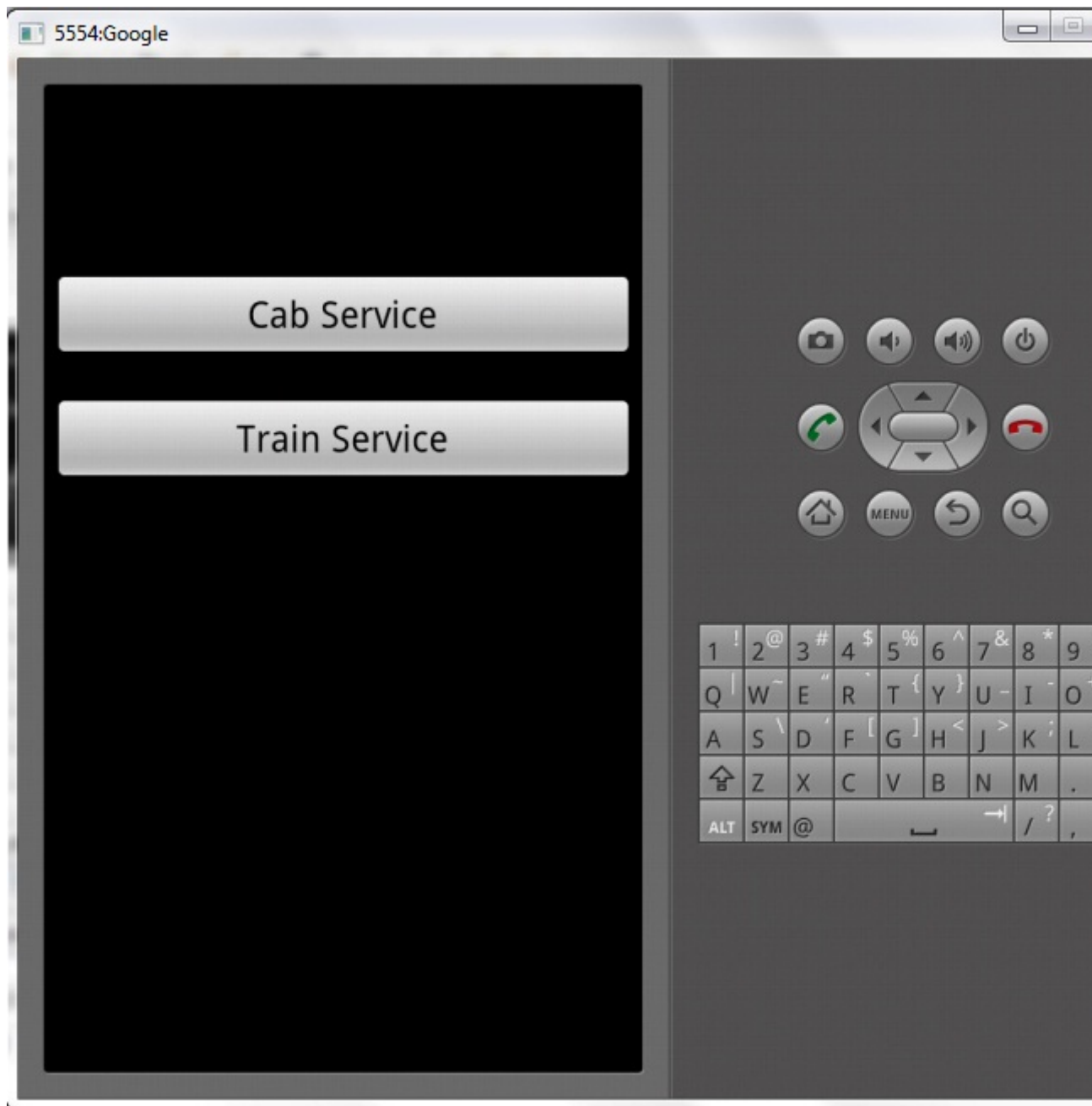


Figure 5.5: Variety of transport service

5.3.6 Variety of Cabservices:

display the cab services only the nearest to the current location, if the want to compare the rates of transport services then have to click on “compare service” button.

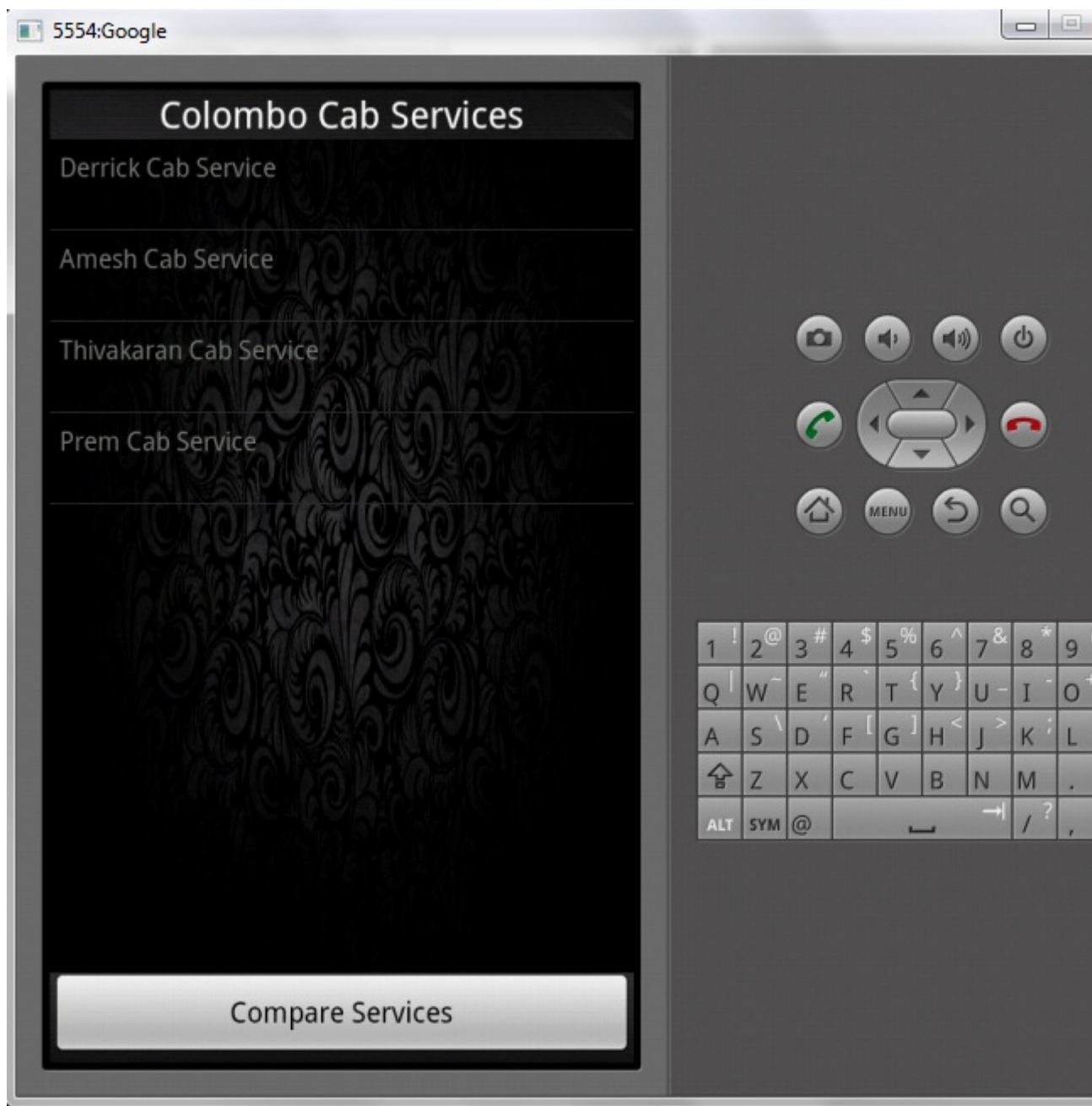


Figure 5.6: Variety of cab service

5.3.7 Details of the cab service:

If anyone wants to know about the cab service then click on that cab service button.

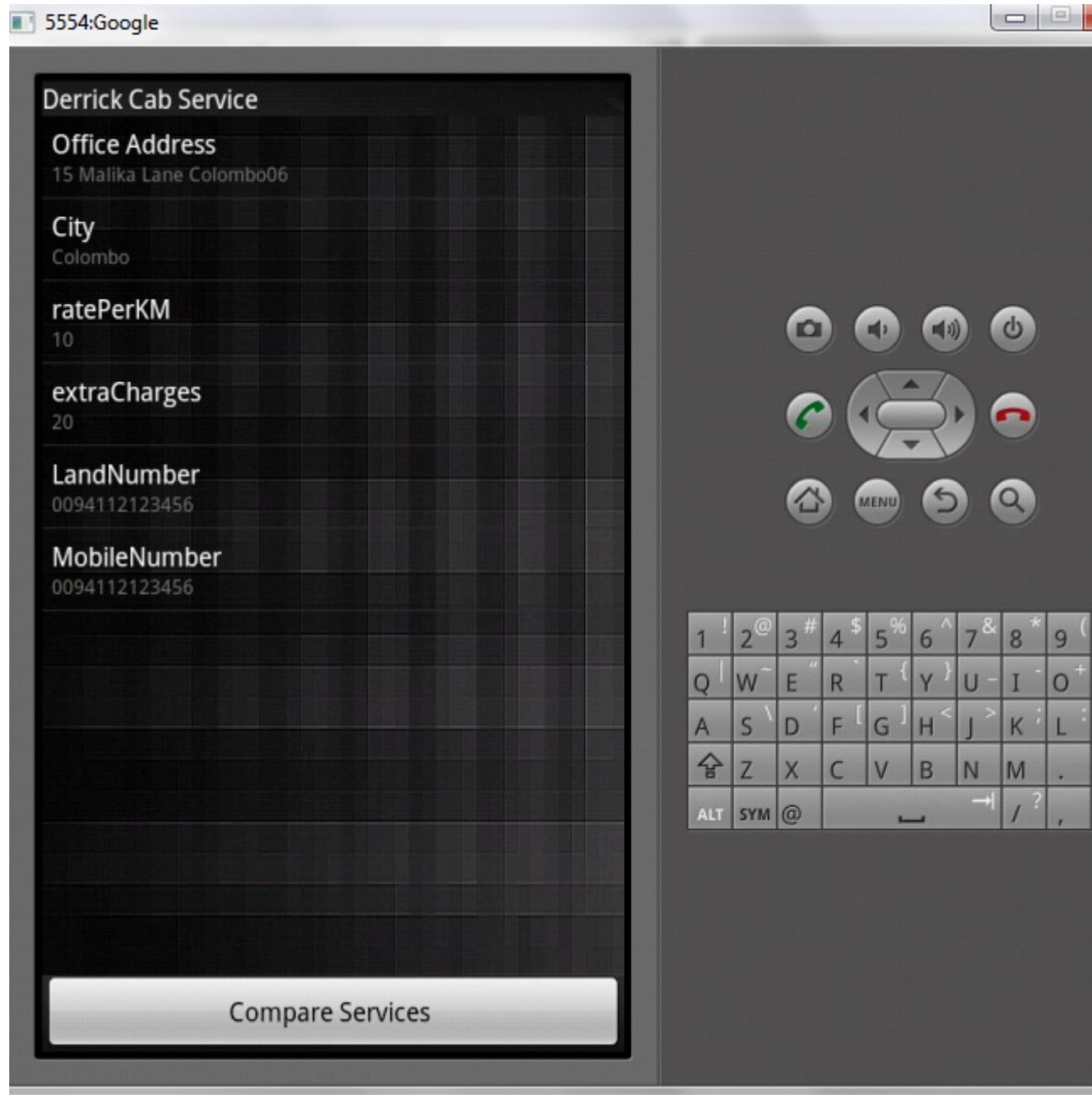


Figure 5.7: Detail of cab service

5.3.8 Compare Taxi Services:

by comparing all taxi services ,then it will help to get the cheapest

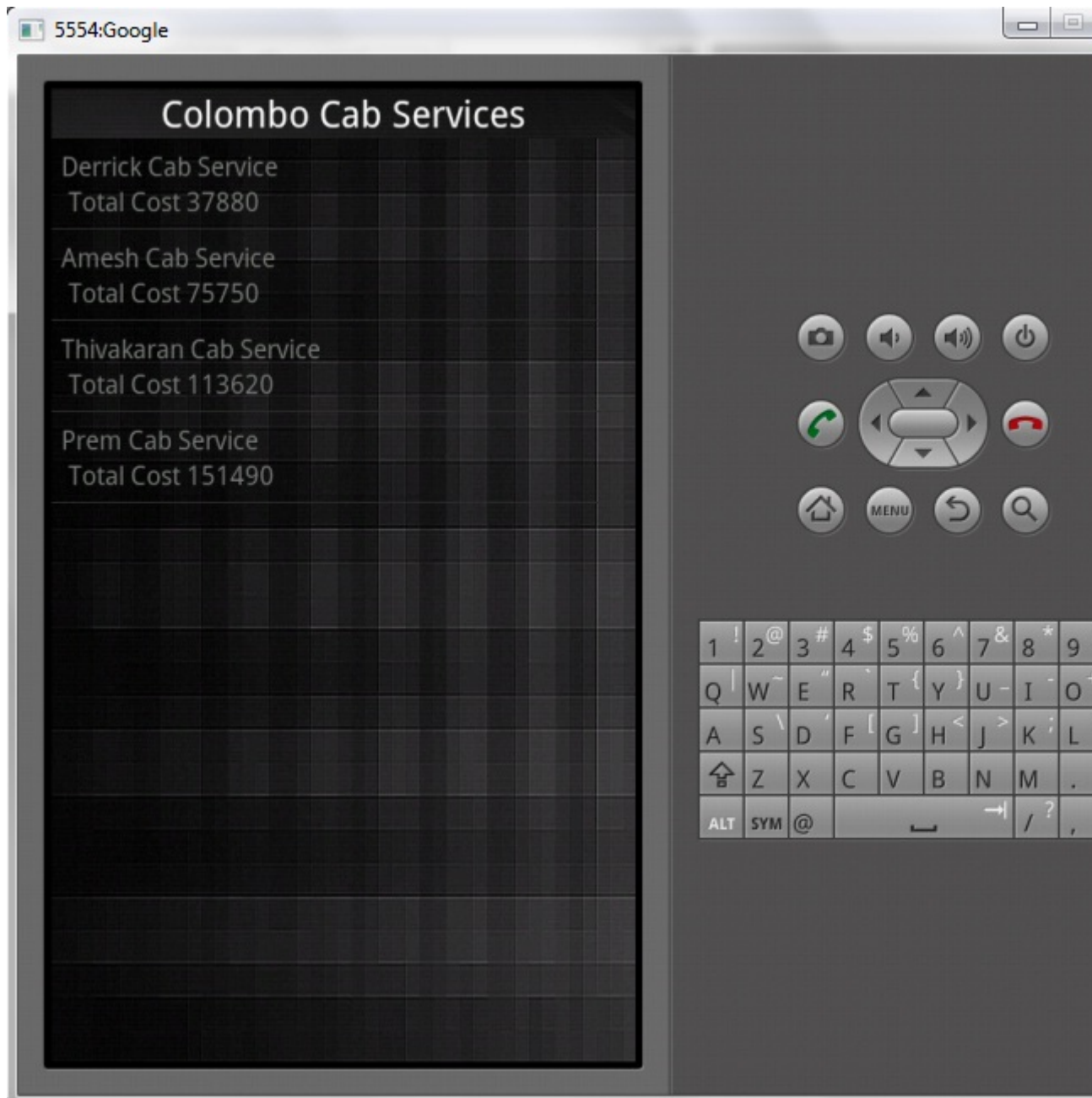


Figure 5.8: Compare rates of cab services

5.3.9 Contact option:

We can call or send auto generate sms to get the transport services



Figure 5.9: Contact option

5.3.10 Calling option:

can call to either land number or hot line.

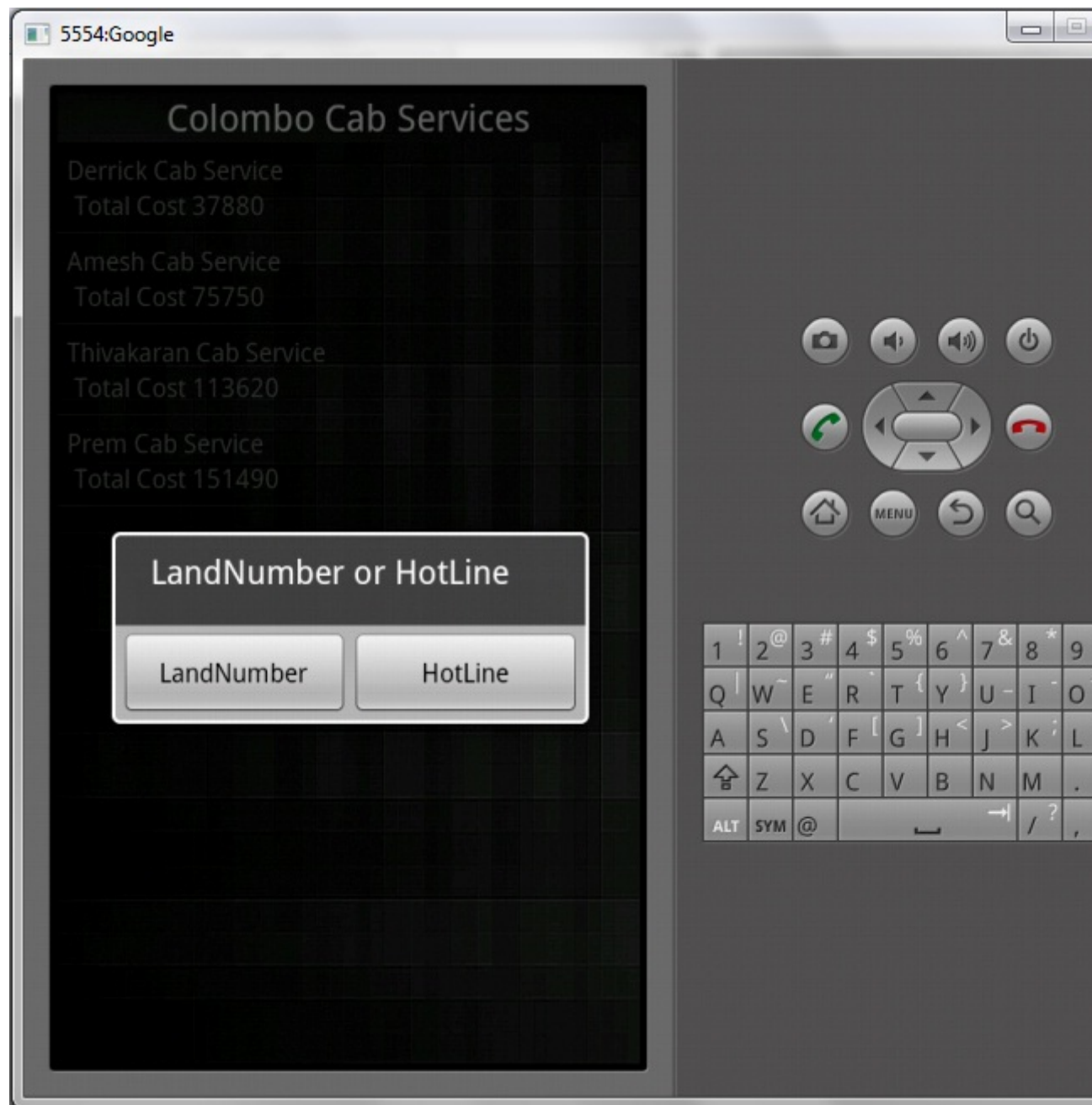


Figure 5.10: Calling option

5.3.11 Calling menu

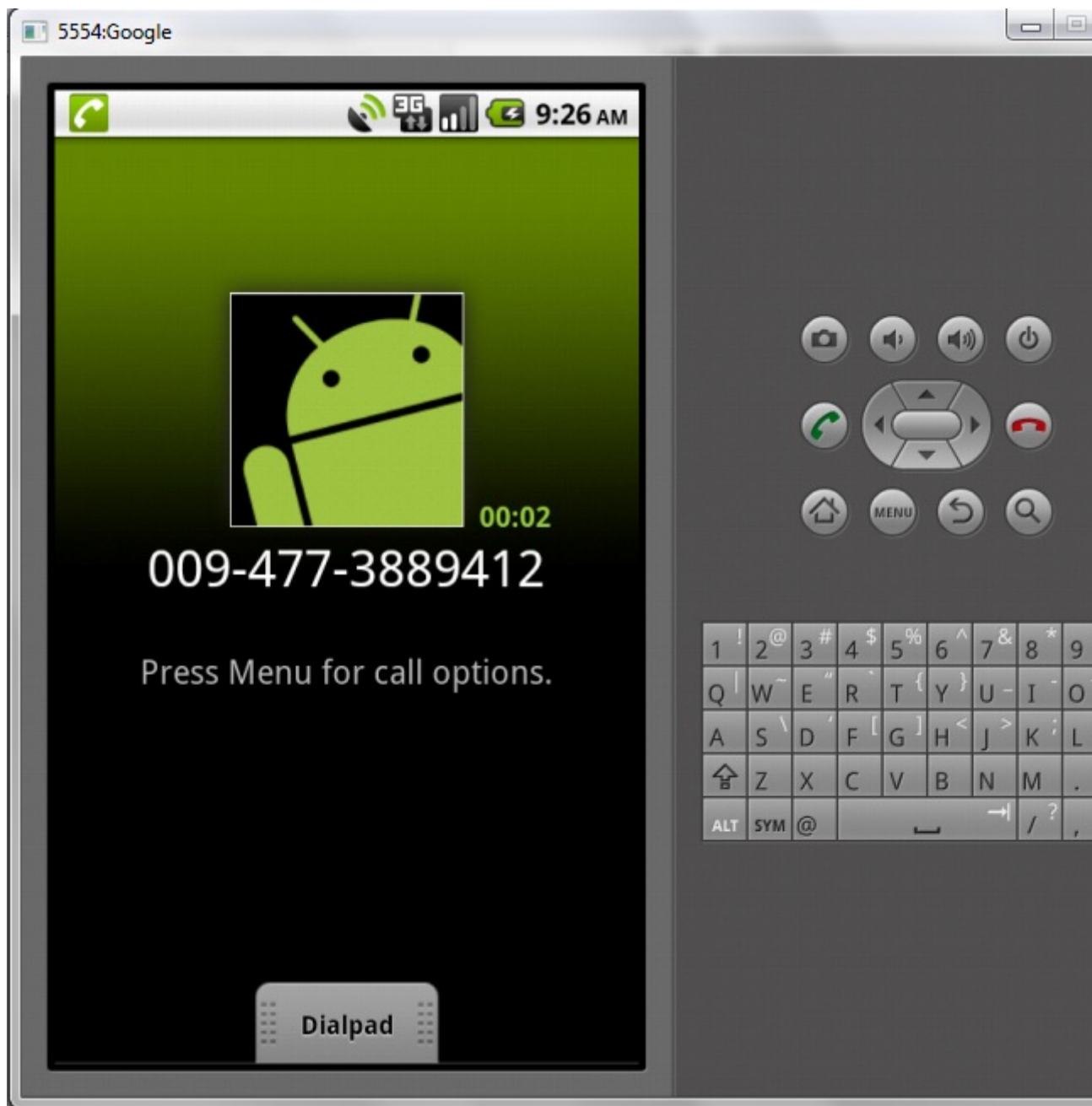


Figure 5.11: Call menu

5.3.12 Auto generates SMS:

this sms is generated automatically, all contains of the message are retrieved from input values.

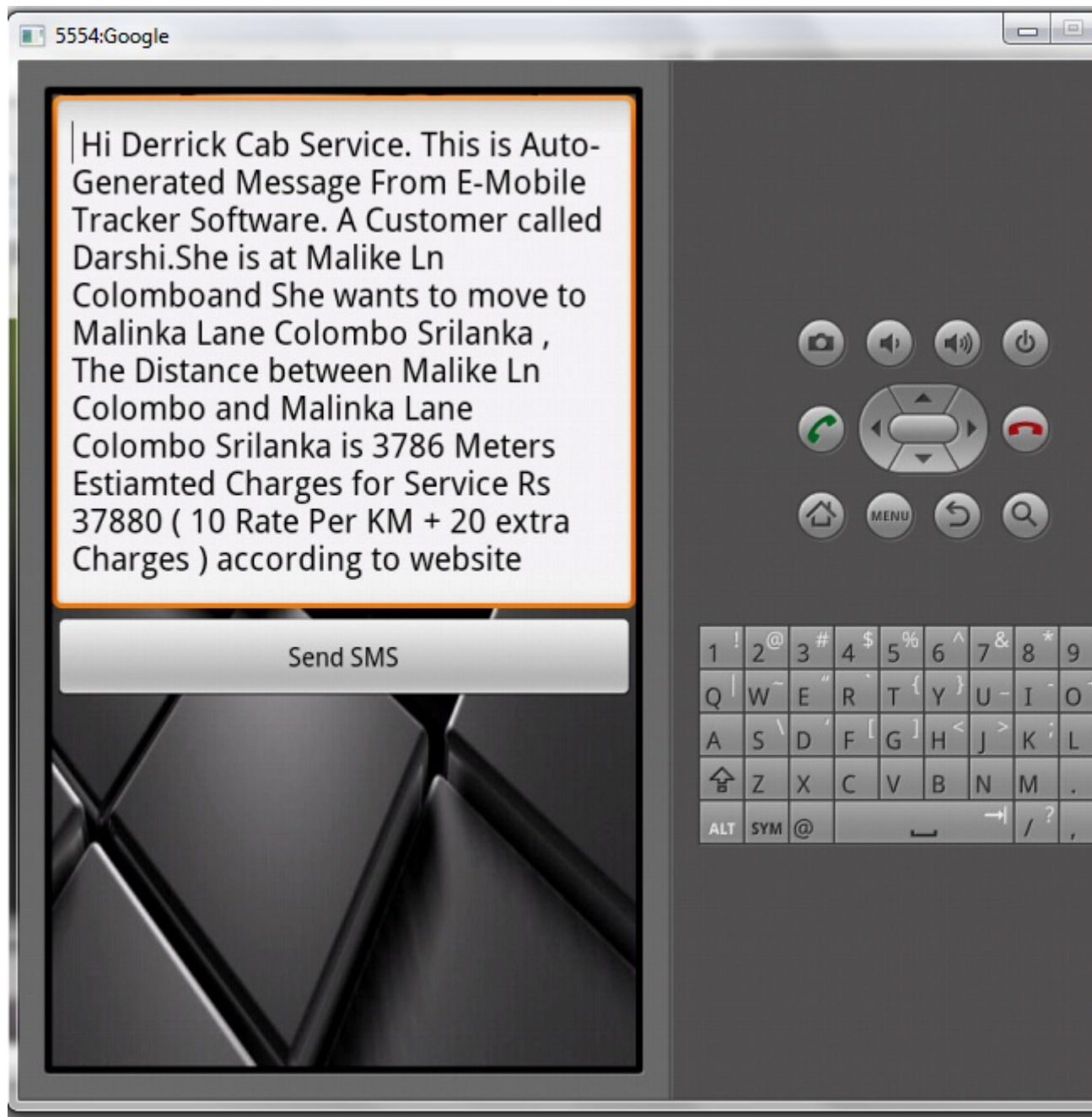


Figure 5.12: Auto generate SMS

Chapter 6

CONCLUSION

Our project presents a methodology for identifying the existing location of a traveler and travelers' transportation modes by tracking Global Positioning System (GPS)-equipped android mobile devices in the traffic stream. This ensures the safety of the traveler because he will find out his existing location by logging on our system and continuous updating while travelling to a destination and will get a transportation service following a simple request. This is known as location-based services (LBS). here we combine the current location and the transportation services. Of the One major advantage in using mobile phones for traffic monitoring is that the phones are necessarily gadgets in this fast moving world.

This article focuses on the feasibility of using the characteristics of the trail of GPS data stream to identify the location on which the mobile device is located and updated continuously when the user is travelling. As doing this, the most effective care on our clients and travelers kept in mind for their easily accessible paths in a quick web access basis via the GSM providers while they travelling. We produced a combine system provides the location of the user whether stationary or moving, provides the information regarding the easiest path or alternative path and guiding towards a transportation service via the mobile tracking system. Thus the proposed system is going to be used in the environment as an integrated system, using the facilities provided by other existing systems as well. It acts through mainly GSM and GPS, position determining map by provide the information via them android mobile phone for the clients.

Ultimately the client can get the precise location and easiest way for his

destination in an effective manner within a short time and more accurate way. Thus it should need a global system by getting the information of all locations in a defined area for the client and conveyed via GSM providers at the same time for the user. Thus the revelation of our project is to provide our client with an accurate and efficient way to solve the existing problem domain. Automate their services by this mobile based web, helps the relevant person to update the system by just login to their account through our software via the android mobile phone, and they can easily keep the details of their location, exit points, paths to the destination point, and availability of transportation services through our proposed finalized system. To make their Existing website more user friendly, we decided to use Google map with the position determining system, moreover updating via a login process continuously in an android mobile phone.

6.1 Limitations

Earlier we have planned for this project as a complete integrated project but there are limitations that made us to difficulties in achieving the aim. But at our level we have tried our maximum and we made it our level best. We planned to get the information manually regarding the entry points, exit ways and information of roads and web access basis from the governance, police department and road development authority with the proper direction, accurate length, grading of the road, important landmarks, such as historical points, government institutions, private firms and various important places in view of the easiest convenience of the client. Furthermore that the collection of data regarding the roads and the land marks has been planned in an effective manner with their distance between each landmark, distance from every road, distance between the roads and distance of the roads. But this can't be easily achievable and we finally use the Google map.

After collecting all the data, we have planned to enter the data in our database in terms of longitude, latitude, location, distance of the roads and landmarks then synthesize in a clear manner for an easy detection purpose to save the time in a quick access way. After processing all these data we planned to construct a map with the geographical distribution by using the proper indemnification system as in the same way which has mentioned universally at present we also had a plan on identification marks that will be put on clearly first, before the notification by their own names. But we use the Google map and GPS to overcome this limitation.

We have planned for auto generate graphs, help to get a brief idea about the past in road vs. traffics time, road vs. no of vehicles uses a particular road, accidents per year and population vs. vehicles. This is more helpful to the government to take the decisions and other to get some idea. Also we have planned to introduce a simulator. By using this simulator we planned to get what will happened in the future when no of vehicles increase, when population increase and when road conditions change what will happen. These aspects are really challenging and we will make those in our future carrier.

Chapter 7

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Chapter 8

APPENDIX

8.1 Appendix A:

8.1.1 Android Technology

Android is a Linux-based mobile phone operating system developed by Google. Android is unique because Google is actively developing the platform but giving it away for free to hardware manufacturers and phone carriers who want to use Android on their devices. Android has its advantages: o It's highly customizable, for one , but it's also somewhat geeky software that can seem intimidating to Smartphone newbie. Android based smart phones and their integrated suite of Google apps, have proven to be a highly effective means to increasing personal productivity.

Android is an open mobile phone platform that was developed by Google and, later, by the Google-developed Open Handset Alliance. Google defines Android as a "software stack" for mobile phones. A software stack is made up of the operating system (the platform on which everything runs), the middleware (the programming that allows applications to talk to a network and to one another), and the applications (the actual programs that the phones will run). In short, the Android software stack is all the software that will make an Android phone an Android phone. Because Google developed Android, it comes with a lot of Google services installed right out of the box.

Gmail, Google Calendar, Google Maps, and Google Web search are all

pre-installed, and Google is also the default Web page for the Web browser. However, because Android can be modified, carriers can choose to change this. Verizon Wireless, for instance, has modified some Android phones to use Bing as the default search engine.

Android is an exciting platform for consumers and developers. It is the philosophical opposite of the iPhone in many ways. Where the iPhone tries to create the best user experience by restricting hardware and software standards, Android tries to insure it by opening up as much of the operating system as possible. This is both good and bad. Fragmented versions of Android may provide a unique user experience, but they also mean fewer users per variation. That means it's harder to support for app developers, accessory makers, and technology writers (ahem).

Because each Android upgrade must be modified for the specific hardware and user interface upgrades of each device, that also means it takes longer for modified Android phones to receive updates. Fragmentation issues aside, Android is a robust platform that boasts some of the fastest and most amazing phones and tablets on the market.

8.1.2 Eclipse Software:

We used eclipse software to develop this system call E-Mobile Tracker under E-Road Management System. The Eclipse Platform is a very flexible open source development platform for tool integration. It provides a framework for building an integrated development environment from plug-in software components. More and more products nowadays are Eclipse-based, so that it is becoming increasingly important for developers and users to know what Eclipse is and what it offers. The information in this document gives you a short overview of the basic Eclipse architecture, its components and standard user interfaces, as well as an introduction to what an Eclipse-based product may look like. This will help you understand Software AG products that are based on Eclipse. The benefit of Eclipse is that it offers a single integrated platform for all development tasks. Plug-ins provide a feature of the Eclipse development environment and lead to the final Eclipse-based product. Plug-ins can be de-installed without impacting the Eclipse installation as such. Eclipse supports collaboration of development teams and is freely available from www.eclipse.org. As shown in the following graphic, the basic Eclipse installation consists of three parts: the Workbench

(which is further subdivided into the Standard Widget Toolkit and the JFace), the Workspace and the Platform Runtime.

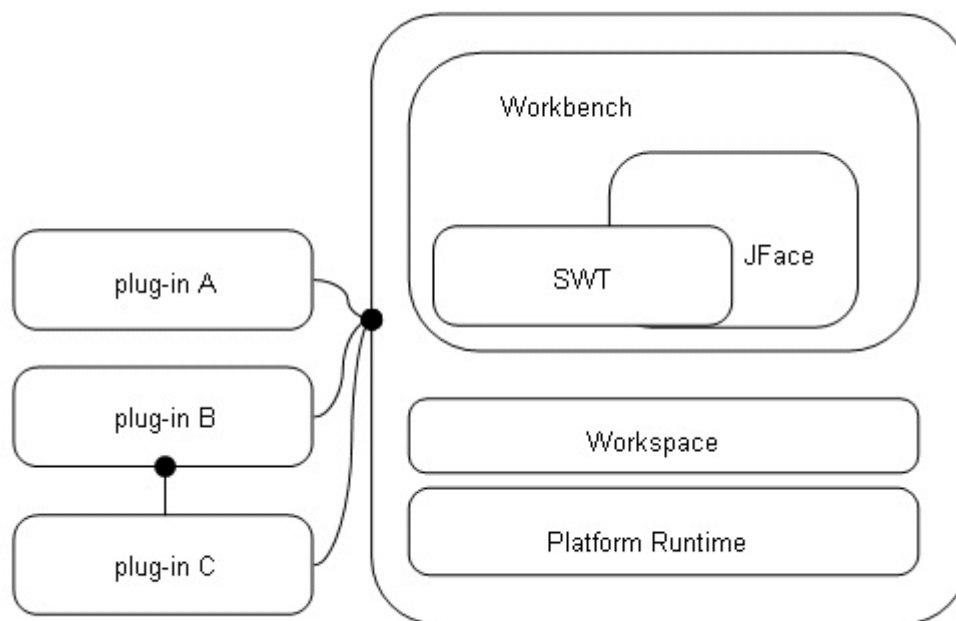


Figure 8.1: Eclipse Platform

An editor is another visual component of a workbench page. It is used to edit a document, to keep changes until the document is saved, or for browsing. Multiple editors may exist even for one document. There are content assistants, simple page and multiple page editors, and syntax highlighters. Menus, toolbars and options in an editor are context-sensitive and change according to the environment. Eclipse has a list of registered editors, which are consulted first when you open a resource that needs an editor. If none of the editors in the list is suitable for the file type, the workbench checks automatically if any other editor from the underlying operating system is available (external editor).

If an external editor is located, it will be launched. Examples of editors are:

- Java source editor;
- XML editor;
- Ant editor;
- Text editor;

- Plug-in editor.

Guide lines for install APK file to Android mobile phone:

We have to install Apk file of our EMT application in the android mobile to observe our application outcomes. Because the Android operating system is a relative newcomer to the mobile phone market, a strong and cohesive Android Internet support community appears to be lacking. Without an adequate Android support system in place, many Android users are left in the dark when it comes to many tricky tasks, like installing third party applications to their Android mobile phones. In order to install third party applications to your Android phone, you need to install APK, or Android Package, files. In this article, we will cover the two ways you can install APK files to your Android phone and show you how to take advantage of the wide variety of third party Android applications currently available.

8.1.3 Android Emulator:

We are using android emulator for implement our project in computer version. The Android SDK includes a mobile device emulator a virtual mobile device that runs on your computer. The emulator lets you develop and test Android applications without using a physical device. When the emulator is running, you can interact with the emulated mobile device just as you would an actual mobile device, except that you use your mouse pointer to "touch" the touch screen and can use some keyboard keys to invoke certain keys on the device. This document is a reference to the available command line options and the keyboard mapping to device keys. For a complete guide to using the Android Emulator, see Using the Android Emulator.



Figure 8.2: Emulator

The emulator supports a variety of options that you can specify when launching the emulator, to control its appearance or behavior. Here's the command-line usage for launching the emulator with options:

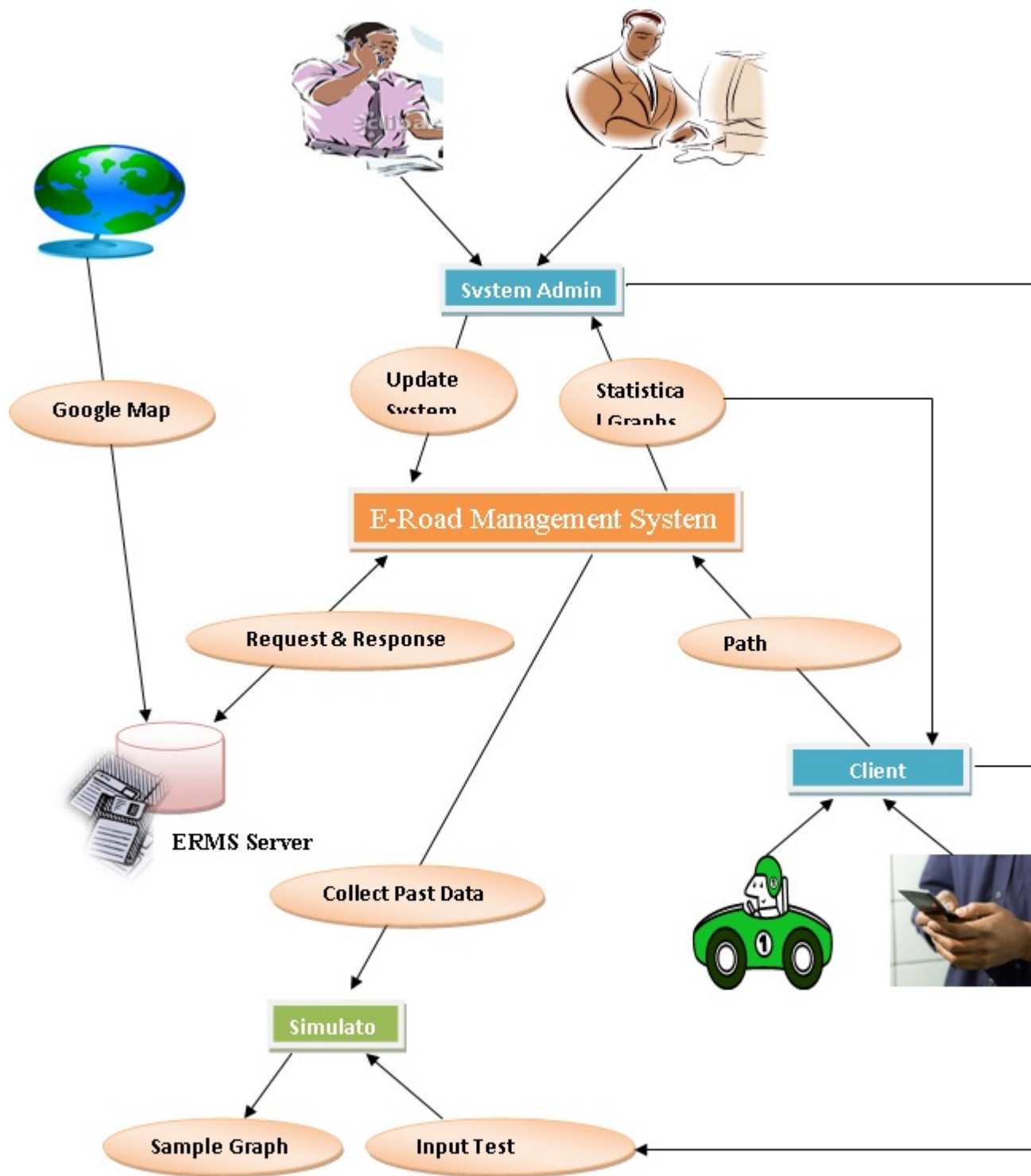
```
emulator -avd <avd_name> [-<option> [<value>]] ... [-<qemu args>]
```

The table below summarizes the mappings between the emulator keys and the keys of your keyboard.

Emulator keyboard mapping Note that, to use keypad keys, you must first disable NumLock on your development computer.

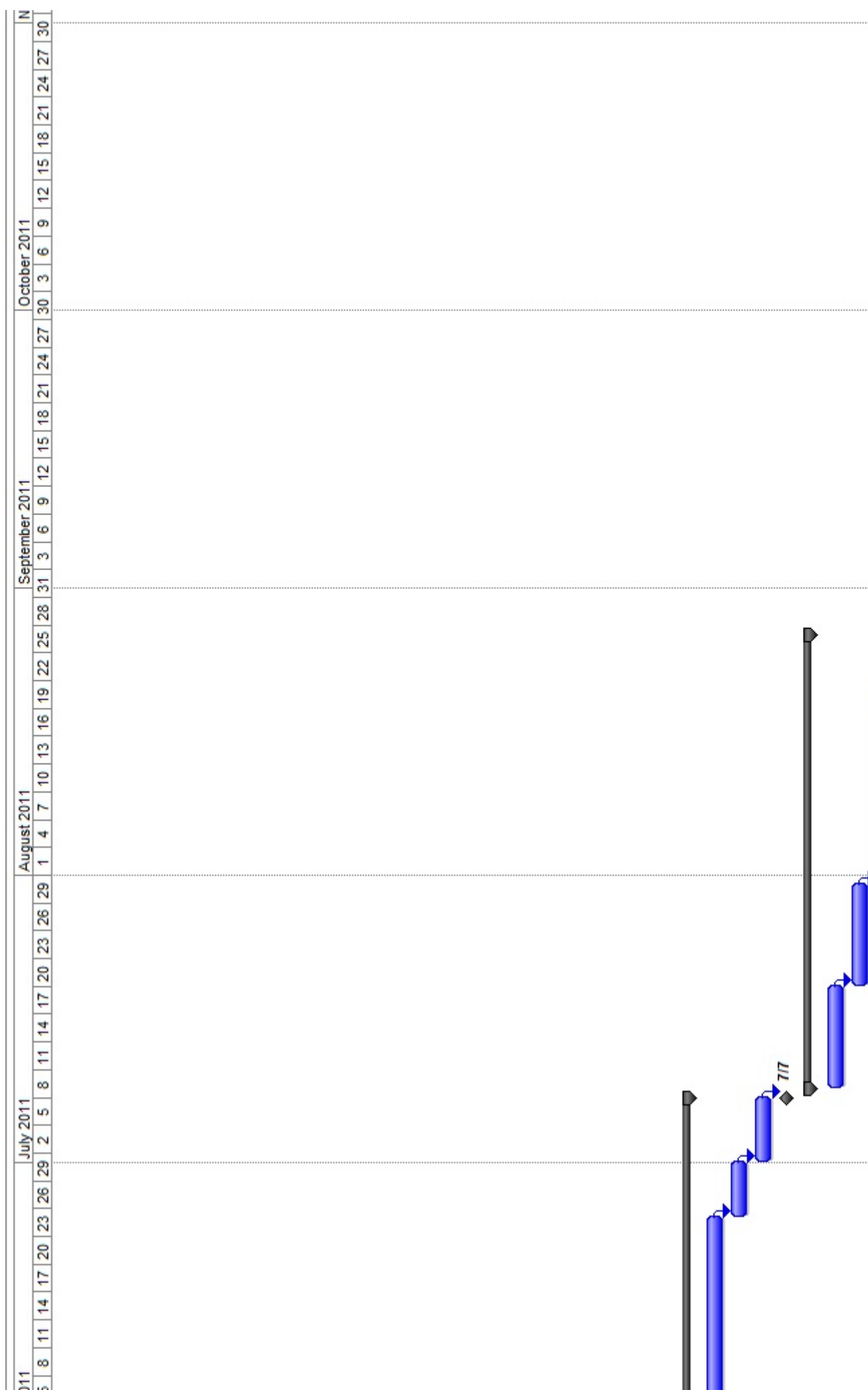
Emulated Device Key	Keyboard Key
Home	HOME
Menu (left softkey)	F2 <i>or</i> Page-up button
Star (right softkey)	Shift-F2 <i>or</i> Page Down
Back	ESC
Call/dial button	F3
Hangup/end call button	F4
Search	F5
Power button	F7
Audio volume up button	KEYPAD_PLUS, Ctrl-5
Audio volume down button	KEYPAD_MINUS, Ctrl-F6
Camera button	Ctrl-KEYPAD_5, Ctrl-F3
Switch to previous layout orientation (for example, portrait, landscape)	KEYPAD_7, Ctrl-F11
Switch to next layout orientation (for example, portrait, landscape)	KEYPAD_9, Ctrl-F12
Toggle cell networking on/off	F8
Toggle code profiling	F9 (only with <code>-trace</code> startup option)

Table 8.1: Emulator keyboard mapping



-Figure 1-

Figure 8.3: Architecture diagram



```

Public void onLocationChanged (Location location)
{
If (location!= null)
{
    CurrentLocationLat = Double.toString(location.getLatitude());
    CurrentLocationLon = Double.toString(location.getLongitude());
    String coordinates[] = {
Double.toString(location.getLatitude()),Double.toString(location.getLongitude
())
};
};

```

Figure 8.5: Code 01

8.2 Appendix B:

```

class cabServiceActionAdapter extends ArrayAdapter<cabServiceAction> {

    cabServiceActionAdapter() {
        super(Cab_Service_Full_Details.this,
R.layout.action_list_item, actions);
    }

    @Override
    public View getView(int position, View convertView, ViewGroup
parent) {
        cabServiceAction action = actions.get(position);
        LayoutInflater inflater = getLayoutInflater();
        View view = inflater.inflate(R.layout.action_list_item,
parent, false);
        TextView label = (TextView) view.findViewById(R.id.label);
        label.setText(action.getLabel());
        TextView data = (TextView) view.findViewById(R.id.data);
        data.setText(action.getData());
        return view;
    }
}

```

Figure 8.6: Code 02

```
public class RoadProvider {  
  
    public static Road getRoute(InputStream is) {  
        FXMLHandler handler = new FXMLHandler();  
        try {  
            SAXParser parser =  
SAXParserFactory.newInstance().newSAXParser();  
            parser.parse(is, handler);  
        } catch (ParserConfigurationException e) {  
            e.printStackTrace();  
        } catch (SAXException e) {  
            e.printStackTrace();  
        } catch (IOException e) {  
            e.printStackTrace();  
        }  
        return handler.mRoad;  
    }  
}
```

Figure 8.7: Code 03

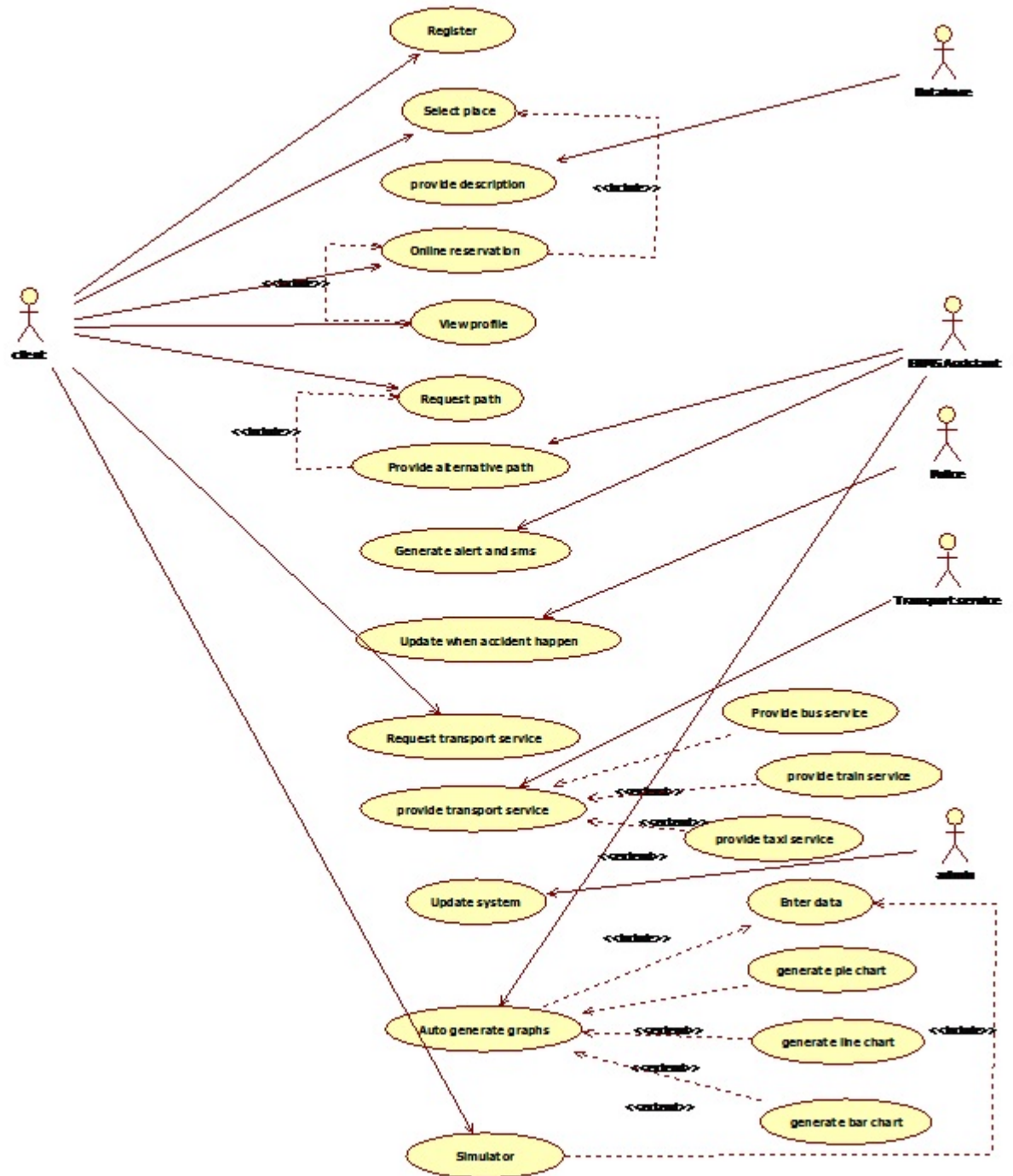


Figure 8.8: Use case diagram

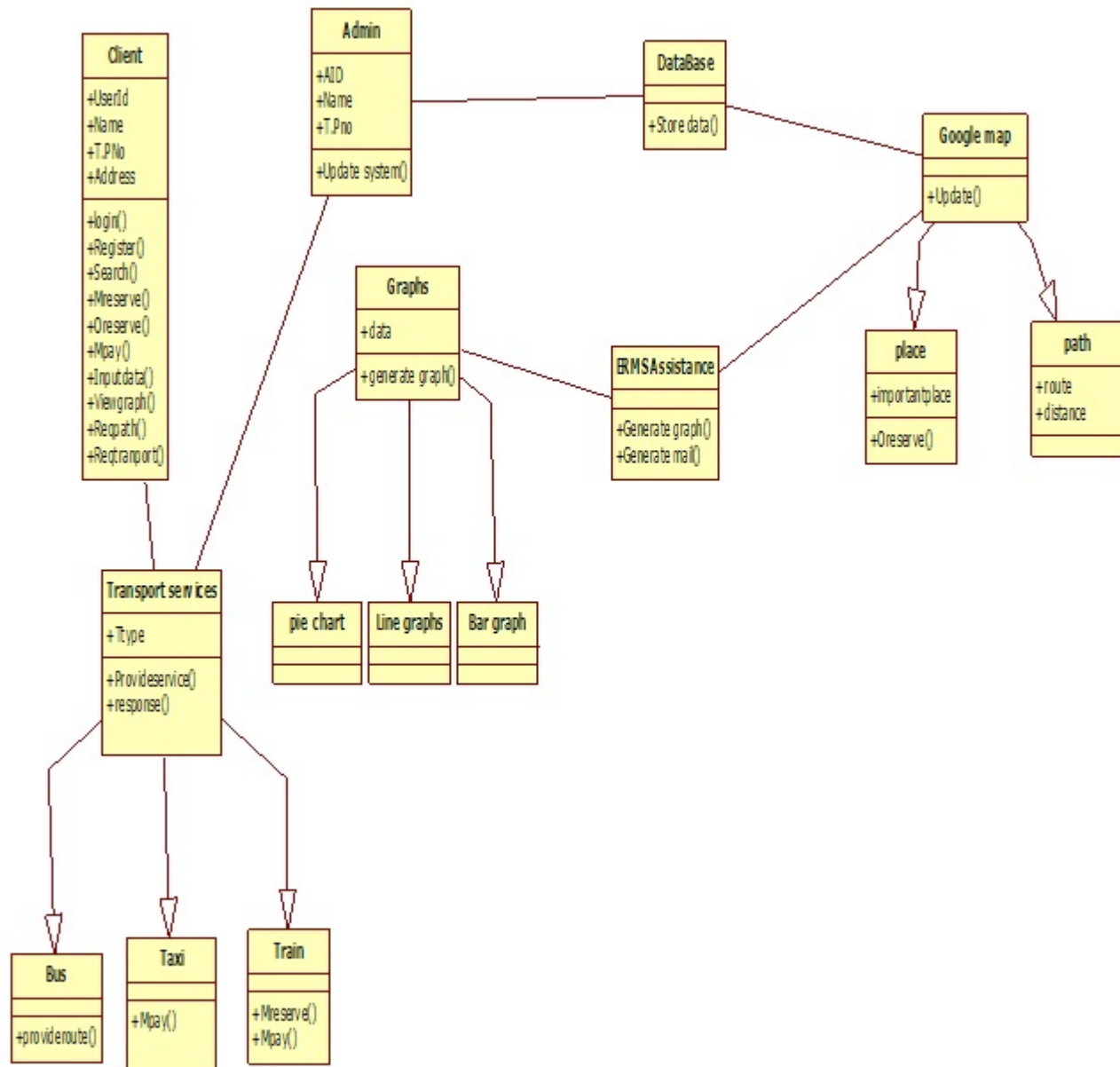


Figure 8.9: Class diagram