Traffic Monitoring, Analytics System And E-Rickshaw for Travelers Safety (SANRAKSHAK)

Project report submitted

In

partial fulfillment of requirement for the award of degree of

Bachelor of Engineering
In
Computer Science & Engineering

By

Ms. Mayuri Bajirao **Mr. Pratikshay Awadhoot**

Guide

Kovid Sawla

Co-Guide

Dr. Prashant Borkar

At

Adivid Technologies Pvt. Ltd.

Department of Computer Science & Engineering

G.H. Raisoni College of Engineering, Nagpur

(An Autonomous Institute Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

NAAC "A+" Grade & NIRF Ranked 111th for 2019.

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May 2020

Declaration

We, hereby declare that the project report titled "TRAFFIC MONITORING, ANALYTICS SYSTEM AND E-RICKSHAW FOR TRAVELERS SAFETY (SANRAKSHAK)" submitted herein has been carried out by us in the Adivid Technologies towards partial fulfillment of requirement for the award of Degree of Bachelor of Engineering in Computer Science & Engineering. The work is original and has not been submitted earlier a s a whole or in part for the award of any degree at this or any other Institution.

We also hereby assign to G. H. Raisoni college of Engineering, Nagpur all rights under copyright that may exist in and to the above work and any revised or expanded derivatives works based on the work as mentioned. Other work copied from references, manuals etc. are disclaimed.

Place Nagpur **Ms. Mayuri Bajirao**
Date **Mr. Pratikshay Awadhoot**

Certificate

The project report entitled as "**Traffic Monitoring, Analytics System And E-Rickshaw For Traveler Safety (Sanrakshak)"** submitted by **Mayuri Bajirao and Pratikshay Awadhoot** for the award of Degree of Bachelor of Engineering in Computer Science & Engineering has been carried out under our supervision. The work is comprehensive, complete and fit for evaluation.

Adivid Technologies Pvt Ltd

Guide

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Cost of Industrial Solution Certificate

This is to certify that Ms. Mayuri Bajirao and Mr. Pratikshay Awadhoot students of Computer Science and Engineering from G H Raisoni College of Engineering, Nagpur has completed Internship successfully from 22th Nov 2019 to 19th May 2020. During this period, he has shown good interest in the assignment/ works given to them and worked hard.

Student had worked during internship period on following project under the guidance of Mr. Kovid Sawla, (Company Executive Officer).

- Traffic Monitoring, Analytics System And E-Rickshaw for Traveler Safety (Sanrakshak)

During this tenure of internship, they were hard working and focused on activities assigned to them. Project work submitted by them has the potential to save cost up to Rs NIL amount.

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Saving to Certificate

This is to certify that Ms. Mayuri Bajirao and Mr. Pratikshay Awadhoot students of Computer Science and Engineering from G H Raisoni College of Engineering, Nagpur has completed Internship successfully from 22th Nov 2019 to 19th May 2020. During this period, he has shown good interest in the assignment/ works given to them and worked hard.

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- Traffic Monitoring, Analytics System And E-Rickshaw for Traveler Safety (Sanrakshak)

During this tenure of internship, they were hard working and focused on activities assigned to them. Project work submitted by them has the potential to save cost up to Rs NIL amount. Also, they were entitled for stipend of Rs. 5000 per month along with transportation & accommodation facilities for field work.

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June 1, 2020

Nashik

INTERNSHIP EXPERIENCE LETTER

To whomsoever it may concern

This letter is presented to **Ms Mayuri Bajirao** for the experience she has gained in our company. I hereby testify that she has worked in our company from date **22/11/2019** to **19/05/2020** and has gained experience and enhanced her skills in the field of **Android Development**.

During this period, she contributed in development and advancement of new and existing Android Applications designed by Adivid Technologies.

We found her as sincere, diligent, and enthusiastic in her role and wish success in all her future endeavors.

Kovid Sawla

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kovid@adivid.com
+91 97992 35966

June 1, 2020

Nashik

INTERNSHIP EXPERIENCE LETTER

To whomsoever it may concern

This letter is presented to **Mr. Pratikshay Awadhoot** for the experience he has gained in our company. I hereby testify that she has worked in our company from date **22/11/2019** to **19/05/2020** and has gained experience and enhanced her skills in the field of **Android Development**.

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ACKNOWLEDGEMENT

We take the opportunity to thank all related directly or indirectly for the completion of this project successfully.

We are extremely thankful to Dr. Sachin Untawale, Principal, for providing us infrastructural facilities to work in, without which this work would not have been possible.

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We express our sincere gratitude also towards Dr. Prashant Borkar, Department of COMPUTER SCIENCE & ENGINNEING for his stimulating guidance, continuous encouragement and supervision throughout the course of present work.

We would also like to heartily thank all respected staff members and our friends who have helped, inspired & supported us to carry out the project.

Abstract

Using GIS mapping suitability analysis to study, capture, store, analyze and manipulate the data in geographical data. GIS stand for Geographic Information System. It's a powerful that can be used to locate all the activities of road accident in a map format. The goal of this study is was to develop a model that could locate these unique geological features without first going into the field, thus saving time, money reducing the risk associated with remote field localities. A GIS system can analysis work by overlaying existing geo-referenced data into a computer program. This map model has demonstrated that it is possible to use this time of model. And apply it to a complex geographical area to produce a usable field map for field work.

"Traffic Monitoring, Analytics System and E-Rickshaw for Travelers Safety", project is aimed to focus on replacing old manual method of storing accident information in a new digital system. It includes the web dashboard and an android application. In this web dashboard, the dashboard does the multilayer analysis of all major, minor road accidents, fatalities, injuries, identification of blackspots and GPS location. It facilitates traffic branch administration to take directed and informed actions. As an add-on, a daily traffic offence report is also being generated through this dashboard which enables identification of repeat offenders. The Traffic Monitoring and analytics system is also called as "SANRAKSHAK". This SANRAKSHAK is to maintain the track of record store by police user in a digital way to analyze all the accident occurring in a City/District from the Data of police station or other administrative office. The project contains some modules such as accident report, accident analytics, accident map and traffic GIS and the other part of this project is E-rickshaw for travelers' safety is also called as "SUKRAKSHA" system. In the web dashboard there are also two modules i.e. rickshaw registration and registered rickshaws.

In today's era all old manual storing method like in paper format are storing in digital format furtherly known as Central Digital System. For this project we used map by using google map API. In this project, all the road accident will store in police database. Whenever a accident occurred, the police user can fill up the online application form of that accident place in an android application, the form contains every single detail about accident such as address, date, time, vehicles involved in accident, speed range, by clicking

GPS button they can get exact location, they can write reason and potential solution for the accident and the police user can take photo/ media of that incident place and also of the persons who are involved in it. By clicking submit button all the details related about that accident will saved to the server. Then the higher authorities can watch that accident in the dashboard with that location, and by clicking that particular accident, they will get all the information about that accident. All the accident occurred in a City/District can be shown in a list format in Accident report module. This list of all the accident is present on dashboard, where the authenticate user can update the location too, the list can be sorted/filtered based on police station, zone wise. The user can get this list within a date range. If user wants hard copy of it, so user can download excel/PDF file of the list with the details of that accident.

In accident analytics module, all the accident analytics can be seen here, list can be filtered based on police station and zone wise. In this module user can analyze the accident present on web dashboard with line graph/pie chart/bar chart. More than 15 dynamic charts are present in the dashboard which includes Bar chart/Pie Chart/Line Graph etc. User can also download this charts in PDF/JPEG file of these charts and details. In accident map (GIS mapping) module user can see all the accident in the map along with all the media information. The report can be shown for a specific date also. There are two spot in that module, one is for single accident and the other is blackspot where more than 5 accidents occurred. Auto blackspots can be generated automatically where more accidents occurred. All the media and accident related information are visible this dashboard. Traffic GIS module contains summary of traffic GIS for setting rules of the road where more accidents are happening such as traffic hotspot, traffic solution, traffic signage. The report can be download in excel format.

The E-rickshaw module for traveler's safety (SURAKSHA) contains rickshaw registration and registered rickshaw section. The purpose of this system is safety for the citizens of the city/district who travels in auto rickshaw or E-taxi in daily life. This system helps Police to control over the unregistered rickshaw which are plying in city. After registration of some particular rickshaw, the owner will assign a unique QR code that contains the details of that rickshaw owner, the useful details will save to police database. The access control is different for citizens and police user explain in implementation of module section. The

citizens have to scan the QR code through any QR code scanning application where they will be taken to a web page, where some limited information about rickshaw owner are available. The citizens can rate this rickshaw out of 5 star and share their feedback. They can also share the rickshaw details with their family members on WhatsApp and SMS. From next time onward, as soon as citizens enters into a rickshaw, scan the QR code so that any problematic situation occurs, they can get instant help from the Police. The registered rickshaw modules contain the detailed list of the rickshaw, where the police user can edit the details of any particular rickshaw.

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CHAPTER 1

INTRODUCTION

Introduction

1.1 Background/Context

The purpose of this project is to track, maintain and analyze the digital data and record of all accidents and crimes in rickshaw or E-taxi occurring in a city/District from the data of police station or other administrative office. This project is named as “Traffic Monitoring, Analytics Systems and E-Rickshaw for Travelers Safety” has two main parts including the digitalization of accidental reports happens on road/highway in the City/District will be digitally stored in database and the other part is including the safety of travelers in daily life like auto rickshaw and E-taxi.

In the todays era everything which is having major data are converting into central digital system like bank data, some government things etc... The importance of this digitalization is that no paper work, no need to store it at some security room, no time needed for finding some old cases which have been in current use. We can go directly through the web dashboard and find accidental reports and FIR of it immediately. The Traffic Monitoring, analytics System has one web dashboard and android application for registering the accident on time in an android application and it will immediately get updated in their higher authority dashboard. The registration of accident (online application form) includes the victim’s name, license number, GPS location and so many information about the accident. They can (The police user) click on GPS button for taking the exact location of accident and they can write the reason and potential solution for the accident and even they can take photo/video/media as well as for some proof of the accident.

1.2 Problem Statement

The police (end user) wants that, in the web dashboard includes the all the total accident reports in the form of the list. The accident list can be filtered by police station, traffic zone (city zone), from date, to date (the police user can get this list within a date range also). After sorting it, if user want in a hard copy the user can download the excel/Pdf file of the list with the details of accidents. The analytics of the accident are also provided within the web dashboard of this project, if user wants to analyze the data of all accident reports in the form of bar graph, pie chart and more animated charts so user will get more than 15 dynamic pie charts include Bar chart/Pie Chart/Line Graph by filtering the list by police

station and city/zone wise. They want download the pie chart in the form of JPEG/PDF file of these charts and details.

1.3 Objective

In the web dashboard, there is another part is named as Accidental Map where the user can watch all the accidents report and activity on map, it'll get help the users to watch easily that where, when and which road the accident occurred. The last option in first major project is GIS Mapping where user can see all the accident in the map along with all the media information. The report can be shown for a specific date also (using from-date to-date). Auto blackspot (where more than 5 accidents happened) can be generated where more accidents occurred. All the media and accident related data and information are visible in this dashboard.

In this project an application will use instead of this paper work where the police user will fill up the online application form which will include the victim's information, injury information, and will get the exact location of where the accident occurred. After getting this information they have to simply click the submit button and the information will submit and stored in the database, and the higher authority can easily access the information of that reported case. In this system no one can easily steal the data and no one can edit the FIR except the police personnel or authorize user. After reporting an FIR of an accident the higher authority can watch the accident location from dashboard too. If there are more than 5 cases on that road it will become a blackspot. So government can easily analyze the road and can improve the road as per their schedule. The higher authorities can easily watch the accidental map and can set the rules, that which roads are more dangerous for people

The second major part of this project is E-rickshaw Traffic module for travelers' safety. The main reason behind this is that the crime ratio of 16-17% have included auto rickshaw and E-taxi so this will help the police user as well the common people for being safe from any type of thief or criminal. This E-rickshaw part includes an android application for police user and web dashboard as previously known second major part. Using android application user can register the rickshaw's owner information and his vehicle information like name, vehicle number, photo, etc.… For the E-rickshaws safety system, it will use the

QR code sticker assign to each auto rickshaw owner for a safety purpose of citizens and they by scanning the QR code they can easily share the rickshaw owner details on messaging application with their family. Police can get lead in any crime cases where auto rickshaws are involved and can control over the illegal auto rickshaws. After registration of the rickshaw the one unique QR sticker will generate for that particular rickshaw and E-vehicle where all his personal info and location will visible to the police user.

This is for safety purpose of the traveler which are traveling through the auto rickshaw and E-vehicle. Where they can scan the QR code which will scan through any QR code scan reader application. After scanning it, they will be taken to a web page where people can share the feedback, the traveler can see the vehicle number and owner name where they can share it through any social media application through their relative (if something goes wrong) and if the ride is safe, on time, and fair price so you can rate the rickshaw owner out of 5 star. It will help them for their improvement and for decreasing the crime rate. The user can register the rickshaw from web dashboard. The QR code scanning will help the people like this way, that as soon as the traveler entered the rickshaw so that during any problematic situation occurred, he/she can get the instant help from the Police person.

CHAPTER 2
LITERATURE REVIEW

Literature Review

2.1 Literature Overview

Since the beginning of the daily work people have always had to deal with paper work, but now a day the era and culture are changing day by day means the old era changing into the digital era. Where everything which are in terms of records, the data which are keeping in paper format. This study is aimed to focus on both digital system and safety system. In the previous format, the police accidental FIR including some photo/media/video was kept in a file (as a hard copy) format. To maintain this track in a digital way where all the media, videos and information about victim and who have been also involved will be stored in server/database of the Government. We searched that before the digital era arrived, that after a while if some police personnel or lawyer got lead whichever particular case they were working in they have to find the proper file case and have to work with the damage papers, files and images within a case.

The second major part of this project is safety system for Auto rickshaw and E-taxi travelers. This part of a project is for a safety purpose in terms of safe ride, behavior of driver, fair price and etc… In the Nagpur city, as per the data obtain from the regional transport offices of both Nagpur city and deputy RTO east, the city has 18,316 registered auto rickshaws, while 2,440 E-rickshaws registered. Sources estimated that around 2,000 e-rickshaws are plying in the city illegally. So the aim of this part of a project is that police user can register this legal auto rickshaws owner, this process will be in terms of online registration form through city traffic office and the useful details will save like name, license number, vehicle number and so on, this details will save to the Police Database.
The process of this system is explained in 2.4 Proposed System.

2.2 Concept

This accident/traffic Analysis System will help them in a way that whatever year and whichever month they have to search and find out the FIR file they will get it within a second by sorting it by police station wise and zone wise. After an accident, police will take basic information about accident and will report a file of “make sure the area is secured for traffic and all people involved, speak to witnesses, third parties or any other

people involved" and store it to evidence/store room. And later it'll be use for claiming insurance or in some case. The second half as mentioned in 2.1 is safety for citizens where they will scan the QR code and can share the details using messaging application like WhatsApp and SMS.

2.3 Research Paper & Survey

Title of Research, Survey	Author Name	Abstract	Research Gap
Maharashtra highway police launch application for analysis of road accidents as MRADMS (Maharashtra road Accidents Data Management System)	E-News channel as Money-Control Website – www.moneycontrol.com	As per the statistics provided by the highway state police road accidents claimed the lives of 13,216 people in the state only in 2018, later on it was more. MRADMS application usable for police personnel to collect and analyze the data related to road accident. The addition director general of Police wants that the application would replace the old manual method used by police personnel to collect the spot details. The application can be downloaded from google play store, but this application is accessible to the Police User.	In the MRADMS software we found that there is no Traffic GIS to maintain the rules and analyze the data in Map form. So, we decided to create a web dashboard where police user can use the feature of Accident Map, and the higher authorities can directly analyze it, and by sorting it by zone wise, it will generate dynamic bar graph and pie charts.
A safety Assessment of auto rickshaw in Mumbai	E-news channel as The City Fix. The city fix is an online resource for the latest news and analysis on urban areas and development	In this article, they write about the safety measure about auto rickshaw, and there is only analysis of auto rickshaws, in this article, they told about safety of auto rickshaw "Since the auto rickshaw are allowed to ply(driver) only in suburban areas". And they also told about that there is minor involvement in fatalities. In the article they analyze the data police station wise and by total fatal accidents. It includes the fatalities of auto rickshaw where the auto rickshaw is less than the other vehicles.	We search all the other articles, and we found that there is only safety analysis about auto rickshaw and some emergency number, and everyone is not aware about this. So we decided to create an unique sticker that will help traveler in a way that any situation occurs, they will get instant help.

Table No. 1: Research & survey

As it is indicated in the title that Research paper and survey, we will explain you about the research paper, as we not got any research paper through publications but we have got some e-news channel articles and analysis news.

2.4 Existing System

In this title stated above, there is a system called MRADMS (Maharashtra Road Accident Management System) for Maharashtra State Highway police. MRADMS is an application for accidents information collection and statistics. The android application-MRADMS has been developed to know the reason behind the road accident and also for their detailed analysis. This application is not for public usage. MRADMS only access through the online application and can sync the data with server after registration of the fatal accident (fatal accident means the unfortunate mishap, the accident that causes someone to die) it will save in to the server and will show only in an android application.

In addition to this, we made a dashboard that is connected to database and an android application that is also connected to police database that will help them to analyze in dashboard also. In dashboard they (police user) watch all the accident data, FIR and all the information related to the accident will show on that dashboard. This will help the police person to analyze data easily and to make a report for that case too. In our dashboard we have added one more thing that Traffic GIS that will generate 15 dynamic pie charts and the police user can download them in JPEG/PDF file.

We have added option in navigation view like FIR/ADR crime location, Incident reporting, Critical location, criminal profile, criminal information and criminal statistics. With the help of this user can easily get lead and help from this application for analyze the accident and report a file against the criminal. We have developed the GPS button that will take exact location of the incident and it will have submitted to the server. The police user can write the reason and potential solution for the accident and can take photo/media/videos of place as well. In our concern that in MRADMS system that application cannot take the media of the incident place which is more important for the case and FIR file. So we found that issue gap and developed it.

The main thread of this project is that, this application is for only HSP (Highway State Police, Maharashtra). In this application there are two option given on navigation bar, connect to server and logout, in our concern which is user friendly application in terms of GUI. And it is limited for highway state police. In addition to this, we create a GUI user friendly, where navigation drawer contains the Traffic GIS, FIR accident information, Rickshaw Information and so on. In our project, we have made this project for local police too, to register the minor accident also. For the auto rickshaw and E-taxi safety project there is no digital project (search by Traffic Police) which is make our project unique. There are some helpline number present for citizen's safety. But in this safety system, if the citizen who is traveling by rickshaw can scan the QR code with any scanning application and share the details with their family member. If everything will be safe they can rate the auto rickshaw owner out of 5 star. In addition to the emergency which were previously exist, we have given an SOS number to avoid any problematic situation.

2.5 Requirement Analysis

Requirement Analysis is basically a process of inquiry and resolution. At the first, we get unstructured data from the customer, end user wanted the whole project in a web dashboard where they can see the list of all accidents occurred on road, whether it can be major or minor. The list will be filtered by zone wise, police station wise and date wise and they also wanted the download option in it in the form of excel but the data was not in the format as we wanted. In this project, they wanted the data also in media/image/video and GPS location too and to set the rules on some road customer also wanted the option of it. At first, the accident data will fill up on dashboard only but after a while they wanted the android application too, it means that wherever accident happens the police user will register all the necessary details and submit it to the dashboard.

On E-rickshaw registration system they wanted two option where the new rickshaw will register and in another option the list of all the registered rickshaw will have to be display and can be sorted through the names and an edit option for editing the rickshaw owner details.

2.5.1 Function Requirement

In functional requirements, this system must accomplish the main requirements of the project. The one important requirement is that the android application which includes online application form with all the necessary details, after that when they submit all the details this will be stored on the police database. After this process the data have to store in database and then it can be shown from web dashboard too for fast and rapid speed of storing the cases in digital system.

2.5.2 Performance Requirement

In performance requirement, they wanted the all the rickshaw registration, accident information will get stored in dashboard. In an application form they wanted the location GPS button to get the exact location wherever the accident happens. The mode of testing this module we have to first enter the necessary data, location and we also perform validation here by activating some fields as necessary so that the report of that accident will generate properly.

CHAPTER 3
METHODOLOGY

Methodology

3.1 Introduction

As it is indicated in the title, methodology of this project focuses on research methods used within the research. For this project, data analyzing is must important process in this project, as we have to create a project in a proper way and structured data. We have the high-function requirement like a web dashboard which include the accidental map, accident analysis, traffic GIS etc… for this data analyzing we didn't use any data analyze software as we have to work with maps and GPS. We prepared the data in structured form for making clear that the data will not be problematic for us. Preparation of data explain in 3.4.2.

In this system before making this project we have practices for this research that what kind of accident occurred in daily manner, which accidents more occurred in terms of major and minor, which type of data they taken while the incident occurred, which type of format they store the all accidental data, then we understand that what type of data we have to take while we were having the research practices and we followed the research practices in a good manner. For auto rickshaw, we conduct surveys by our own by taking the cab and auto rickshaw, in the middle of the ride some of them were not using the meter properly and taking too much price for the ride. We did survey in person also by conversing with people and citizens out there and then we make a case study by analyzing it. So, we decided to approach the software in a way that the end user not have to analyze data manually as they do early. We did the research through E-news where we got that more than 2000 auto rickshaws are plying illegally and only 2,440 are registered E-taxi, while the legal auto rickshaws which is registered by RTO are 18,316.

3.2 Methodological Approach

For this methodological approach, we first gathered the structured data and from the survey we got the approach for developing this software. We will explain how we investigate this topic and will give you the overview of this project. In a research practices, we got issue and contradiction while researching it. The issue was found that after searching through E-news we found that 2000 auto rickshaws are illegal in the city which are also running in the city. So, to solve this issue we have gave an option that the all the legal rickshaw will

register their auto rickshaw and get a unique sticker which contain the information about owner and this will use for knowing that who is real owner of the auto rickshaw.

Police will also get the gap in over illegal and legal rickshaws and can control over unregistered rickshaws. In research we found that ratio of 16-17% crime cases has include auto rickshaw. If that auto rickshaw doesn't have the sticker behind its rickshaw, then he/she will have to pay the fine. For the accident analysis in the existing system (explain in 3.5 existing system) there was no traffic rules content for analyzing the accident occurred all over the city, so we have developed the traffic GIS option to analyze the data all over the city and can state whether which roads are safer and which are more dangerous. So this approach will help them to set rules the speed of the road and so on. One android application can help them to register the FIR immediately on the incident site. From the research we have also find that what will be the validity and reliability feature in this project.

In this methodological approach, we have proposed the solution in terms of Map and GPS location where the higher authority can watch all the accident incident instantly and will get a report of all the accident in the list form and if they want the list with zone-wise, police station wise and they can sort it through date also. The list will also download in excel/PDF form. They can analyze the data in pie chart too.

In the Traffic GIS more than 15 dynamic pie chart/line graph/Bar chart which include information of the accident are present. Police user can also download this in the form of JPEG/PDF file of these charts and details. All the media related information are visible are in this dashboard, the report can show for specific date also. So they will not get any problem for finding any accidental case and media related to it. The list of all the accidents is present on web dashboard and it can be filtered based on police station wise. The users and beneficiaries are Citizens, Traffic Branch, Administrative Offices (e.g. NMC) and Other department branches.

As we have mention in 2.1 Literature Overview that the second major part of this project is for citizen safety who are traveling from auto rickshaw and E-taxi. So police will take necessary information about auto rickshaw owner like name, vehicle number, etc... and will register it through an online application form. After registration of the owner of auto rickshaw, the one unique QR code sticker will assign to the owner. This will help the police for controlling over the unregistered auto rickshaws. So the illegal auto rickshaws cannot take passengers without this QR code sticker. One of the major reason for this project is

that we have searched that 16-17% of the crimes have involved auto rickshaws and E-taxi. If this type of situation occurred, then citizens who are traveling in that particular rickshaw simply scan the QR code and get the information of the rickshaw owner and can share it too.

For a safe ride, you have to simply scan the QR code using any QR code scanning application or in-built application. You will be taken to a web page where you can rate this rickshaw and share your feedback, you can also share the rickshaw details on WhatsApp, SMS with your family, so your family will also get the rickshaw details for the safety. From next time onwards as soon as you enter the rickshaw so that during any problematic situation, you can instant help from the police. The Data access for police and citizens are different, for police can see the total information and for citizen the information is limited, but there is a SOS feature in case of emergency, where they can get instant help from nearby Police station.

3.3 Work flow of Web Dashboard

In work flow of web dashboard explain in the below figure, it includes traffic reports, accident analytics, GIS mapping, map of the accident and rickshaw registration. Web dashboard is divided into two parts, accident reports and rickshaw registration.

3.3.1 Work flow of Accident reports

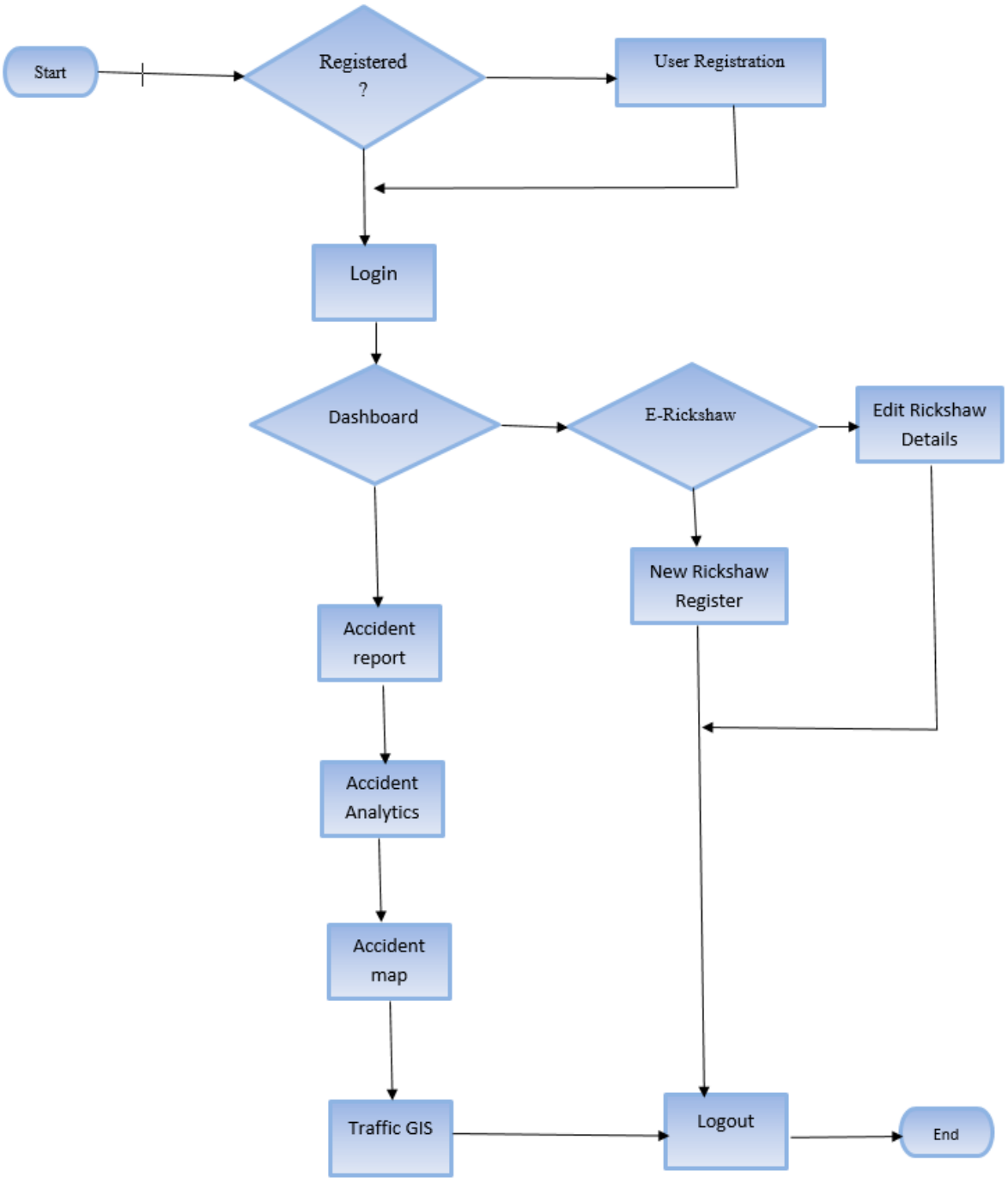

Fig 3.1: Work Flow Diagram of Accident Reports

3.3.2 Work flow of Rickshaw Registration

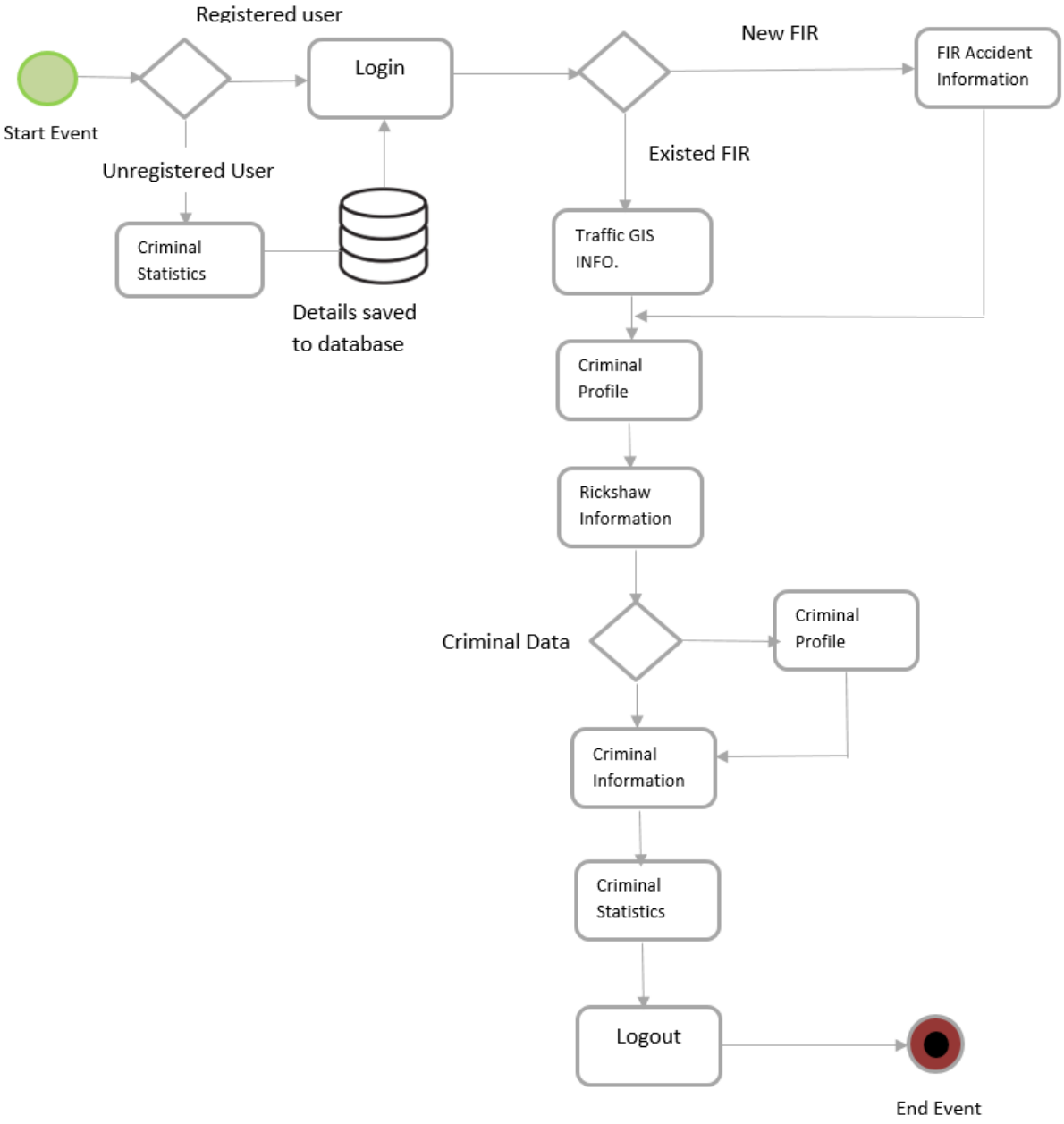

Fig 3.2: Work Flow Diagram of Rickshaw Registration

3.4 Work flow of android application

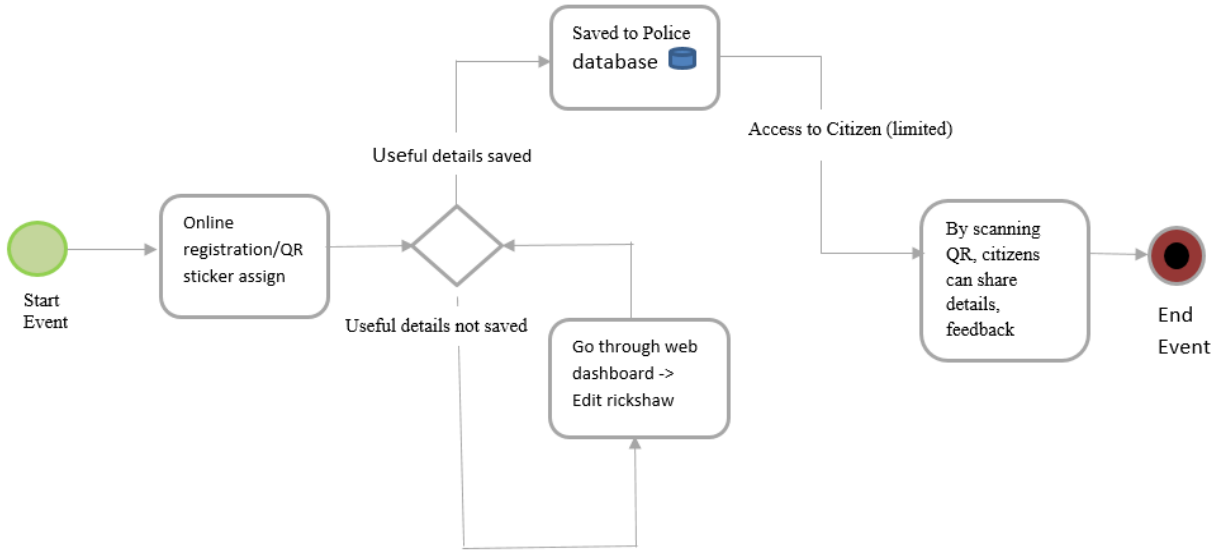

Fig 3.3: Work Flow Diagram of Android Application

3.5 Block diagrams (Traffic Module for traveler's safety)

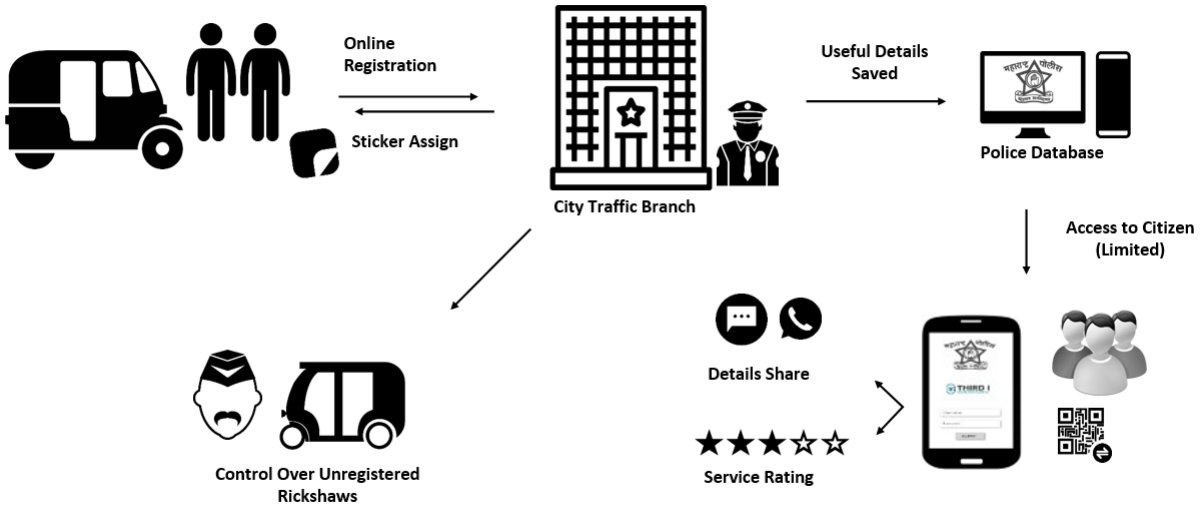

Fig 3.4: Block Diagram of E-Rickshaw Traffic Module

CHAPTER 4
DATA COLLECTION / TOOLS / PLATFORM USED

Data Collection/Tools/Platform Used

4.1 Method of Data Collection

As it is indicated the title, it contains the research methods of the project. In this project we used tools, procedures and material. We did survey in a practically manner by asking question on how the auto rickshaw driver behavior is with citizens, if any situation occurred, then what they do first in terms of medical and emergency. We take all the data from common citizens, and ask them what should be prevention for this and we made report on this. By collecting data, we found that there should be an emergency number for the citizens for any problematic situation occurred they can get instant help from the police in the form SOS. The **SOS call** can help the people to reach and help and get out of a dangerous situation. While in accident incident analysis, we get some points in the survey we did it in person and in newspapers like in E-news.

We reported that how much time police take to arrive at the accident place, what kind of things they do first like who is victim in the accident passenger or driver or both of them, who is injured at that place, who is drunk, where exactly the accident happens, we also reported that where the accident occurred, whether that road is safe or not what was the condition of that road is safe for common citizens or not, and what is the format of police to report the FIR of that accident. On that we found that there is no further record for knowing that how many accidents occurred there and if occurred, then they have to find it in a store room. On that we developed an accidental map option which can show that how many accidents were happen on which road if there are more than 5 record than it will be a blackspot. After clicking on any accident point they will get all the information includes FIR, images, video, media and can watch the GPS location within a second. By this, they can analyze the safety of roads which road have to improve. In data collection, we used quantitative and qualitative method.

In qualitative methodology, we aimed to focus on to produce real world knowledge about the behaviors, social structure and shared beliefs of citizens. In this methodology, we improved the product range in terms increasing the range of map that if they submit the

GPS location out of the city range it will show on map. This was done by using increasing and making the range of maps in KML. We find the select citizens in auto stand area where they can talk with us related to rickshaw drivers and for accident we select the road where no signals and also a crowded place. So many people took part in it. The interview with them is un-structured. The interview with the citizen was not so long but it is recorded in a paper format. This interview is for order to gain better insight into the possible ways for improvement of our product.

In quantitative methodology, we aimed to focus on survey, research, data collection, manipulation and measure the variable, recruit participants like citizen and police user too for gathering the information from both sides. In this method, we collect the data samples from specific group of individuals and we gather data from police data some from MS Excel and some from paper format. We design this in a dashboard format. We use web development and android studio for this, explain in Implementation. The data was originally produced and store in evidence and FIR store room. We select material like sorting, creating pie chat/line graph/bar chart, accident maps API, rickshaw registration, unique sticker in form of QR code and analysis accident.

4.2 Software and Hardware requirement

4.2.1 Software Requirement

In software requirement we have used languages such as PHP, JavaScript, jQuery, HTML, CSS3. For Map we use Google Map API and TCPDF for generating PDF.

- Operating System windows 7 and above version
- Languages: PHP, JavaScript, jQuery, HTML, CSS3, Java (in android studio)
- Backend: MySQL, Apache
- Browser: Google chrome

PHP is stand for Personnel Home Page and hypertext preprocessor. PHP is a widely-used, open source scripting language, PHP scripts are executed on the server, PHP is free to download and use. PHP is an amazing and popular language. PHP files can contain text, HTML, CSS, JavaScript, and PHP code, PHP code is executed on the server, and the result is returned to the browser as plain HTML, PHP files have extension ".php". PHP can

generate the page content i.e. dynamic, it can create, open, write, read, close and delete files on the server. This language can collect form type data, it can send and receive cookies, PHP can add, delete and modify the data in to the database. It can use to control user-access. PHP run on various platforms like windows, Linux, Unix, Mac OS etc… This language is compatible with almost all servers can use it (such as apache, Laravel, IIS, etc..). It supports a wide range of database, PHP is free for downloading and it is easy to learn and runs efficiently on the server side.

JavaScript (JS) is a programming language i.e. lightweight, translated, object oriented language, and is commonly known as the scripting language for Web pages and used to create static page into interactive one. JavaScript usually runs on the customer side of the web, which can be utilized to program the conduct of the web page. JavaScript is a easier to learn and an amazing scripting language. It is a dynamic scripting language supporting model based article development. The essential sentence structure is deliberately like both Java and C++. language builds, for example, if articulations, for and keeping in mind that circles, and switch and attempt… get squares work equivalent to in these dialects. This language can function as procedural and object oriented language. In JavaScript the items are made in fact, by connecting strategies and credits to opposite void articles at run time. JavaScript's dynamic abilities incorporate runtime object development, variable parameter records, work factors, dynamic content creation, object thoughtfulness and source code recuperation (JavaScript projects can decompile work bodies once more into their source content).

The JavaScript is used to program the behaviour of the different pages where the contents are defined using HTML and layouts are provided using CSS. It is used to make web pages attractive and interactive. It is used to load the data from the database into the HTML page to display the data.

HTML is a markup language for organizing and showing content for the World Wide Web. It is an overhauled adaptation of the first HTML standard that was made in l990 with a target to characterize the Open Web stage. HTML5 was created for fulfilling the needs of the present media, portable web needs etc.

HTML is used for designing the User Interface for the project forms to be displayed to the user. It is also used to provide the field validations in the required fields. Some HTML tags such as field set, legend etc. are also used. The elements such as method, form action, encryption type are also used.

Cascading Style Sheets (CSS) is a template language utilized for depicting the look and arranging of an archive written in a markup language. CSS3 is a most recent standard of css prior versions (CSS2). The distinction between css2 and css3 is –

- Media Queries
- Namespaces
- Selectors level 3
- Color

CSS is used to provide styling such as font-size, font-family, font-weight, font-display, display to text etc.

jQuery is an easy or challenging language that depends on your experience with JavaScript, HTML, CSS, and programming concepts in general. In addition to these, we can read about the history of the jQuery and the licensing terms that apply to jQuery projects. You can also make a donation to help the jQuery continue to improve jQuery.

In the jQuery language, the one important thing to know is that jQuery is just a **JavaScript library**. All the power of jQuery is accessed within JavaScript, so having a strong content of JavaScript is essential for understanding, structuring, and debugging your code. Working with jQuery regularly can, over time, improve your proficiency with JavaScript, jQuery is free and open source software, this language is used by approximately 73% of 10 million popular websites.

We have used Google API for the Map analysis, and for the blackspot and point we used QGIS software i.e. used for KML creation. KML is use for creating customized map for the software.
For downloading the excel format in PDF, we have used TCPDF library for downloading PDF.

4.2.2 Hardware Requirement

- Minimum 500 GB HDD
- Minimum 4 GB RAM
- Server with minimum configurations

4.2.3 Development Tools Used

Visual Studio 2019

Visual studio 2019 is an integrated development environment (IDE) developed & managed by Microsoft. It used by developers for developing various kind of application which will be running on different platforms such as web, desktop and mobile. Visual studio 2019 provides large range of services for development of different program. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, WPF, Windows Store and Microsoft Silverlight.

It can produce both native code and managed code. For this project we have used Windows forms for developing desktop application and asp.net C# for developing web based application which is dashboard.

Android Studio

Android Studio is the IDE i.e. integrated development Environment is used to develop the android application that runs on android operating systems. The android studio is built on Jet Brains' Intellij IDEA software and it is designed specifically for Android application development. Android available for download on windows and Linux based operating systems. It is a replacement for the Eclipse Android Development Tools (ADT) i.e. used previously instead of the android studio.

The feature of the android studio is APK analyzing, fast emulator, visual layout editor, intelligent code editor.

In visual layout editor, the complex layouts with Constraint Layout by adding constraints from each view to other views. The preview will be available on your layout on any screen size, juts by selecting one of various device configuration or it can be through simply resizing the previews window, it can be shown in XML file. It has a feature of APK analyzing, where it can find opportunities to reduce your Android app size by inspecting

the contents of your app APK file, even if it wasn't built in the Android Studio. You can inspect the manifest file, resources, and DEX files.

4.3 Database

4.3.1 Database Introduction (MySQL, Apache Server)

MySQL is free open source database that encourages the compelling administration of the databases by associating them to the product. It is a stable, dependable and the ground-breaking arrangement with the propelled highlights and points of interest which are as per the following:

- Being increasingly secure and dependable database the board framework MySQL is by and large all-inclusive prestigious and utilized in the mainstream web applications like Word Press, Drupal, Joomla, Facebook and twitter. The information security and backing for the value-based preparing that go with the latest variant of MySQL.
- MySQL offers unmatched versatility so as to encourage the administration of profoundly installed applications utilizing the impressions which are littler even in the enormous distribution centers that stacks terabyte of data. The star highlight of MySQL is the on-request adaptability. This open source arrangement enables the total customization to web based business organizations with the one of a kind database server necessity.
- The total confirmation of 24X7 uptime is surrendered by the MySQL and offers a wide scope of high accessibility arrangements like specific bunch servers and the ace/slave replication setups.
- By relocating the present database applications to MySQL, undertakings are getting a charge out of the huge cost investment funds on the new activities. The reliability and the simplicity of the executives that go with MySQL spare your investigating time which is generally being squandered in fixing the personal time issues and the execution issues.

MySQL is used to create the database. The MySQL Workbench is used to store the data of the application and perform necessary operations such as insert records in the table, update the tables, delete records from the tables and query the database. The insert, update operations are written in the Connection class and then passed as commands to the

database and the result is returned back to the Connection class. Other dependencies such as javax.mail, spring framework are also added.

Apache HTTP Server called as Apache, it's a free, open-source and cross platform web server software, this server is released under **Apache License 2.0.** This apache server is maintained and developed by open community of developers under the Apache software Foundation as ASF. There are 8 core contributors formed the foundation of Apache Foundation Group:

- Brian Behlendorf
- Roy T. Fielding
- Rob Hartill
- David Robinson
- Cliff Skolnick
- Randy Terbush
- Robert S. Thau
- Andrew Wilson

with additional contributions from

- Eric Hagberg
- Frank Peters
- Nicolas Pioch

Apache server is to provide robust and commercial reference implementations of some types of software and databases. It must remain a platform where individuals and institutions can build reliable systems, both for experimental purposes and for mission-critical purposes. The foundation members believe that the tools of online publishing should be in the hands of every technical person. AFG realize that it is often seen as economic advantage for the company to own a market in a software culture, it means that, the control tightly particular conduit such that all other software company must pay for its use.

4.3.2 Data Dictionary of Database

4.1: Table Structure for User Registration of Police User

Column Name	Data Type	Length	Constraint	Not Null?	Auto Increment?
Serial Number	Integer	11	Primary key	Yes	Yes
Full Name	Varchar	25		Yes	
Birthdate	Date	08		Yes	
Gender	char	10		Yes	
Designation	Varchar	20			
Department	Varchar	20			
Police Station	Varchar	20			
Traffic Zone	Char	20			
Buckle Number	Number	12		Yes	
User ID	Number	10		Yes	
Contact Number	Number	10		Yes	
Password	Varchar	12		Yes	
Confirm Password	varchar	12		Yes	

4.2: Table Structure for FIR Accident Registration

Column Name	Data Type	Length	Constraint	Not Null?	Auto Increment?
Serial Number	Integer	11	Primary key	Yes	Yes
Victim's Name	Varchar	45			
Reported By	Varchar	45			
Gender	char	10			
Contact Number	Number	10			
Email	Varchar	20			
Date/Time	Date time		Foreign Key		
Address	Varchar	100			
Police Station	Char	20	Foreign Key		

Zone	Char	12			
Vehicle Number	Varchar	10		Yes	
Fatal	Integer	10			
Grievous Injury	Integer	10			
Minor Injury	Integer	10			
Type of Road	Varchar	45			
Quality of road	Char	45			
Road Peculiarity	Varchar	50			
Road name/street	Varchar	50		Yes	
Occasion of Accident	Varchar	45			
Accident Solution	Varchar	50			
Accident reason	Varchar	100			
Accident Location (GPS)	N/A			Yes	
Media/Photo/Video	N/A				

4.3: Table Structure for Accident Report

Column Name	Data Type	Length	Constraint	Not Null?	Auto Increment?
Serial Number	Integer	11	Primary key	Yes	Yes
Police Station	Char	25		Yes	
Zone	Char	08		Yes	
FIR Number	Number	10		Yes	
Accident Date	Date	20			
Accident Time	Time	20			
Reported By	Varchar	20			
Update Location	N/A				
View FIR	N/A			Yes	

4.4: Table Structure for Accident Analytics

Column Name	Data Type	Length	Constraint	Not Null?	Auto Increment?
Serial Number	Integer	11	Primary key	Yes	Yes

Police Station	Varchar	25		Yes	
Traffic Unit	Char	20		Yes	
Accident From Date	Date			Yes	
Accident To Date	Date			Yes	

4.5: Table Structure for Owner Information(Rickshaw Registration)

Column Name	Data Type	Length	Constraint	Not Null?	Auto Increment?
Serial Number	Integer	11	Primary key	Yes	Yes
Owner Name	Char	25		Yes	
Owner Mobile Number	Number	10		Yes	
Rickshaw Number	Varchar	10		Yes	
License Number	Varchar	20			
Owner Address	Varchar	100			
Permit Number	Number	20			
Permit Last date	Date				
Fitness Certificate Date	Date			Yes	

4.6: Table Structure for Driver Information(Rickshaw Registration)

Column Name	Data Type	Length	Constraint	Not Null?	Auto Increment?
Serial Number	Integer	11	Primary key	Yes	Yes
Driver Name	Char	25		Yes	
Driver Mobile Number	Number	10		Yes	
License Number	Varchar	20			
Batch Number	Number	100			
Attach Photo	N/A				

CHAPTER 5
DESIGN / IMPLEMENTATION / MODELING

Design/Implementation

5.1 Web Dashboard

5.1.1 Webpage and Login

This webpage and login is limited access to only police user. Police user can login in the webpage, if they are not registered, then by filling registration page (given in below figure), they can login. Follow the steps:

- Click on the link
- Enter your assigned User ID and Password to login in the web dashboard
- Note: If you do not have the USERID and PASSWORD, please contact to headquarter/control room.

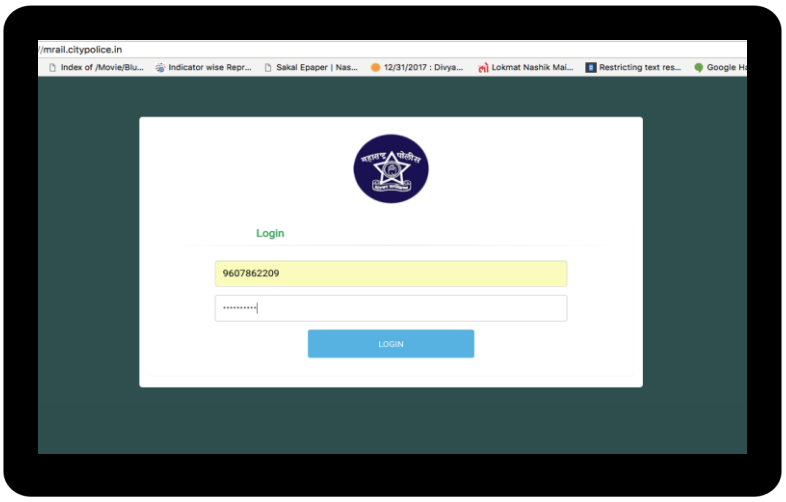

Fig 5.1: Login Page for Dashboard

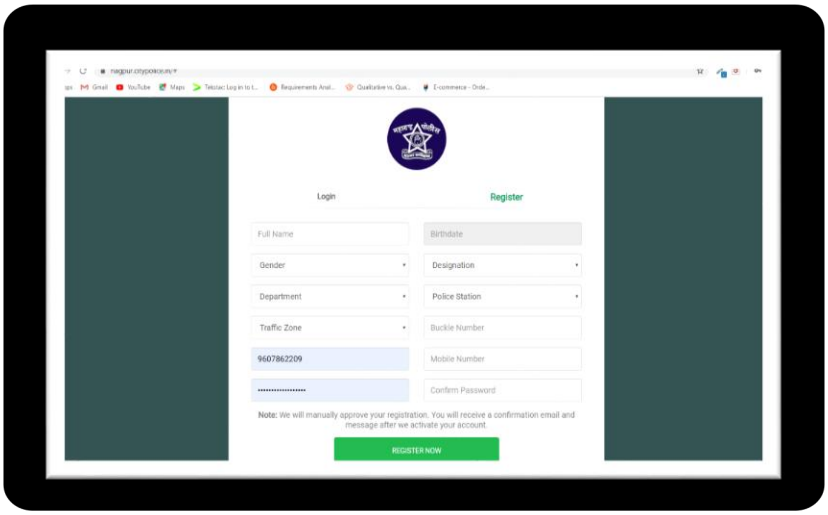

Fig 5.2: Registration

5.1.2 Traffic Reports Module

After registration of accident of FIR, it will show here in traffic reports.

- List of all the accidents is present on web dashboard.
- List can be filtered based on police station as well as zone wise.
- User can get the list within a date range too.
- As shown in the figure, user can also download excel/PDF file of the list with the details of the accident.

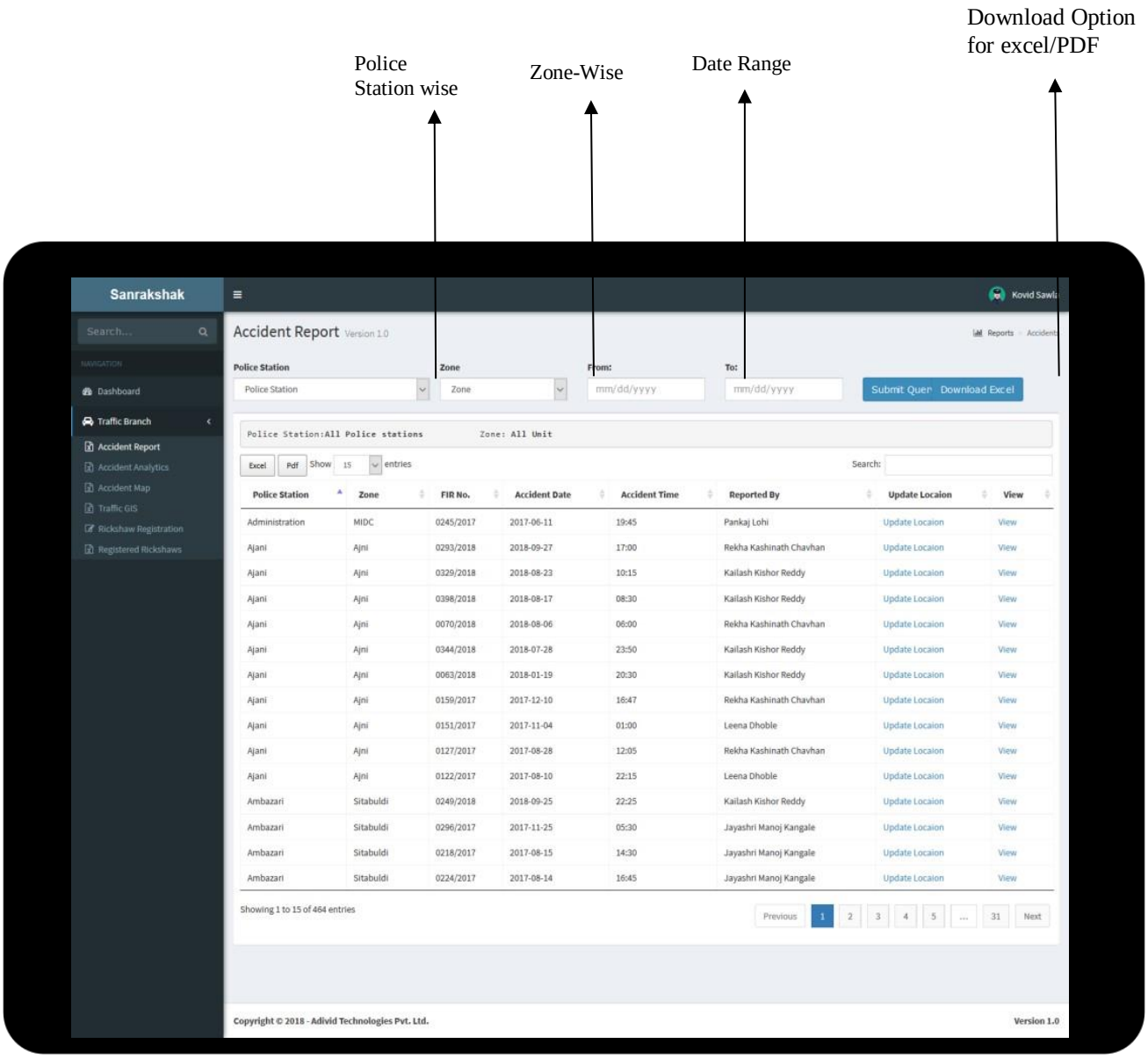

Fig 5.3: Traffic Report Module

5.1.3 Accident Analytics

For watching all the analytics of the highway road accidents, fatalities and crime included in that case, all the data can be seen through Pie chart/line graph/ Bar Graph.

- All the accident analytics can be seen here.
- Here also, list can be filtered based on police station and date for pie chart.
- More than 15 dynamic charts are present in the dashboard which includes bar chart/Pie Chart/Line graph etc…
- User can also download PDF/JPEG file of these chart and detail.

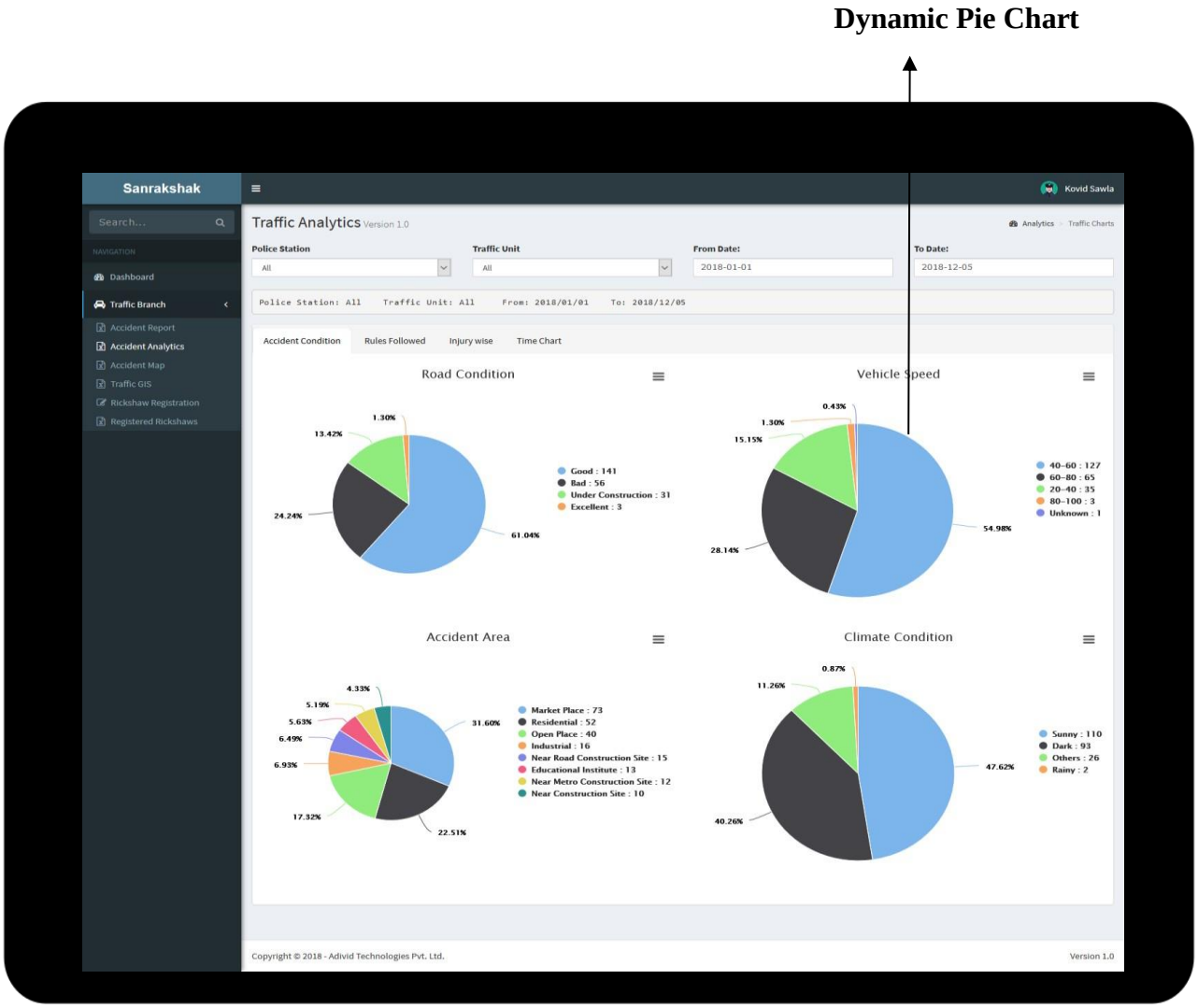

Fig 5.4: Accident Analytics

5.1.4 GIS Mapping (Accident Map)

This module named GIS mapping, it includes all the accident occurred in the city. It will show all the accident in the Map (satellite or geographical), where higher authorities can watch all the accident occurred in the city/district. After clicking the specific red dot in the map, it will show all the details related about the accident.

- The police user can see all the accidents in the map along with all the media information
- The report can be shown for a specific date also.
- Auto blackspot can be generated where more accidents are happening.
- All the media and accident related information are visible in this dashboard.

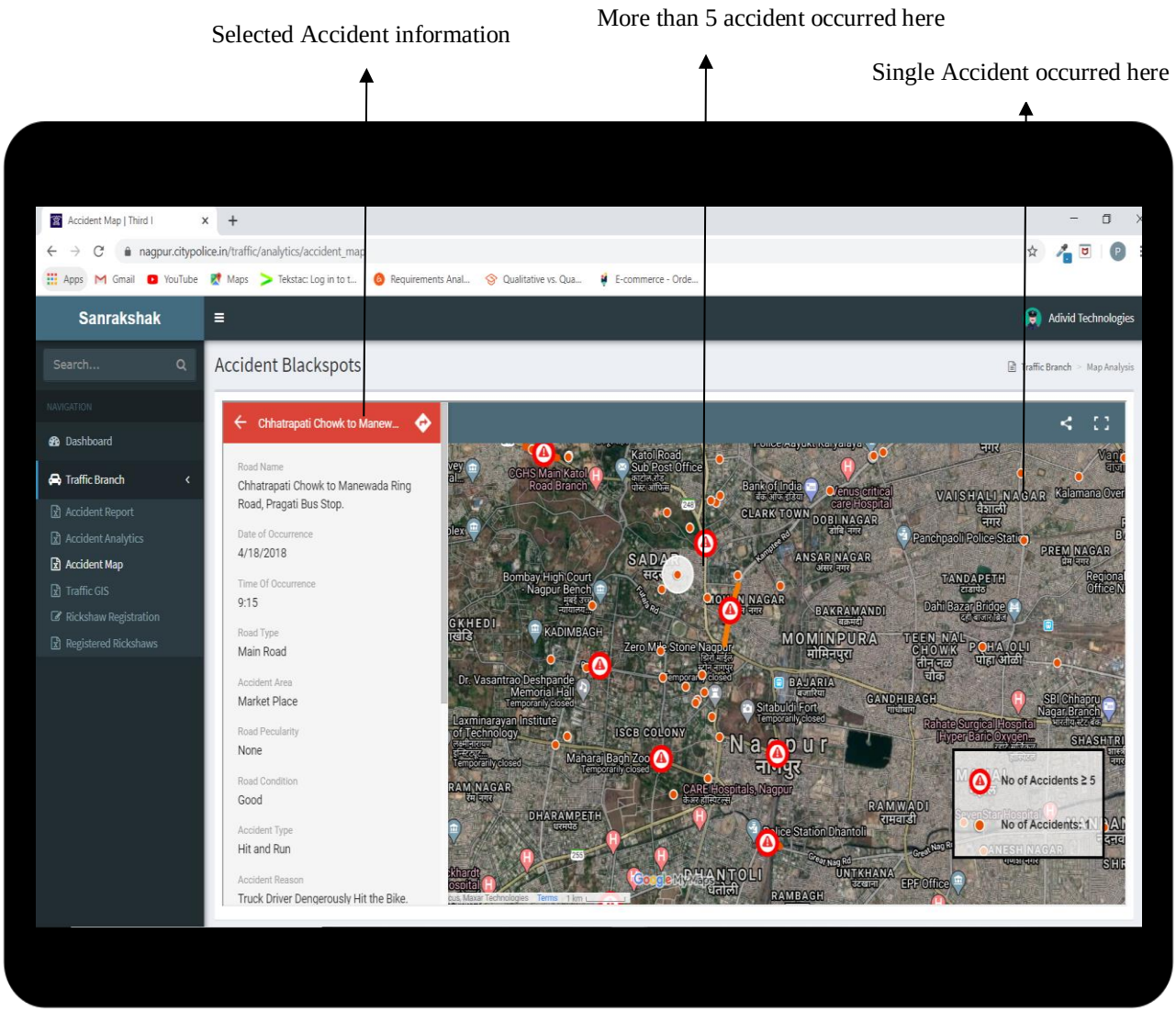

Fig 5.5: Accident Map

5.1.5 Traffic GIS

The traffic GIS module includes the summary of traffic GIS, and in this module you can set rule about the traffic rules such as traffic hotspot, traffic solution, traffic signage and it can be done through zone and police station wise.

- Police user can add Traffic GIS location in a Map, after adding the location it will show in the form of yellow flag.
- User can view traffic GIS summary date wise, and can download report in excel

Traffic GIS location in yellow Flag

Download option in excel format

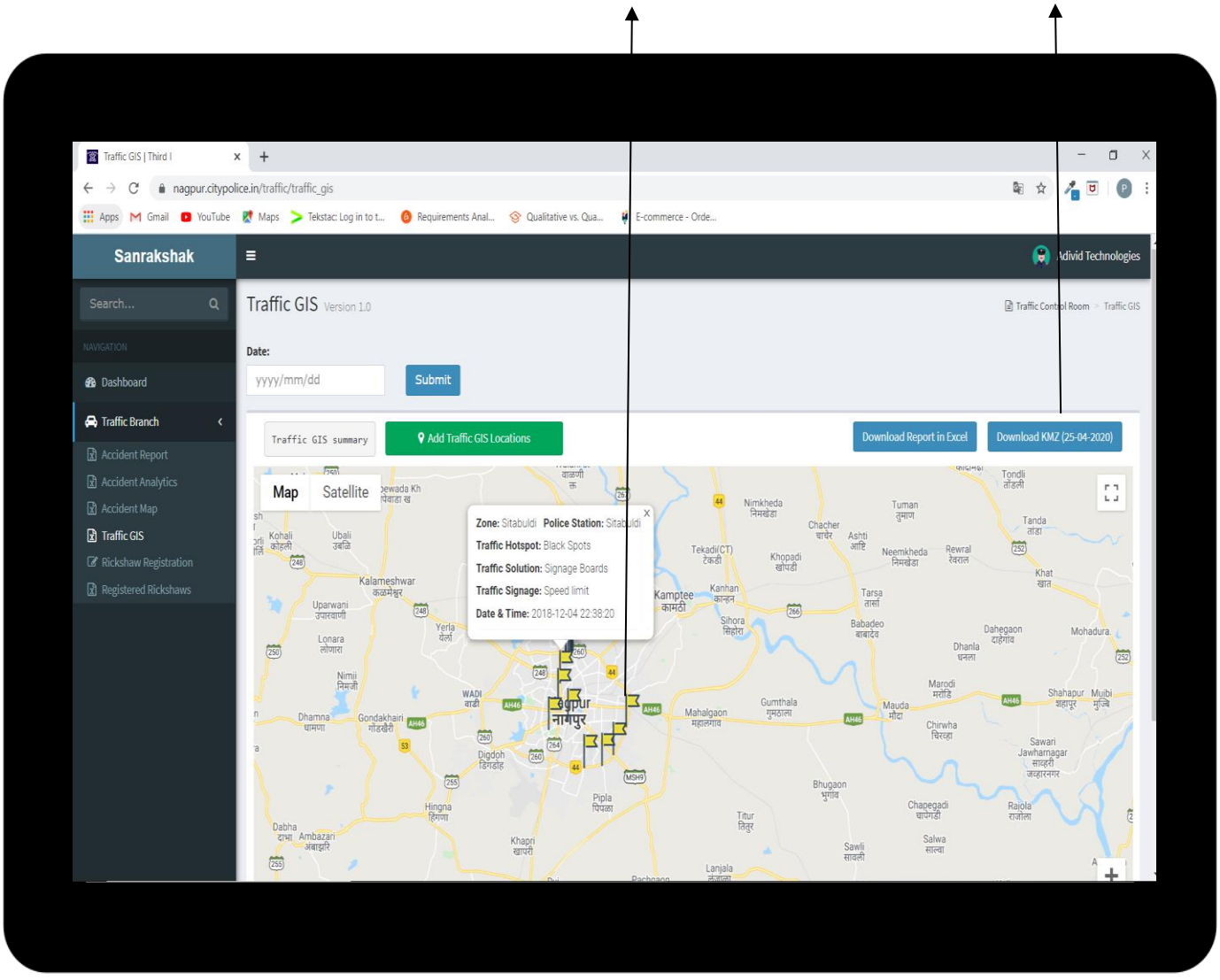

Fig 5.6: Traffic GIS Module

5.1.6 Rickshaw Registration and New Rickshaw Registration

In this module, police user can register new rickshaw by fill up the new registration rickshaw form and can edit the rickshaw details of existed rickshaw.

- Go to the new Rickshaw registration option in the navigation and click on it, one web form will open enter all the details and submit the details.
- After registration one unique QR sticker code will assign (see below figure) to that rickshaw, the rickshaw owner has to paste that sticker in the backside of the vehicle where citizen can scan it.
- For editing any rickshaw details, there is one option registered rickshaws, where police user can edit the details of it.

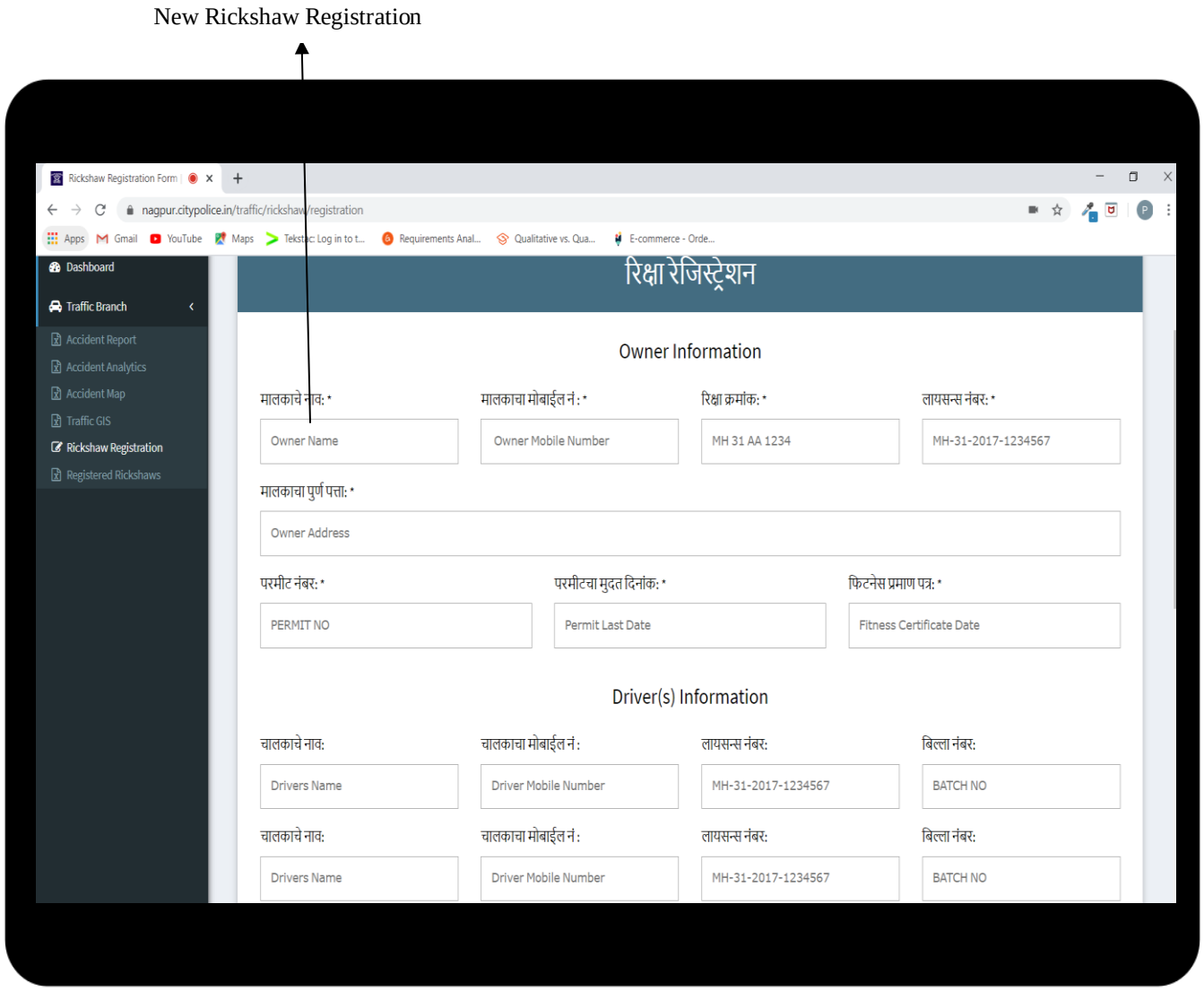

Fig 5.7: New Rickshaw Registration

Fig 5.8: QR code Sticker Assign to Auto Rickshaw

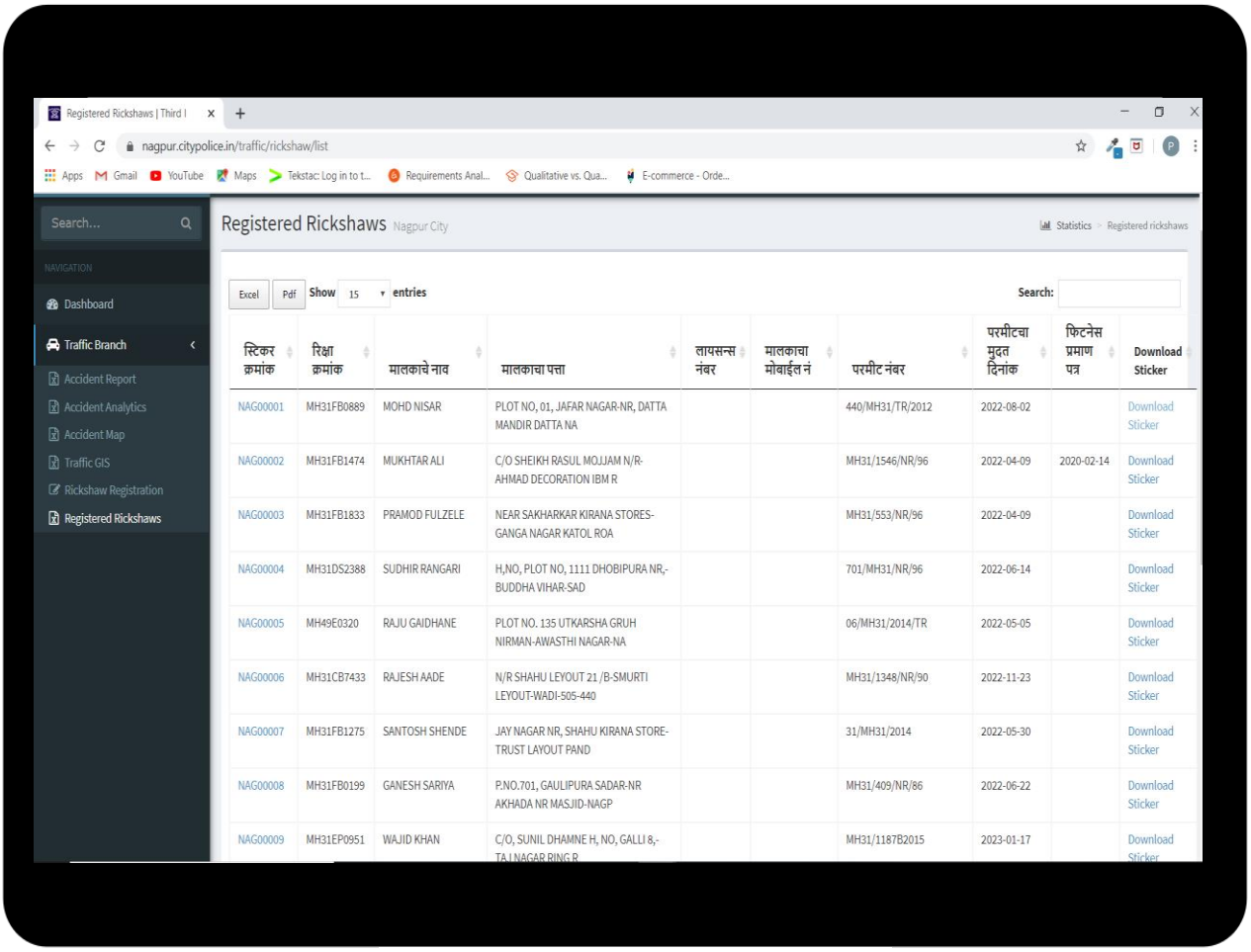

Fig 5.9: Registered Rickshaws List

5.2 Android Application

5.2.1 Login Page

After downloading the android application, it will look like the below figure (splash screen), after registration of the user, it will locate to home screen. The login credentials are limited to only Police user. It has only a limited access.

- The police user can register on application, but user's credentials get activated in 24 HRS by headquarter or control room for verifying and authenticate user.
- With the help of this android application, police user will register a new FIR accident case by filling up form, user can edit the information in the Edit Accident information section, user can see any of the criminal profile, his/her information and criminal statistics.

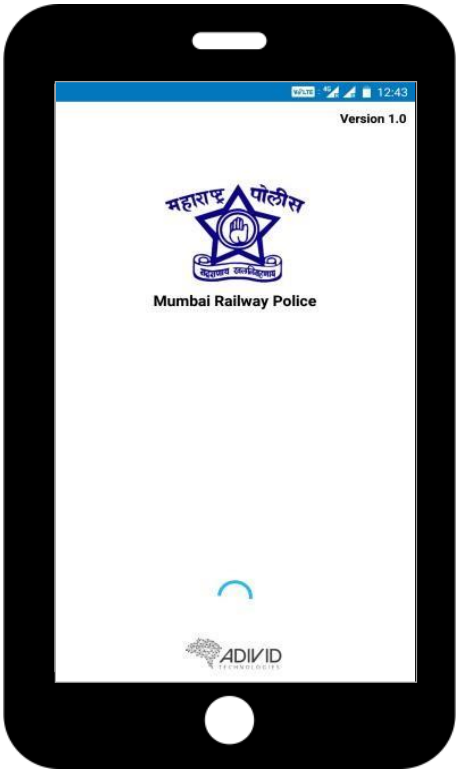

Fig 5.10: Splash Screen

5.2.2 FIR Accident Information

For FIR Accident Information, police user has to fill up an online application form in this application.

- With the help of this android application, police user will register a new FIR accident case by filling up form in a process, it will take GPS location of that incident place also and user can see the traffic GIS of that road.
- If there will be mistake in FIR, he/she can edit the information in the Edit Accident information section.
- With the help of this application, user can see any of the criminal profile, his/her information and criminal statistics.
- After opening the application, Go to menu and select FIR Accident Information, fill the online form from the information taken from the FIR.

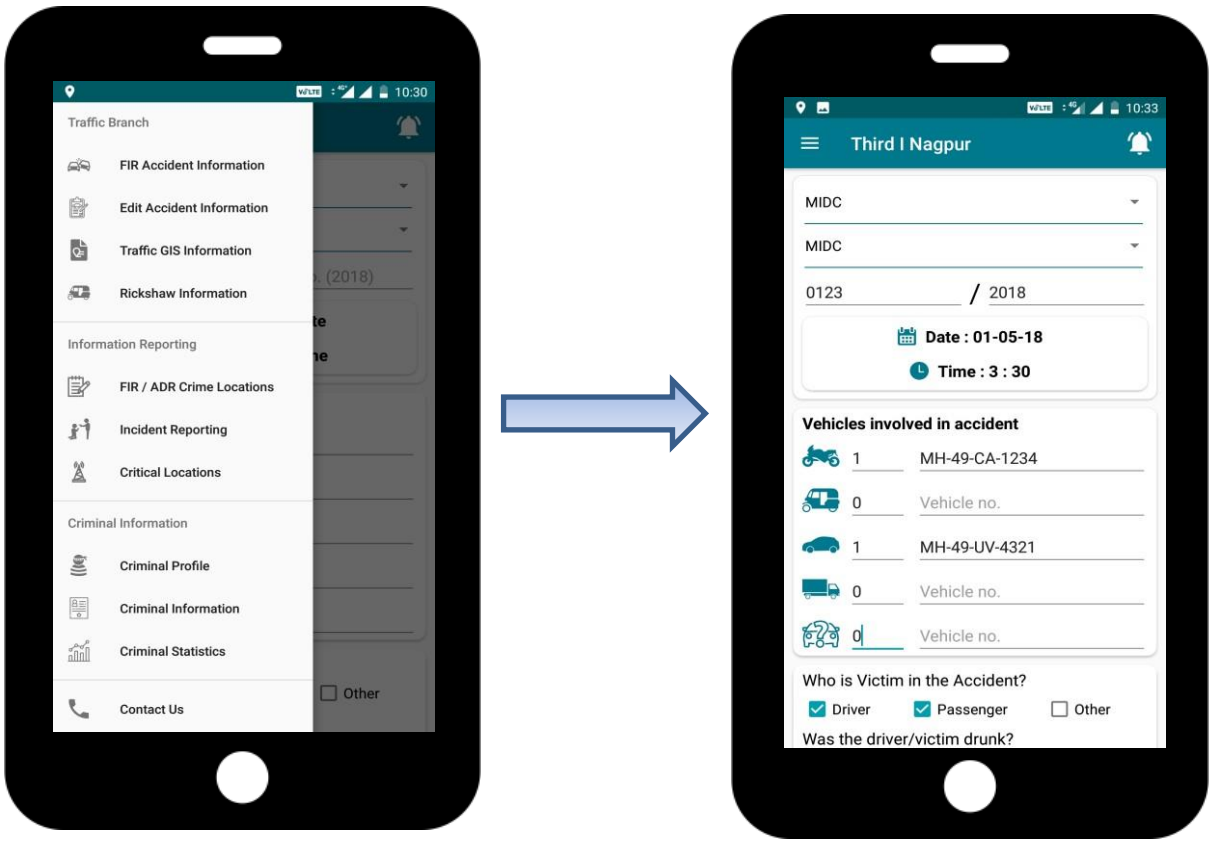

Fig 5.11 & 5.12: FIR Accident Information

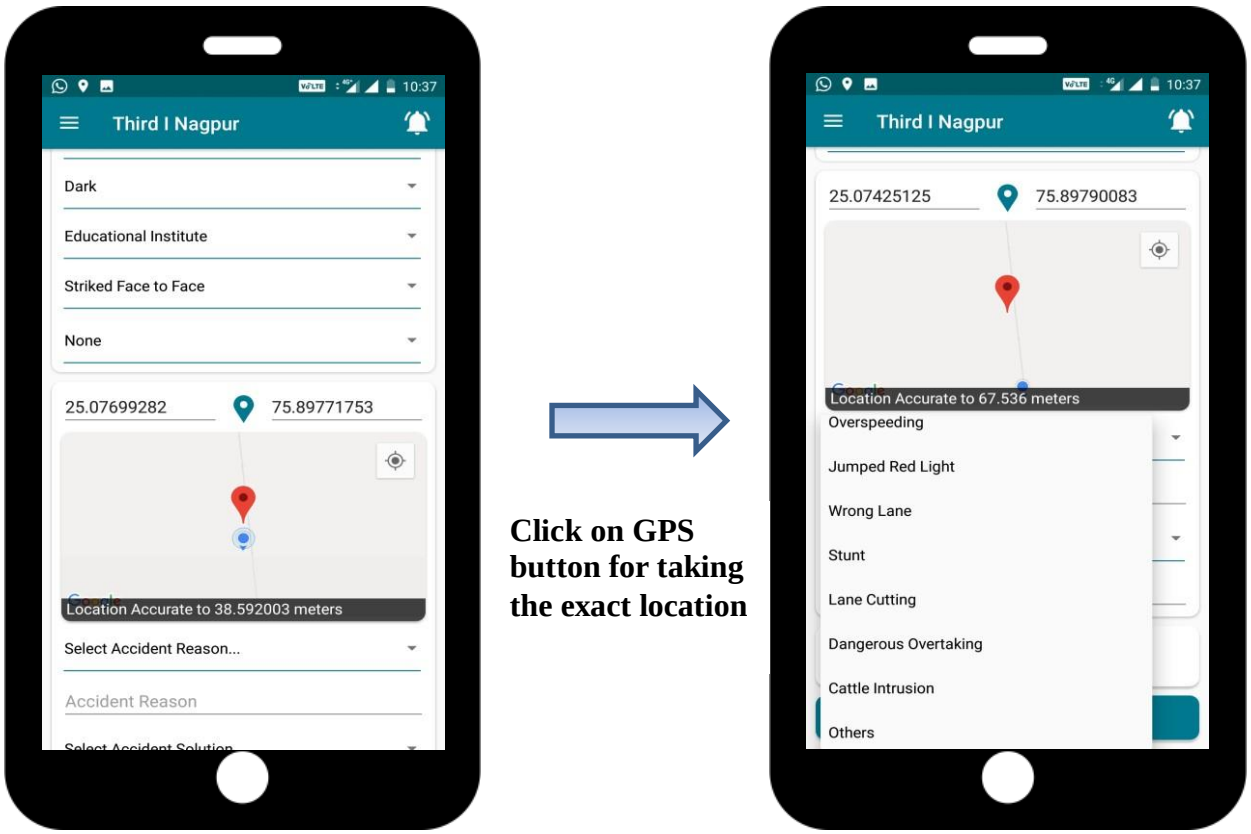

Fig 5.12 & 5.13: For taking GPS location of accident

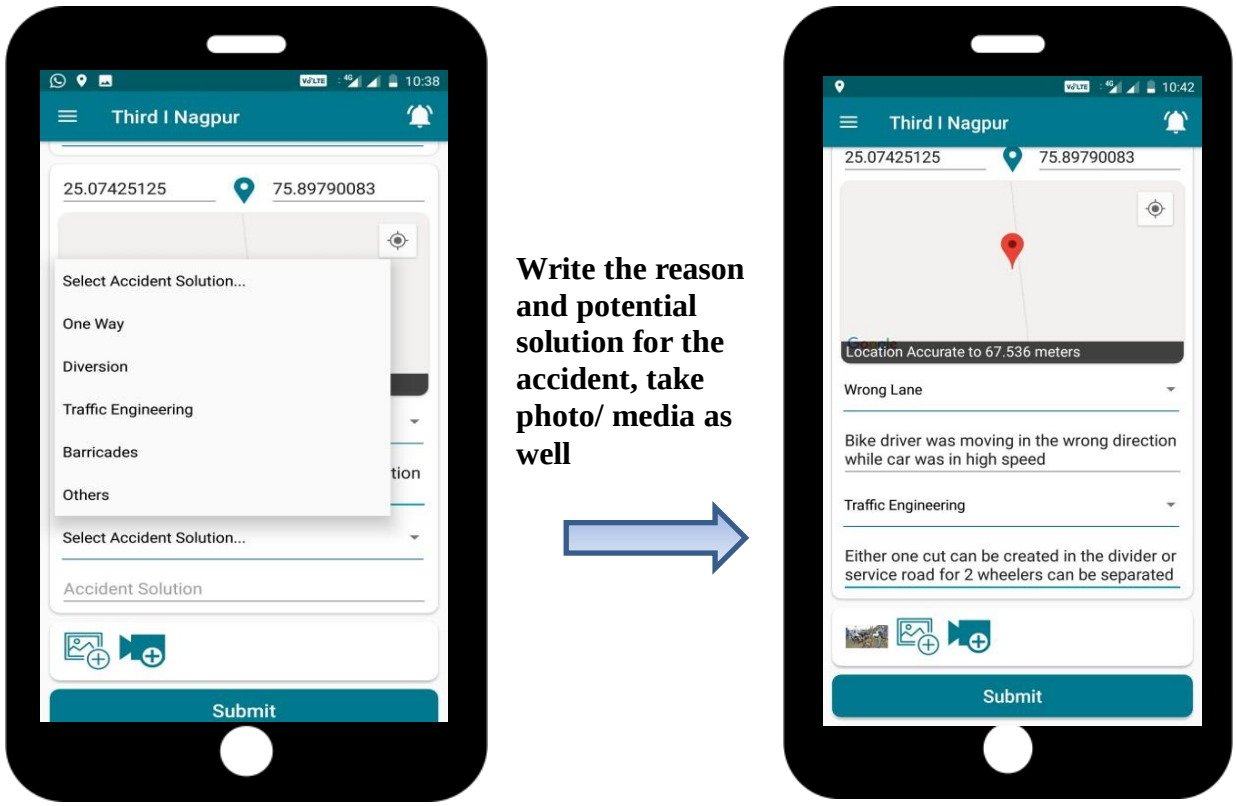

Fig 5.14 & 5.15: Taking photo/media of the incident

5.2.3 Rickshaw QR code scanning

For the Police user, the QR code can scan through this application, but for citizens they can use any QR code scanning application for scan the QR code

- After scanning the QR code, the data access is different for police as well as for citizens.
- The citizens can share the details of owner by scanning this QR code and if any problematic situation occurs, then there will be SOS number to get instant help from the police

Fig 5.16: Data Access to Police

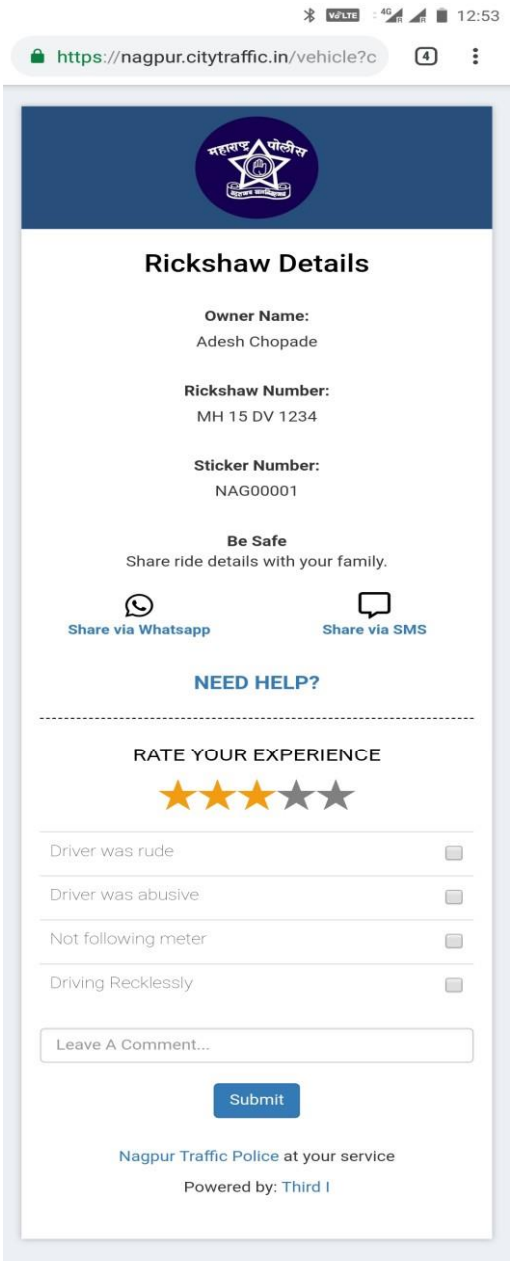

Fig 5.17: Data Access to Citizens

SOS number in case of Emergency

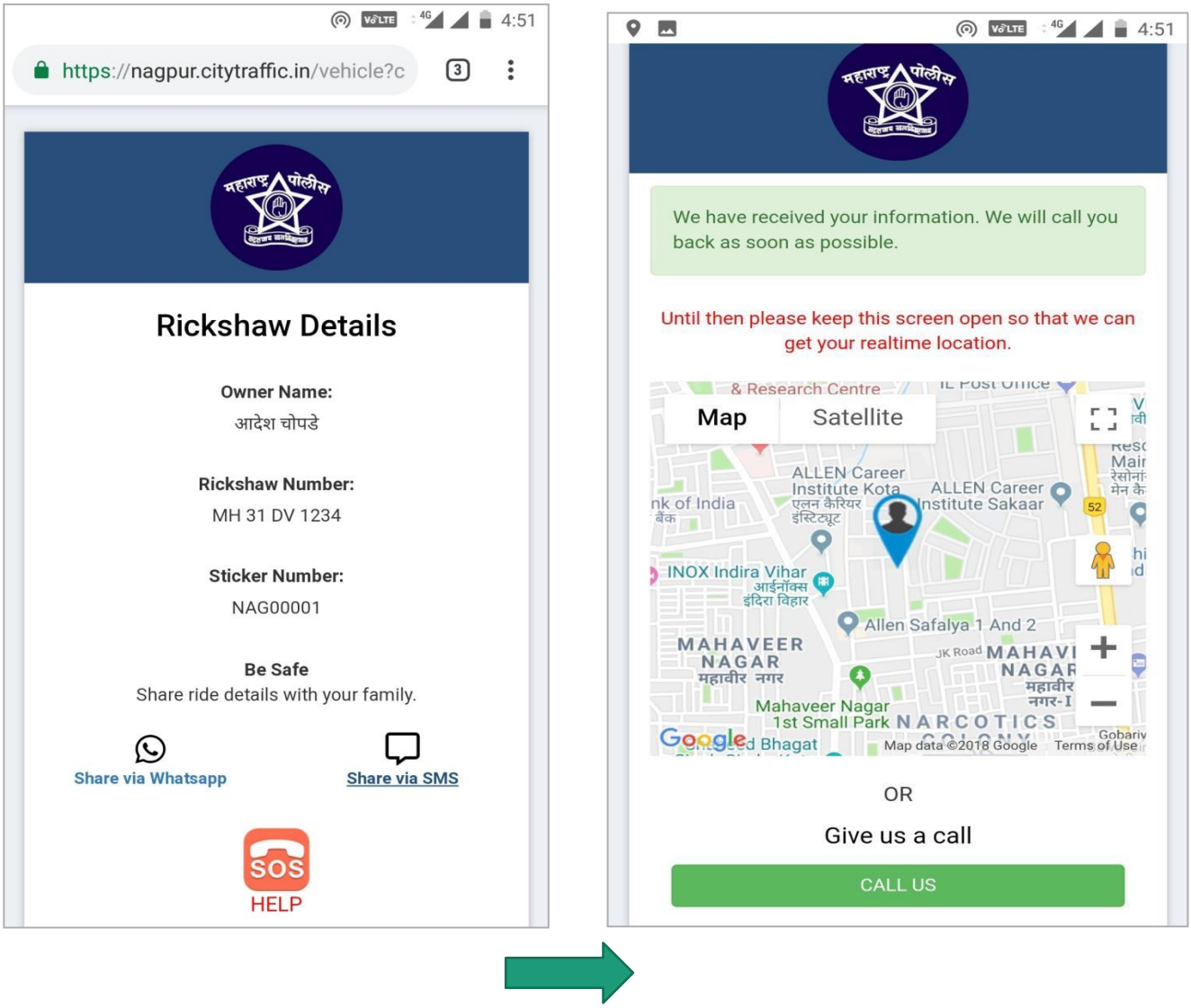

Fig 5.18 & 5.19: SOS number in case of Emergency

CHAPTER 6
TESTING & SUMMARY OF RESULTS

Testing

6.1Debugging

After half phase project is complete with development process debugging of project started. In first phase of debugging we found that the in data inputs forms of activities some data input field should be compulsory because without that recognition of that particular activity and individual is not possible. Firstly, we decide to define some text field as constraint for example in individual form AADHAR number is compulsory so define it as a constraint and so on. We categories this particular phase in three different parts mentioned and explains in detail below.

- **Bug Identification**

  We started process of bug identification when client has provided actual data to us. Initially, we started with single activity page and later on go further, during this phase we found some of windows forms fails because of invalid inputs, number exceed limit and so on.

- **Exception Handling**

  Exception handling is one of the features of object oriented programming language which allows developer to handle the exception. Exception is a run time error where application fails due unexpected error and exception handling is a method to control this exception and show appropriate result or message to user and prevent application from failed down.

  In any informative and data handling project exception handling plays a very vital role. In, this project also, developer has to perform exception handling at various stage of development, scenario where user has to give image as input exception handling has to be performed. As fundamental of database and windows form, if code of image input is written and image is not chosen by user application fails, therefore developer has to perform exception handling.

Another, major stage where exception handling is to performed by developer is connection code between application and server, because connection is all depends on server side, if the connection is lost between server and application than application fails and user will not get appropriate message and can't able to take next action. So, we had to handle the particular exception and display appropriate message for the user.

6.2Evaluation

Evaluation is process which conduct in any kind of process either it is technical aspect or non-technical functionality. Here, we are discussing about technical aspect which means evaluation of application which is developed earlier. In, terms of software engineering evaluation of any application means something try and error process and something that is been carried out through providing inputs to system or application and observe the result later on measure that result or output as per the client expectations. Evaluation is the process where we can observe and conclude that whether the application is working properly or not.

In, this project we carried out evaluation process by firstly providing raw data to application and observe how system works under different kind of inputs. Here, different kind of inputs means we put on some of the wrong inputs and some of the right inputs and observe the respective results and conditions. After, carried out process of testing and evaluating with raw data it's time to proceed with actual data and observe the respective results.

- **Testing with Raw Data**

  As suggested above we are discussing about evaluation process is this particular section we are discussing about testing with raw data which is one of the part of the evaluation process. In, this project we carried out this process by providing some of the raw data to the system. While providing raw data to application we observe that application fails due to some reasons like wrong alphabetic inputs, wrong integers inputs, beyond limit inputs and so on. Later on we resolve all this failure and proceed to next stage after verifying with next set of raw data inputs.

- **Testing with Actual Data**

  After evaluating system with raw data in earlier phase we evaluate application with actual data. When clients' gives actual data which they are maintaining in MS excel since 2015, we give that same input to our newly developed system and observe the results and bugs. We resolved that error and bugs with that we completed with testing phase of application. At, this phase we ask real time user to test the application and noticed results whether it meets overall expectations.

CHAPTER 7
INTERNSHIP HANDS ON PRACTICE / WORK DONE AT INDUSTRY / CASE STUDIES UNDER TAKEN

7.1 Internship hands on Practices

Practice and on field training on our project, the traffic analysis is out third project allotted in company. The first is cyber awareness, second one is ZP (Zilla Parishad), and the fourth and the largest one was Child line. In cyber Awareness, they have allotted us a project that could prepare any common person for cybercrime, that this application is in a quiz type application, that will check people how much they are aware with cybercrime by taking quiz. It includes social media, Internet Banking, Internet Security and personal data security. After if anyone will pass the quiz he/she will get an E-certificate in Cyber Awareness project. The Beneficiaries of this application are Citizens, Administration, Community and Corporate & NGOs. The user registration on cyber soldier portal is in 3 types i.e. school kids, Teenagers & young Adults and adults.

In the second project, it contains one android application that will take the ZP employees attendance digitally.

The purpose of this project is to take attendance in application as a check in check out feature. First the employee has to scan the QR code to check in, if the QR code is not there than there is Punch option feature where they can check in and update their location for attendance. The higher authority can watch all their activities through dashboard. This project is running on seven district of Maharashtra state, for this project company gives us a chance to training the employees of ZP for how to use the features of application. The training was held in Deola taluka of Nashik city. There were hundreds of people gathered there for the training. In the Deola district we first gave instruction and training to the BDO (Block Development Officer) and then all the employees of health, education and etc…

Fig 7.1: Field Training to Health Block On ZP Attendance in Deola Taluka, Nashik.

Fig 7.2: Field Training to Education block on ZP Attendance in Deola Taluka, Nashik

In the third project, we get to interact with police personal, Traffic police and higher authority such as DCP of Nagpur Traffic Police. For this project we have to do lot of survey with our core team on state highway as well as local police stations. And for E-rickshaw we have to get interact with local owners of auto rickshaw and citizens for knowing their relations. In this project we get lot of things to learn to experience as in terms of live interacting and training to end users. We use Map for this whole project which is very difficult to learn, and use of some software and configurations to the server. We also develop skills in Android studio by creating these type of application which have so much complicated layouts, functions, features, validation and reliability. We develop skills to work under pressure, how to demonstrate and interact with end user, how to interact with public/citizens and how to interact with Government Officials.

Fig 7.3: Registration of Rickshaws on Traffic Police Headquarter, Nagpur

Apart from the technical skills we have develop our non-technical skills also by designing and developing social media such as we update the design of Identity Card of Company shown in figure. And we also handled the social media accounts of company like LinkedIn, Facebook, Instagram. We developed the skills of how to make post official, how to talk with other company person employee and so on. In addition to this, we have also developed the skills for presenting a presentation and how to make it look like standard. We also developed some PPT for projects for introducing the project efficiently. We also get experienced of designing apart from technical. In technical we get knowledge and experience of 60-65% of android studio which is used for real-time android application development.

In the fourth project called Child line India Foundation, this was the largest project. Where it includes data of child abusing of all over the Indian. It includes all type of information of child abusing where 737 districts of India are involved. It contains the zone wise, state wise and district wise data. The zones are white zone (where no data available), orange zone and green zone. It contains the web dashboard where all the data is present on map. The customize map is created by QGIS software. QGIS is a tool used for KML creation and geographical related maps.

CHAPTER 8
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APPENDICES

A. List of Images

Fig 9.1: Group photo with Guide/Co-guide

Fig 9.2: With Out Technical Partner Digital Impact Square

Fig 9.3: With Our Core Team of Adivid Technologies

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