

Online Toll Gate Management System

Submitted in partial fulfillment of the requirements
for the award of Bachelor of Technology degree in
Information Technology

By

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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **Tilak Chauhan (Reg No.39120129)** and **P. Uma Maheswara Rao (Reg No. 39120133)** who carried out the Project Phase-2 entitled “**Online Toll Gate Management System**” under my supervision from January 2023 to May 2023.


Internal Guide

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Submitted for Viva voce Examination held on 11-05-2023


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DECLARATION

I Tilak Chauhan (Reg No. 39120129) here by declare that the Project Report entitled "Online Toll Gate Management System" done by me under the guidance of Dr. L. MARY GLADENCE M.E., Ph.D., is submitted in partial fulfillment of the requirements for the award of Bachelor of Technology in Information Technology.

DATE: 11-05-2023

PLACE: Chennai



SIGNATURE OF THE CANDIDATE



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ABSTRACT

Online Toll gate management system is designed to automatically keep track of the vehicle's movement, record the time and the details like Owner's name, date of registration, vehicle model etc. This system is very useful for automatic vehicle tracking, time management and also for automation of Toll gate. Online Toll Gate Management systems have been of great assistance in lessening the over congestion that has become a part of the metropolitan cities these days. It is one of the uncomplicated ways to manage the great run of traffic. The travelers passing through this mode of transport, carried by their transport that allows them to be aware of the account of money that has been paid and the money left in the tag. It relieves the traveler of the burden of waiting in the queue to make the toll payment, which decreases the fuel-consumption and also taking cash with them can be avoided. Our system avoid this type of problems. User get gate pass from online so user don't need to wait in tollgate.

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CHAPTER 1

INTRODUCTION

Electronic toll collection (ETC) is a wireless system to automatically collect the usage fee or toll charged to vehicles using toll roads, HOV lanes, toll bridges, and toll tunnels. It is a faster alternative which is replacing toll booths, where vehicles must stop and the driver manually pays the toll with cash or a card. In most systems, vehicles using the system are equipped with an automated radio transponder device. When the vehicle passes a roadside toll reader device, a radio signal from the reader triggers the transponder, which transmits back an identifying number which registers the vehicle's use of the road, and an electronic payment system charges the user the toll. A major advantage is the driver does not have to stop, reducing traffic delays. Electronic tolling is cheaper than a staffed toll booth, reducing transaction costs for government or private road owners. The ease of varying the amount of the toll makes it easy to implement road congestion pricing, including for high-occupancy lanes, toll lanes that bypass congestion, and city-wide congestion charges. The payment system usually requires users to sign up in advance and load money into a declining-balance account, which is debited each time they pass a toll point. Electronic toll lanes may operate alongside conventional toll booths so that drivers who do not have transponders can pay at the booth. Open road tolling is an increasingly popular alternative which eliminates toll booths altogether; electronic readers mounted beside or over the road read the transponders as vehicles pass at highway speeds, eliminating traffic bottlenecks created by vehicles slowing down to go through a toll booth lane. Vehicles without transponders are either excluded or pay by plate – a license plate reader takes a picture of the license plate to identify the vehicle, and a bill may be mailed to the address where the car's license plate number is registered, or drivers may have a certain amount of time to pay online or by phone. Through this project we are trying to make the toll management online. This is a web application which allows users to pay toll before starting their journey from point a to point b. In this application a user can pay all the toll tax present between point a to point b before they begin their journey. This will be a very hassle free toll collection of tolls.

CHAPTER 2

LITERATURE SURVEY

This problem statement has been extensively studied over the years by researchers in a bid to create a solution, and all their solutions vary from using technology to the updation of the current system. This survey will provide a holistic view of the different systems made for the online toll collection.

The work of Likhita M mainly focused on how the electronic toll collection system reduces manual work load using RFID technology. Ultimately, this system reduces environment pollution due to the burning of fuel as well as reduces the waiting time of users in toll queue. Users can access the website and may perform their toll transaction from any location. Their transaction will reflect in the centralized database. Due to the use of online transaction, users do not need to carry cash with them. This leads in the reduction of human error occurring at the toll booths. Cashless transaction gives the transparency to this system. This design of the system includes an IoT module which will help to send a confirmation text to the vehicle owner about the toll deduction.

The work of authors Venkatesh Suvarna and Jeet Patalia is like: Lot's of cars travel on the highway and toll tax needs to be collected from them as they pass by but it is a very tedious process and improper management can lead to high levels of waiting time, and pollution levels too. Many systems have been developed to reduce the complexity of the process by introduction of Automation in Toll Collection. There are a bunch of systems available, we compare some of them and also find the scope of further improvement in such systems. The work of Mrs. D. Vinodha M. E(PhD) focuses on Smart Toll Gate System, an advent of the common place global to the Automated worldwide. It reduces human intervention and the man-made mistakes. Bringing automation in Societies has a primary advantage that is: machine/hardware dependency is expanded (more dependable) and human dependency is decreased. This brings to an end that combining automation with daily life will make lifestyles less difficult and simpler. Nowadays almost all highways toll plazas are operated by hand, where an operator collects cash from the motive force and affords a receipt. Since this manner may be sluggish, we often come upon visitors jams on the toll plazas on

busy highways. Toll collection in automated way can save money, energy, and man power. In this work suggest a low cost and efficient approach called Electronic Toll Collection. The use of RFID modules that mechanically collects the toll from shifting automobiles once they cross the toll plaza. This project addresses the problems confronted at toll plaza & also introduce identity gadget for vehicles towards which stolen and coincidence instances are registered the use of RFID. The work of author Raj Bridgelall focuses on Transportation is the backbone of any country's economy. Due to increasing number of vehicles on the road, problems such as congestion, air pollution and many others have become a major factor of concern. Traditional toll collection booths require a number of operations like stopping the vehicle, lowering the window, finding the correct coinage or valid card before travelers can continue their journey. This research paper describes the Electronic toll collection system based on Radio Frequency Identification (RFID) technology. As time and efficiency are a matter of priority nowadays, the traditional method has to be reformed. In order to overcome the major issues of traffic congestion and time consumption RFID technology is used. RFID reader fixed at tollgate frame reads the tag attached to windshield of vehicle. The object detection sensor in the reader detects the approach of the incoming vehicle's tag and toll deduction takes place through a prepaid card assigned to the concerned RFID tag that belongs to the owners' account. Electronic toll collection system (ETC) has various advantages compared to traditional method.

2.1 INFERENCES FROM LITREATURE SURVEY

- There are different methods to solve a problem.
- Many authors focused on reducing the traffic.
- All the literature have's one common point i.e technological advancement.
- This explores all the different secnarios.
- Many authors in the literature survey talked about RFID technology.
- All the authors focused on updation or adding something new to the current system rather than creating a whole new technology for online toll gate management.
- The agenda was to give a proper medium to the people travelling on the highways.

- Technological advancement improved many backlashes in the system.

2.2 EXISTING SYSTEM

National Payments Corporation of India (NPCI) has developed the National Electronic Toll Collection (NETC) program to meet the electronic tolling requirements of the Indian market. It offers an interoperable nationwide toll payment solution including clearing house services for settlement and dispute management. Interoperability, as it applies to National Electronic Toll Collection (NETC) system, encompasses a common set of processes, business rules and technical specifications which enable a customer to use their FASTag as payment mode on any of the toll plazas irrespective of who has acquired the toll plaza. FASTag is a device that employs Radio Frequency Identification (RFID) technology for making toll payments directly while the vehicle is in motion. FASTag (RFID Tag) is affixed on the windscreen of the vehicle and enables a customer to make the toll payments directly from the account which is linked to FASTag. FASTag offers the convenience of cashless payment along with benefits like - savings on fuel and time as the customer does not has to stop at the toll plaza. FASTag is a RFID passive tag used for making toll payments directly from the customers linked prepaid or savings/current account. It is affixed on the windscreen of the vehicle and enables the customer to drive through toll plazas, without stopping for any toll payments. The toll fare is directly deducted from the linked account of the customer. FASTag is also vehicle specific and once it is affixed to a vehicle, it cannot be transferred to another vehicle. FASTag can be purchased from any of the NETC Member Banks. If a FASTag is linked to the prepaid account, then it needs to be recharged/ topped-up as per the usage of the customer. If adequate balance is not maintained by the customer, the FASTag gets blacklisted at the toll plaza. In such a scenario if the customer travels through a toll plaza without recharging then he won't be able to avail the NETC services and would be required to pay the toll fare through cash.

CHAPTER 3

REQUIREMENT ANALYSIS

3.1 FEASIBILITY STUDIES/RISK ANALYSIS OF THE PROJECT

Risk is an uncertain condition or event that has a positive or negative effect on the project objectives if it occurs. A risk has a cause, and if that risk occurs, there are consequences. If what happens is an uncertain event, then the impact will be on the project's cost, schedule, and quality. Meanwhile, risk management is an art and science in identifying, analyzing, and responding to risk factors that exist during the implementation of a project. Project Risk Management is a systematic process for planning, identifying, analyzing, planning risk response, monitoring, and risk control. Project Risk Management aims to increase knowledge about the probability of positive events and reduce the likelihood & impact of negative case records in the project. Each project has a diverse risk identification and risk response to minimize the impact of the risks. Risks can have an indirect impact on the project implementation schedule. Risk categories in construction projects are external risk, economic & financial risk, technical & contract risk, and managerial risk. It is important to identify risks correctly and allocate these risks into agreement/contract effectively. Risk leads to the uncertainty of an event's occurrence during a specific period that causes losses, be it small or significant losses, which affect the profitability of a project. The appropriate risk management must apply the possibilities in the future and be proactive rather than reactive. In this case, risk management reduces the likelihood of risk and the impact of the risks. The stages of risk management are:

- Plan Risk Management
- Identify Risk
- Perform Qualitative Risk Analysis
- Plan Risk Responses

3.2 SOFTWARE AND HARDWARE REQUIREMENTS

- Operating System : Windows 8 & above
- Processor : Intel/Ryzen Core
- Hard Disk : 256 GB
- Ram : 4 GB
- Coding Languages : Java, Javascript, SQL
- Tool : Netbeans
- Database : MySQL

CHAPTER 4

DESCRIPTION OF PROPOSED SYSTEM

This system is developed using java and MySQL database through this system a user can pay toll tax before starting their journey. The proposed system are:

MODULES:

- Admin
- Staff
- Users

MODULES DESCRIPTION:

Admin:

In Admin module, Admin will act as an authority. He/she can add staff details also can update. He/she can view all the toll details, entries in each tolls online toll ticket details, user feedback about toll gates, he/she will fix the toll fare details and also he/she can update the fare details. He/she can view all the registered users. He/she can make report of user's entry details.

Staff:

In staff module, he/she can login with the unique staff id and password. He/she can view all the online entry details in the particular toll gate. He/she can entry the vehicle details that pass through the toll gate. He/she can view all vehicle details that pass through the toll gate.

Users:

In Users module, Users can search Toll Gate details by enter the Keyword. After that search result will be shown to user. User can book toll ticket by online. After successful payment an automatic mail will be sent to the user's mail id about the vehicle details and transaction id and also user can feedback to the selected toll gate.

4.1 SYSTEM FLOW AND ACTIVITY DIAGRAMS

The below system flow diagram explains how the online toll gate management work internally. This system consists of many attributes which are combined use to provide an output. The three main attributes present in the system flow diagram are staff, user and admin.

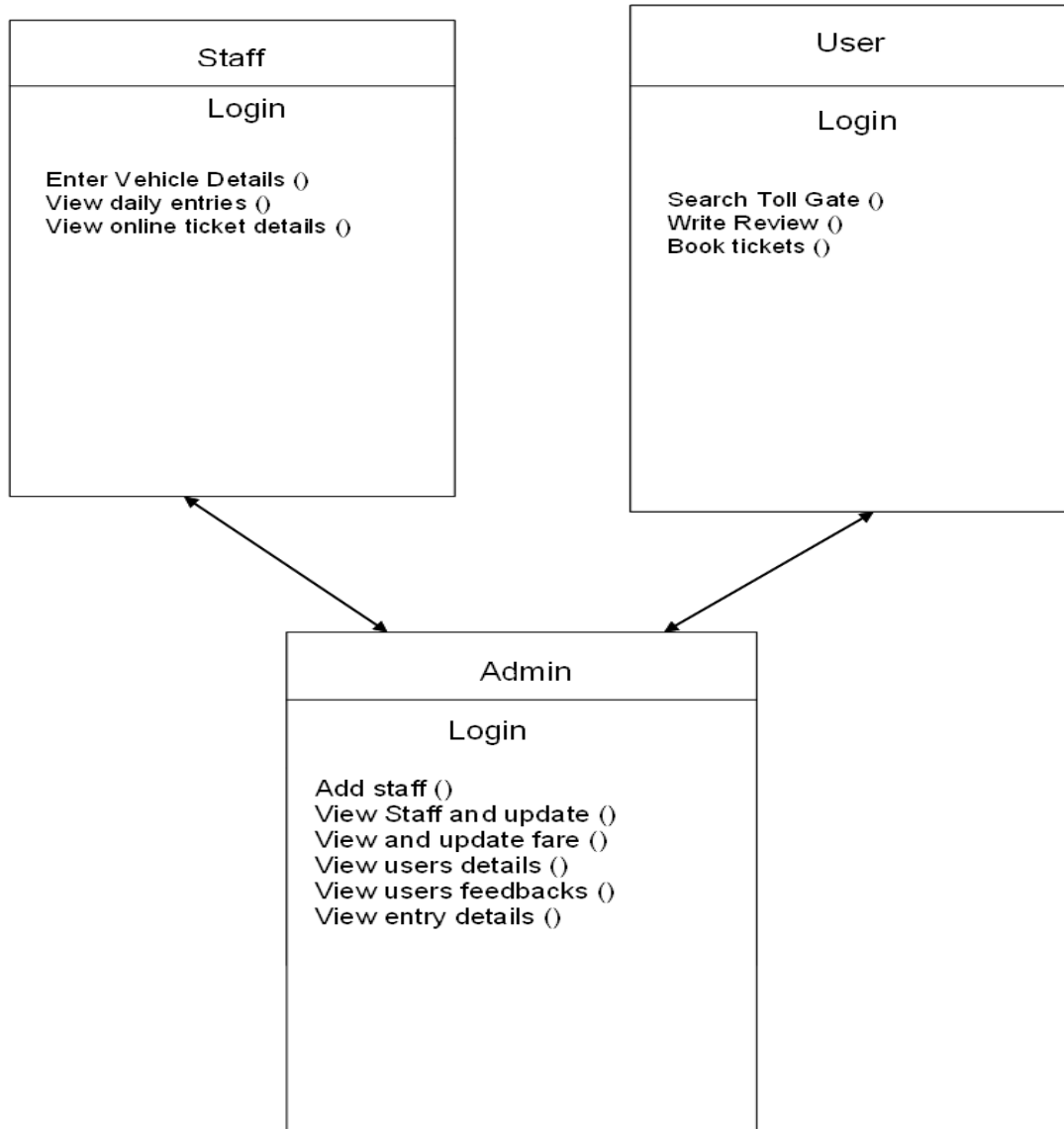


Fig 4.1 Flow Diagram

This below diagram illustrate the activity done by an individual entity in the system. It represents the tasks to be performed by each attributes to generate a proper output with required conditions.

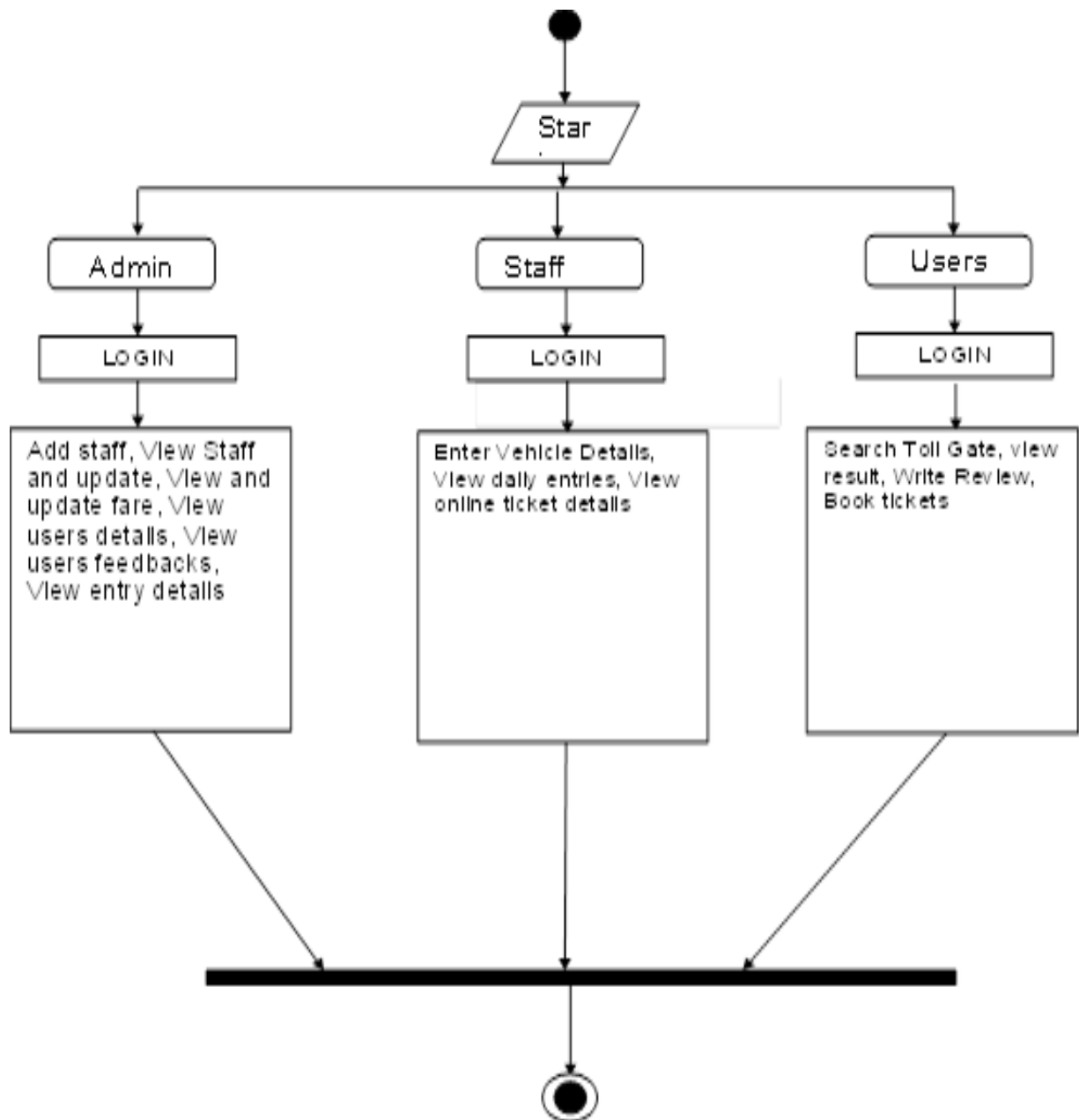


Fig 4.2 Activity Diagram

4.2 ARCHITECTURE / OVERALL DESIGN OF PROPOSED SYSTEM

This below is the system architecture for the online toll gate management system. This system architecture is designed to provide a scalable, reliable, and secure platform for toll collection, payment processing, and other essential operations. The architecture is typically modular, allowing for easy integration with third-party services and hardware devices.

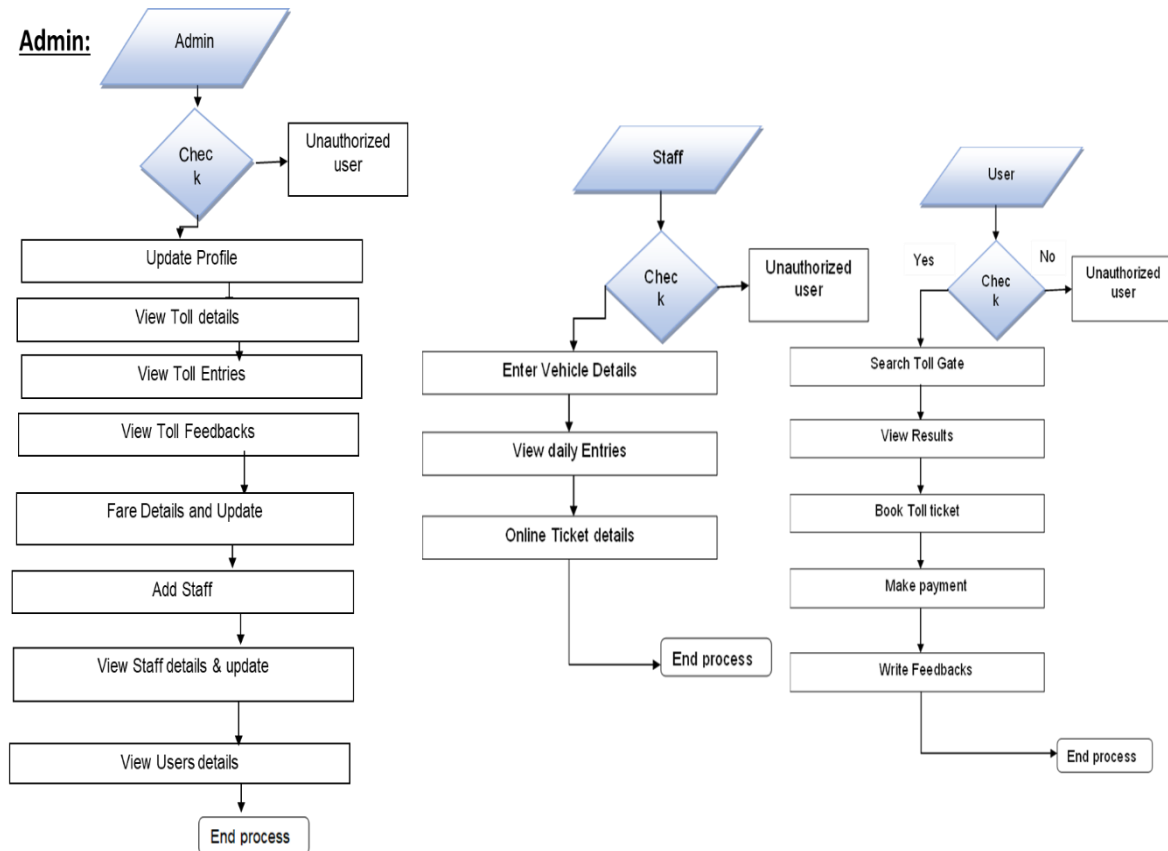


Fig 4.3: System Architecture

4.3 SYSTEM STUDY

Feasibility Study

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This

is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are:

Economic Feasibility

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

Technical Feasibility

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

Social Feasibility

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

4.4 PROJECT MANAGEMENT PLAN

The project management plan follows:

- Step 1: Planning
- Step 2: Requirement gathering
- Step 3: Designing
- Step 4: Building
- Step 5: Testing
- Step 6: Deployment

Note: We are taking reference from SDLC

4.5 Summary

The package was designed in such a way that future modifications can be done easily. The following conclusions can be deduced from the development of the project.

- Automation of the entire system improves the efficiency
- It provides a friendly graphical user interface which proves to be better when compared to the existing system.
- It gives appropriate access to the authorized users depending on their permissions.
- It effectively overcomes the delay in communications.
- Updating of information becomes so easier.
- System security, data security and reliability are the striking features.

The System has adequate scope for modification in future if it is necessary.

CHAPTER 5

IMPLEMENTATION DETAILS

The project implementation has been done by properly analyzing the required outcome and discussion. This is a very significant part in the project. Implementation of the project depicts its strength and provides a practical use of the project. There are many modules in this project which has been implemented with the correct methods to give a quality of workflow to the project.

5.1 DEVELOPMENT AND DEPLOYMENT SETUP

This project is developed using java, javascript, html, css, sql, the database used in this project is mysql. The intelligent development kit that is IDE used in this is netbeans. The deployment setup was made using the mentioned technologies along with an intel core laptop with windows 11 software. As we run the project file using netbeans it opens up in the microsoft edge and gives the output.

5.2 TESTING

The project testing was done at each step by following rigid methodologies and efficient planning. There were various testing performed in this process such as. Functionality Testing of a Website is a process that includes several testing parameters like user interface, APIs, database testing, security testing, client and server testing and basic website functionalities. Functional testing is very convenient and it allows users to perform both manual and automated testing. It is performed to test the functionalities of each feature on the website. Test HTML and CSS to ensure that search engines can crawl your site easily. This will include Checking for Syntax Errors Readable Color Schemas Standard Compliance. Ensure standards such W3C, OASIS, IETF, ISO, ECMA, or WS-I are followed. Database is one critical component of your web application and stress must be laid to test it thoroughly. Testing activities will include- Test if any errors are shown while executing queries Data Integrity is maintained while creating, updating or deleting data in database. Check response time of queries and fine tune them if necessary. Test data retrieved from your database is shown accurately in your web application.

CHAPTER 6

RESULTS AND DISCUSSION

Results:

The Online Toll Gate Management System has yielded significant results in terms of efficiency, accuracy, and convenience. The system has been designed to automate the toll collection process, which has greatly reduced the time it takes for vehicles to pass through the toll gates. The use of electronic payment methods such as credit cards, debit cards, and mobile payments has further reduced the time required to complete transactions. One of the most significant results of the Online Toll Gate Management System is the reduction in toll fraud. The system uses advanced technology such as RFID and ANPR to ensure that only authorized vehicles pass through the toll gates. This has greatly reduced the incidence of toll evasion and other fraudulent activities. Another important result of the Online Toll Gate Management System is the collection of accurate data. The system captures data on the number of vehicles passing through the toll gates, the time of day, the type of vehicle, and the method of payment. This data can be used to generate reports that provide valuable insights into the traffic patterns, revenue collection, and other key performance indicators. The Online Toll Gate Management System has also improved the convenience of toll collection for users. With the use of electronic payment methods, drivers no longer have to carry cash or wait in long queues to pay their tolls. This has made the toll collection process much more convenient and user-friendly.

Discussion:

The results of the Online Toll Gate Management System demonstrate that it is a highly effective tool for toll collection and management. The system has several advantages over traditional toll collection methods, including increased efficiency, accuracy, and convenience. One of the key advantages of the Online Toll Gate Management System is the reduction in toll fraud. The use of advanced technology such as RFID and ANPR has made it much more difficult for unauthorized vehicles to pass through the toll gates. This has not only reduced the incidence of toll evasion but has also increased revenue collection for toll operators. the Online Toll Gate

Management System has also improved the accuracy of toll collection data. The system captures data on the number of vehicles passing through the toll gates, the time of day, the type of vehicle, and the method of payment. This data can be used to generate reports that provide valuable insights into the traffic patterns, revenue collection, and other key performance indicators. This information can be used by toll operators to optimize their toll collection operations and improve their revenue collection.

Another advantage of the Online Toll Gate Management System is the convenience it offers to users. With the use of electronic payment methods, drivers no longer have to carry cash or wait in long queues to pay their tolls. This has made the toll collection process much more convenient and user-friendly. However, the implementation of the Online Toll Gate Management System has also faced some challenges. One of the biggest challenges is the cost of implementing the system. The system requires significant investment in hardware and software, as well as the cost of training personnel to operate the system.

Another challenge is the maintenance and upkeep of the system. The system requires regular maintenance and upgrades to ensure that it remains effective and efficient. This can be a significant challenge for toll operators who may not have the necessary resources to maintain the system.

CHAPTER 7

CONCLUSION

In conclusion, the online toll gate management system was a success, as it led to improved revenue collection, efficiency, safety and security. The system also reduced waiting time for motorists, which improved traffic flow. However, there were some challenges that needed to be addressed, such as resistance from toll gate operators, concerns about the reliability of the system and the cost of implementation. Nevertheless, with proper monitoring and maintenance, the online toll gate management system has the potential to transform toll gate management in the country.

The implementation of an Online Toll Gate Management System has yielded significant results in terms of efficiency, accuracy, and convenience. The system has been designed to automate the toll collection process, which has greatly reduced the time it takes for vehicles to pass through the toll gates. The use of electronic payment methods has further reduced the time required to complete transactions.

REFERENCES

- [1] Likhita M Member, IEEE, Alfio R. Grasso, Peter H. Cole, "Synchronization of RFID Readers for Dense RFID Reader Environments", International Symposium on Applications and the Internet Workshops (SAINTW'06), 2005
- [2] Venkatesh Suvarna, Jeet Patalia, "RFID Field Guide - Developing Radio Frequency Identification Systems", Prentice Hall, 2005, pp 7-9, 16-225, 160, 231
- [3] Raj Bridgelall, Senior Member, IEEE, "Introducing a Micro-wireless Architecture for Business Activity Sensing ", IEEE International Conference RFID, April 16-17, 2008
- [4] Sewon Oh, Joosang Park, Yongioon Lee, "RFID-based Middleware System for Automatic Identification", IEEE International Conference on Service Operations and Logistics, and Information 2005.
- [5] http://www.ijresm.com/vol1%2Ciss4%2CApril18/IJRES M14_23.pdf
- [6] <https://www.ijcsmc.com/docs/papers/February2015/V 4I2 201515.pdf>
- [7] http://shodhganga.inflibnet.ac.in/bitstream/10603/141708/9/_chapter%201.pdf
- [8] https://www.researchgate.net/publication/263595027_Automatic_number_plate_segmentation_and_recognition
- [9] <https://ieeexplore.ieee.org/document/1688109>: A License Plate-Recognition Algorithm for Intelligent Transportation System Applications
- [10] Sewon Oh, Joosang Park, Yongioon Lee, "RFID-based Middleware System for Automatic Identification", IEEE International Conference on Service Operations and Logistics, and Information 2005

APPENDIX

A. Source Code

admin.java

```
package TGMS;

import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

/**
 *
 * @author java3
 */
public class admin extends HttpServlet {

    /**
     * Processes requests for both HTTP
     * <code>GET</code> and
     * <code>POST</code> methods.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
    protected void processRequest(HttpServletRequest request, HttpServletResponse
    response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
```

```

        PrintWriter out = response.getWriter();
        try {
            String name = request.getParameter("name");
            String pass = request.getParameter("pass");

            System.out.println("=====
=====");
            if (name.equals("admin") && pass.equals("admin")) {
                response.sendRedirect("admin_home.jsp?msg=Login_success");
            } else {
                response.sendRedirect("Admin.jsp?Authentication_failed");
            }
        } catch (Exception ex) {
        }
    }

    // <editor-fold defaultstate="collapsed" desc="HttpServlet methods. Click on the +
sign on the left to edit the code.">
    /**
     * Handles the HTTP
     * <code>GET</code> method.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        processRequest(request, response);
    }

```

```

/**
 * Handles the HTTP
 * <code>POST</code> method.
 *
 * @param request servlet request
 * @param response servlet response
 * @throws ServletException if a servlet-specific error occurs
 * @throws IOException if an I/O error occurs
 */
@Override
protected void doPost(HttpServletRequest request, HttpServletResponse
response)
    throws ServletException, IOException {
    processRequest(request, response);
}

/**
 * Returns a short description of the servlet.
 *
 * @return a String containing servlet description
 */
@Override
public String getServletInfo() {
    return "Short description";
} // </editor-fold>
}

```

admin_details.java

```

package TGMS;

import java.awt.Image;
import java.io.ByteArrayInputStream;

```

```

import java.io.ByteArrayOutputStream;
import java.io.IOException;
import java.io.InputStream;
import java.net.URL;
import java.security.SecureRandom;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.SQLException;
import java.text.SimpleDateFormat;
import java.util.Date;
import java.util.Random;
import javax.imageio.ImageIO;

import javax.servlet.ServletException;
import javax.servlet.annotation.MultipartConfig;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
import javax.servlet.http.Part;

/**
 *
 * @author java3
 */
@WebServlet("/admin_detail")
@MultipartConfig(maxFileSize = 16177215)
public class admin_detail extends HttpServlet {

    private String dbURL = "jdbc:mysql://localhost:3306/otgms";
    private String dbUser = "root";

```

```

private String dbPass = "root";
private SimpleDateFormat format;

protected void doPost(HttpServletRequest request,
    HttpServletResponse response) throws ServletException, IOException {

    HttpSession session = request.getSession(true);

    String name = request.getParameter("name");
    String mail = request.getParameter("email");
    String company = request.getParameter("company");
    //String language = request.getParameter("language");
    String address = request.getParameter("address");
    String phone = request.getParameter("phone");
    String city = request.getParameter("city");
    String country = request.getParameter("country");
    String pin = request.getParameter("pin");
    String pass = request.getParameter("password");
    String des = request.getParameter("des");
    System.out.println("name" + name + "password" + pass + address + "mail" +
mail + "cell" + phone);
    InputStream inputStream = null;
    //    Part filePart = request.getPart("dpic");
    //    if (filePart != null) {
    //        System.out.println(filePart.getName());
    //        System.out.println(filePart.getSize());
    //        System.out.println(filePart.getContentType());
    //        inputStream = filePart.getInputStream();
    //    }
    Connection conn = null;
    String message = null;
    try {

```

```

DriverManager.registerDriver(new com.mysql.jdbc.Driver());
conn = DriverManager.getConnection(dbURL, dbUser, dbPass);

String sql = "Update admin set name=?
,email=?,company=?,address=?,phone=?,city=?,country=?,pincode=?,password=?,d
es=?";

PreparedStatement statement = conn.prepareStatement(sql);
statement.setString(1, name);
statement.setString(2, mail);
statement.setString(3, company);
statement.setString(4, address);
statement.setString(5, phone);
statement.setString(6, city);
statement.setString(7, country);
statement.setString(8, pin);

//      if (inputStream != null) {
//          statement.setBlob(9, inputStream);
//      }
statement.setString(9, pass);
statement.setString(10, des);
int row = statement.executeUpdate();
if (row > 0) {

    response.sendRedirect("admin_profile.jsp?msg=Update Success");
} else {
    response.sendRedirect("admin_profile.jsp?msg=Update Failed");
}
} catch (SQLException ex) {
    ex.printStackTrace();
}
}
}

```

SQLconnection.java

```
package TGMS;
```

```
/**
```

```
*
```

```
* @author java3
```

```
*/
```

```
import java.sql.Connection;
```

```
import java.sql.DriverManager;
```

```
public class SQLconnection {
```

```
    static Connection con;
```

```
    /**
```

```
    *
```

```
    * @return
```

```
    */
```

```
    public static Connection getconnection() {
```

```
        try {
```

```
            Class.forName("com.mysql.jdbc.Driver");
```

```
            con = DriverManager.getConnection("jdbc:mysql://localhost:3306/otgms",  
"root", "root");
```

```
        } catch (Exception e) {
```

```
        }
```

```
        return con;
```

```
    }
```

```
}
```

style.css:

```
* {
```

```
    box-sizing: border-box;
    margin: 0;
    padding: 0;
}
```

```
html .login-wrap {
    position: relative;
    margin: 0 auto;
    background: #ecf0f1;
    width: 450px;
    border-radius: 5px;
    box-shadow: 3px 3px 10px #333;
    padding: 15px;
}
```

```
html .login-wrap h2 {
    text-align: center;
    font-weight: 200;
    font-size: 2em;
    margin-top: 10px;
    color: #34495e;
}
```

```
html .login-wrap .form {
    padding-top: 1px;
}
```

```
html .login-wrap .form input[type="text"],
html .login-wrap .form input[type="date"],
html .login-wrap .form textarea,
html .login-wrap .form select,
html .login-wrap .form input[type="password"],
html .login-wrap .form button {
    width: 80%;
    margin-left: 10%;
    margin-bottom: 25px;
```

```

height: 40px;
border-radius: 5px;
outline: 0;
-moz-outline-style: none;
}
html .login-wrap .form input[type="text"],
html .login-wrap .form input[type="date"],
html .login-wrap .form textarea,
html .login-wrap .form select,
html .login-wrap .form input[type="password"] {
border: 1px solid #bbb;
padding: 0 0 0 10px;
font-size: 14px;
}
html .login-wrap .form input[type="text"]:focus,
html .login-wrap .form input[type="date"]:focus,
html .login-wrap .form textarea:focus,
html .login-wrap .form select:focus,
html .login-wrap .form input[type="password"]:focus {
border: 1px solid #3498db;
}
html .login-wrap .form a {
text-align: center;
font-size: 10px;
color: #3498db;
}
html .login-wrap .form a p {
padding-bottom: 10px;
}
html .login-wrap .form button {
background: #e74c3c;
border: none;
color: white;

```

```

font-size: 18px;
font-weight: 200;
cursor: pointer;
transition: box-shadow .4s ease;
}
html .login-wrap .form button:hover {
  box-shadow: 1px 1px 5px #555;
}
html .login-wrap .form button:active {
  box-shadow: 1px 1px 7px #222;
}
html .login-wrap:after {
  content: "";
  position: absolute;
  top: 0;
  left: 0;
  right: 0;
  background: -webkit-linear-gradient(left, #27ae60 0%, #27ae60 20%, #8e44ad 20%, #8e44ad 40%, #3498db 40%, #3498db 60%, #e74c3c 60%, #e74c3c 80%, #f1c40f 80%, #f1c40f 100%);
  background: -moz-linear-gradient(left, #27ae60 0%, #27ae60 20%, #8e44ad 20%, #8e44ad 40%, #3498db 40%, #3498db 60%, #e74c3c 60%, #e74c3c 80%, #f1c40f 80%, #f1c40f 100%);
  height: 5px;
  border-radius: 5px 5px 0 0;
}

```

style.scss

```
@import "compass/css3";
```

```

* { box-sizing: border-box; margin: 0; padding: 0; }
html {
  background: #95a5a6;

```

```
background-image: url(http://subtlepatterns2015.subtlepatterns.netdna-  
cdn.com/patterns/dark_embroidery.png);  
font-family: 'Helvetica Neue', Arial, Sans-Serif;
```

```
.login-wrap {  
  position: relative;  
  margin: 0 auto;  
  background: #ecf0f1;  
  width: 350px;  
  border-radius: 5px;  
  box-shadow: 3px 3px 10px #333;  
  padding: 15px;
```

```
h2 {  
  text-align: center;  
  font-weight: 200;  
  font-size: 2em;  
  margin-top: 10px;  
  color: #34495e;  
}
```

```
.form {  
  padding-top: 20px;
```

```
  input[type="text"],  
  input[type="password"],  
  button {  
    width: 80%;  
    margin-left: 10%;  
    margin-bottom: 25px;  
    height: 40px;  
    border-radius: 5px;  
    outline: 0;
```

```

    -moz-outline-style: none;
}

input[type="text"],
input[type="password"] {
    border: 1px solid #bbb;
    padding: 0 0 0 10px;
    font-size: 14px;
    &:focus {
        border: 1px solid #3498db;
    }
}

a {
    text-align: center;
    font-size: 10px;
    color: #3498db;

    p{
        padding-bottom: 10px;
    }

}

button {
    background: #e74c3c;
    border:none;
    color: white;
    font-size: 18px;
    font-weight: 200;
    cursor: pointer;
    transition: box-shadow .4s ease;

```

```

&:hover {
    box-shadow: 1px 1px 5px #555;
}

&:active {
    box-shadow: 1px 1px 7px #222;
}

}

}

&:after{
content:"";
position:absolute;
top: 0;
left: 0;
right: 0;
background:-webkit-linear-gradient(left,
    #27ae60 0%, #27ae60 20%,
    #8e44ad 20%, #8e44ad 40%,
    #3498db 40%, #3498db 60%,
    #e74c3c 60%, #e74c3c 80%,
    #f1c40f 80%, #f1c40f 100%
);
background:-moz-linear-gradient(left,
    #27ae60 0%, #27ae60 20%,
    #8e44ad 20%, #8e44ad 40%,
    #3498db 40%, #3498db 60%,
    #e74c3c 60%, #e74c3c 80%,
    #f1c40f 80%, #f1c40f 100%
);
height: 5px;

```

```

border-radius: 5px 5px 0 0;
}

}

}

```

feedback.jsp

```

<%--
    Document    : index
    Created on  : Dec 23, 2017, 10:58:54 AM
    Author     : java3
--%>

<%@page import="java.sql.ResultSet"%>
<%@page import="java.sql.Statement"%>
<%@page import="java.sql.Connection"%>
<%@page import="TGMS.SQLconnection"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html lang="en">

    <head>
        <meta charset="utf-8" />
        <link rel="apple-touch-icon" sizes="76x76" href="../assets/img/apple-icon.png">
        <link rel="icon" type="image/png" href="../assets/img/favicon.ico">
        <meta http-equiv="X-UA-Compatible" content="IE=edge,chrome=1" />
        <title></title>
        <meta content='width=device-width, initial-scale=1.0, maximum-scale=1.0, user-
scalable=0, shrink-to-fit=no' name='viewport' />
        <!--    Fonts and icons    -->
        <link href="https://fonts.googleapis.com/css?family=Montserrat:400,700,200"
rel="stylesheet" />

```

```

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/font-
awesome/latest/css/font-awesome.min.css" />
<!-- CSS Files -->
<link href="assets/css/bootstrap.min.css" rel="stylesheet" />
<link href="assets/css/light-bootstrap-dashboard.css?v=2.0.0 " rel="stylesheet"
/>

<!-- CSS Just for demo purpose, don't include it in your project -->
<link href="assets/css/demo.css" rel="stylesheet" />
<link href="assets/slider.css" rel="stylesheet" />
<link href="assets/fonts/css/fontawesome-all.min.css" rel="stylesheet" />
<link href="assets/fonts/css/fontawesome-all.css" rel="stylesheet" />
</head>
<style>
#customers {
    font-family: "Trebuchet MS", Arial, Helvetica, sans-serif;
    border-collapse: collapse;
    width: 100%;
}

#customers td, #customers th {
    border: 1px solid #ddd;
    padding: 8px;
}

#customers tr:nth-child(even){background-color: #f2f2f2;}

#customers tr:hover {background-color: #ddd;}

#customers th {
    padding-top: 12px;
    padding-bottom: 12px;
    text-align: left;
    background-color: #4CAF50;

```

```

        color: white;
    }
</style>
<body>
    <div class="wrapper">
        <div class="sidebar" data-image="">
            <!--

```

Tip 1: You can change the color of the sidebar using: data-color="purple | blue | green | orange | red"

Tip 2: you can also add an image using data-image tag

```

-->
    <div class="sidebar-wrapper">
        <div class="logo">
            <a href="" class="simple-text">
                </a>
            </div>
            <ul class="nav">
                <li class="nav-item active">
                    <a class="nav-link" href="user_home.jsp">
                        <i class="home"></i>
                        <p>Home Page</p>
                    </a>
                </li>
                <li>
                    <a class="nav-link" href="user_toll_details.jsp">
                        <i class="user-circle"></i>
                        <p>Toll Details</p>
                    </a>
                </li>
                <li>
                    <a class="nav-link" href="search_toll.jsp">
                        <i class="user-circle"></i>

```



```

where sno="" + id + "";
        if (rs.next()) {
            String tid =rs.getString("sno");
            session.setAttribute("tid", tid );
            String tname =rs.getString("toll_name");
            session.setAttribute("tname", tname );
            String t_sec =rs.getString("section");
            session.setAttribute("t_sec", t_sec );

%>
<tr>
<th>Branch No</th>
<td class="btn" style=" background-color: #009688; color:
white"><%=rs.getString("sno")%></td>
</tr>
<tr>
<th>State</th>
<td><%=rs.getString("state")%></td>
</tr>
<tr>
<th>NH Number</th>
<td><%=rs.getString("NH_no")%></td>
</tr>
<tr>
<th>Toll Name</th>
<td><%=rs.getString("toll_name")%></td>
</tr>
<tr>
<th>Toll KM</th>
<td><%=rs.getString("toll_location")%></td>
</tr>
<tr>
<th>Section</th>
<td><%=rs.getString("section")%></td>

```



```

<script type="text/javascript">
    $(document).ready(function() {
        // Javascript method's body can be found in assets/js/demos.js
        demo.initDashboardPageCharts();

        demo.showNotification();

    });
</script>
<script>
    var slideIndex = 1;
    showDivs(slideIndex);

    function plusDivs(n) {
        showDivs(slideIndex += n);
    }

    function showDivs(n) {
        var i;
        var x = document.getElementsByClassName("mySlides");
        if (n > x.length) {slideIndex = 1}
        if (n < 1) {slideIndex = x.length}
        for (i = 0; i < x.length; i++) {
            x[i].style.display = "none";
        }
        x[slideIndex-1].style.display = "block";
    }
</script>

</html>

```

staff_home.jsp:

```
<%--
```

Document : index
Created on : Dec 23, 2017, 10:58:54 AM
Author : java3
--0%>

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html lang="en">
```

```
<head>
  <meta charset="utf-8" />
  <link rel="apple-touch-icon" sizes="76x76" href="../assets/img/apple-icon.png">
  <link rel="icon" type="image/png" href="../assets/img/favicon.ico">
  <meta http-equiv="X-UA-Compatible" content="IE=edge,chrome=1" />
  <title></title>
  <meta content='width=device-width, initial-scale=1.0, maximum-scale=1.0, user-
scalable=0, shrink-to-fit=no' name='viewport' />
  <!-- Fonts and icons -->
  <link href="https://fonts.googleapis.com/css?family=Montserrat:400,700,200"
rel="stylesheet" />
  <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/font-
awesome/latest/css/font-awesome.min.css" />
  <!-- CSS Files -->
  <link href="assets/css/bootstrap.min.css" rel="stylesheet" />
  <link href="assets/css/light-bootstrap-dashboard.css?v=2.0.0 " rel="stylesheet" />
  <!-- CSS Just for demo purpose, don't include it in your project -->
  <link href="assets/css/demo.css" rel="stylesheet" />
  <link href="assets/slider.css" rel="stylesheet" />
  <link href="assets/fonts/css/fontawesome-all.min.css" rel="stylesheet" />
  <link href="assets/fonts/css/fontawesome-all.css" rel="stylesheet" />
</head>

<body>
```

```

<div class="wrapper">
  <div class="sidebar" data-image="">
    <!--

```

Tip 1: You can change the color of the sidebar using: data-color="purple | blue | green | orange | red"

Tip 2: you can also add an image using data-image tag
-->

```

<div class="sidebar-wrapper">
  <div class="logo">
    <a href="" class="simple-text">
      </a>
    </div>
    <ul class="nav">
      <li class="nav-item active">
        <a class="nav-link" href="staff_home.jsp">
          <i class="home"></i>
          <p>Home Page</p>
        </a>
      </li>
      <li>
        <a class="nav-link" href="user_entry.jsp">
          <i class=""></i>
          <p>Users Entry</p>
        </a>
      </li>
      <li>
        <a class="nav-link" href="daily.jsp">
          <i class=""></i>
          <p>All Entries</p>
        </a>
      </li>
      <li>

```

[illegible]

```

        </div>
    </div>
</div>
</div>
</div>
</body>
<!-- Core JS Files -->
<script src="assets/js/core/jquery.3.2.1.min.js" type="text/javascript"></script>
<script src="assets/js/core/popper.min.js" type="text/javascript"></script>
<script src="assets/js/core/bootstrap.min.js" type="text/javascript"></script>
<!-- Chartist Plugin -->
<script src="assets/js/plugins/chartist.min.js"></script>
<script src="assets/js/light-bootstrap-dashboard.js?v=2.0.0 "
type="text/javascript"></script>
<script src="assets/js/demo.js"></script>
<script type="text/javascript">
    $(document).ready(function() {
        // Javascript method's body can be found in assets/js/demos.js
        demo.initDashboardPageCharts();

        demo.showNotification();

    });
</script>
<script>
var slideIndex = 1;
showDivs(slideIndex);

function plusDivs(n) {
    showDivs(slideIndex += n);
}

```

```
function showDivs(n) {  
    var i;  
    var x = document.getElementsByClassName("mySlides");  
    if (n > x.length) {slideIndex = 1}  
    if (n < 1) {slideIndex = x.length}  
    for (i = 0; i < x.length; i++) {  
        x[i].style.display = "none";  
    }  
    x[slideIndex-1].style.display = "block";  
}  
</script>  
  
</html>
```

B. Output Screenshots

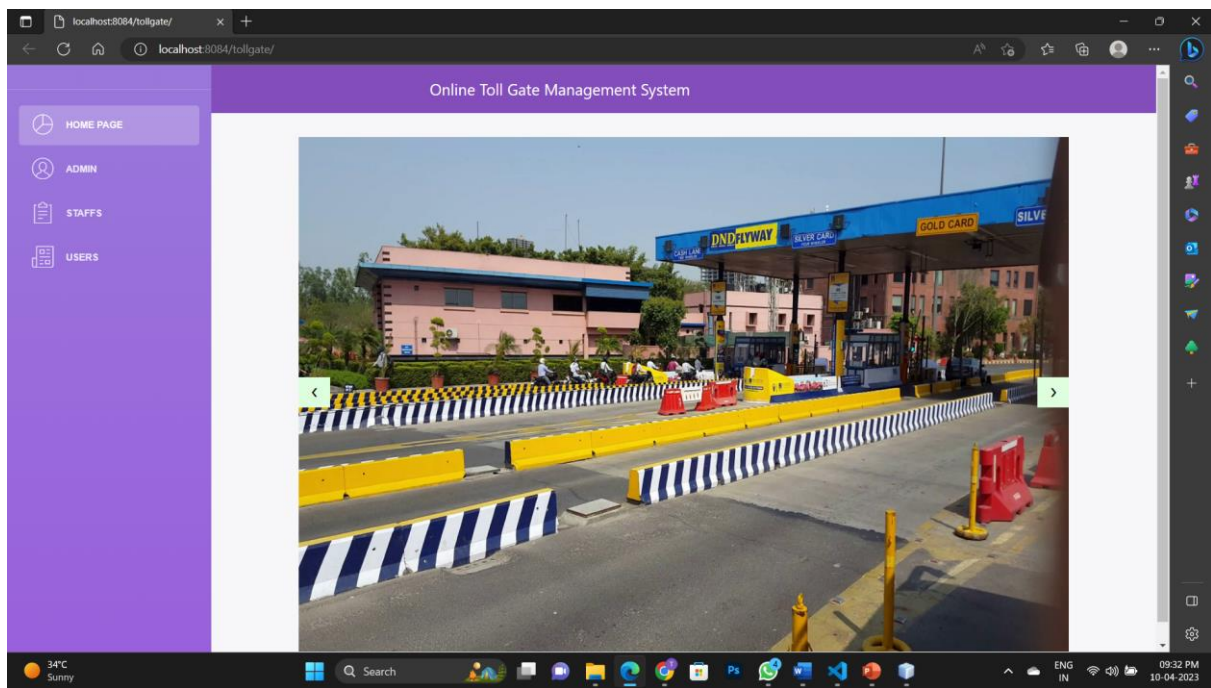


Fig. Home Page

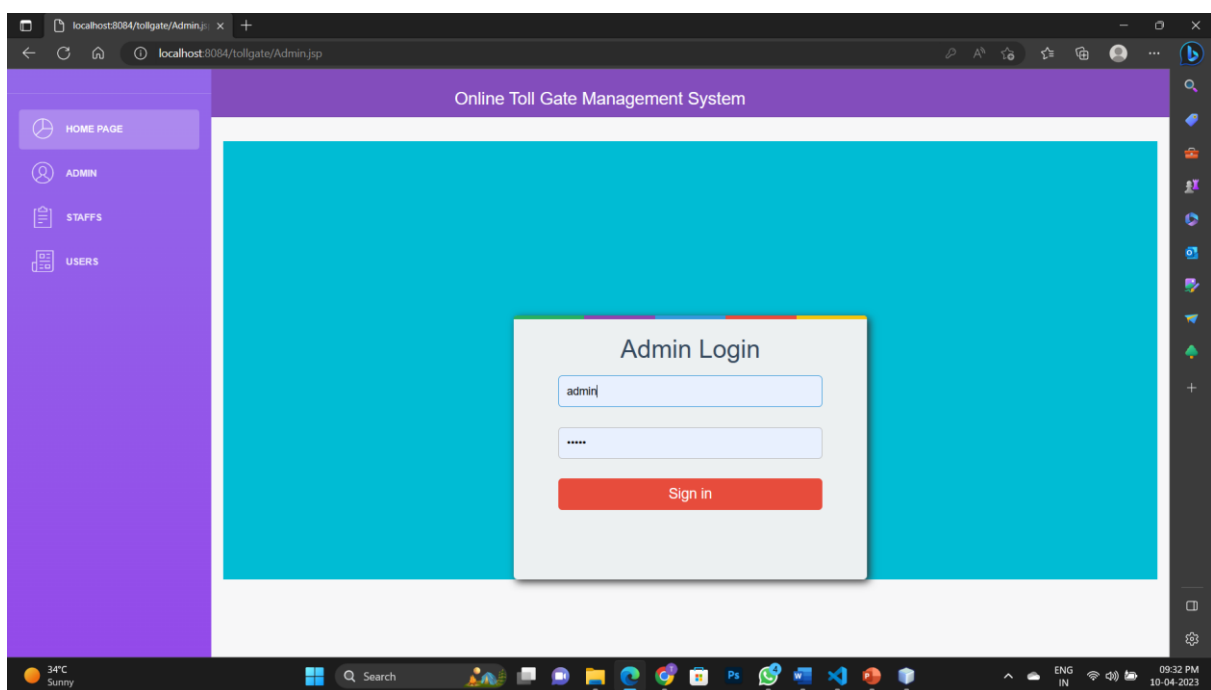


Fig. Admin Login Page

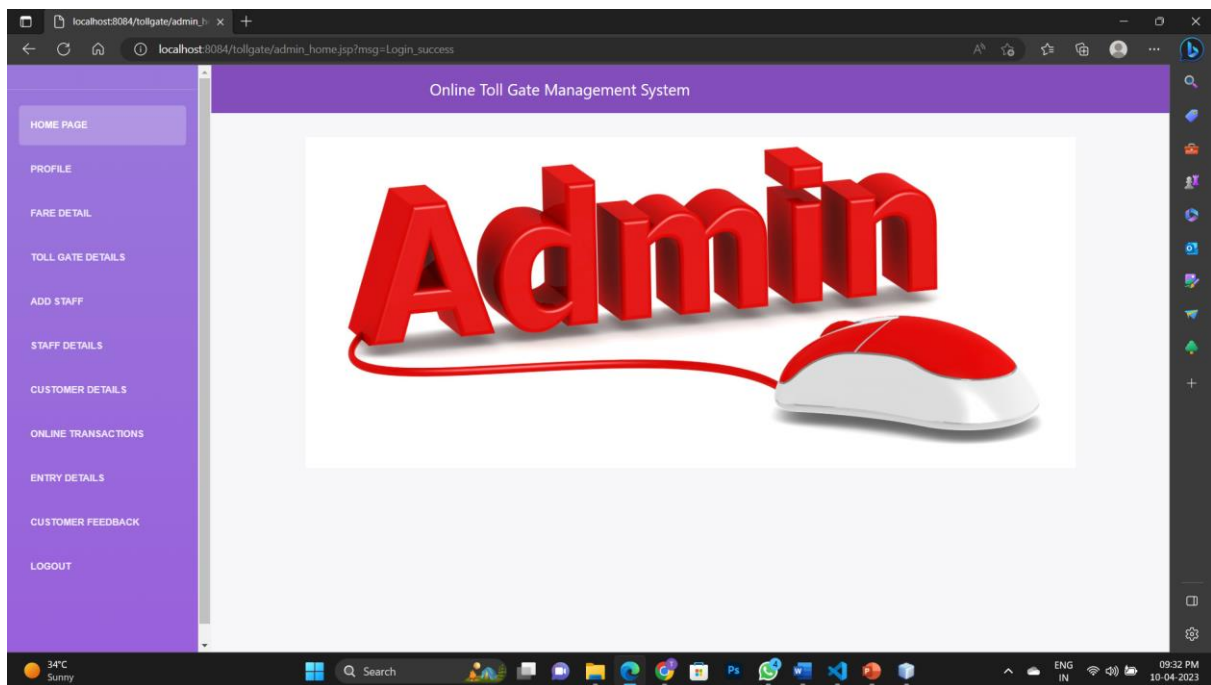


Fig. Adim Management Page

Id	Vehicle Type	Single Journey	Return	Daily Pass	50 Trip	Monthly	confirm
1	Car,Jeep, Van,LMV,Three wheelers	90	130	235	3000	5000	Update
2	LCV,LGV,MiniBus	150	205	370	4495	8000	Update
3	2 axle - Truck / Bus	250	375	685	8330	15000	Update
4	3 axle commercial vehicle	285	500	785	9500	16670	Update
5	Heavy Construction Machinery /Earth Moving Equipments / Multi axle vehicles	350	525	960	11665	20475	Update
6	Over Sized Vehicles- 7 or more axles	450	675	1235	15000	26325	Update

Fig. Vehicle Details Page

Branch No	State	NH Number	Toll Name	Toll KM	Section
1	Andhra Pradesh	16	Aganampudi	Km 728.055	Vishakhapatnam - Ankapalli [Km 2.837 to &Km 395.870 to Km358.00(New Chainage From Km 700.544 to Km 740.255)]
2	Andhra Pradesh	7	Amakathadu	Km 250.700	Hyderabad Bangalore (km 211.000 to km 462.164)
3	Andhra Pradesh	221	Badava	35.800	Imbrahimpatnam to AP Telangana Border
4	Andhra Pradesh	5	Bellupada	Km 473.632	Ichapuram - Puintola (Km 477.054 to Km 419.600)
5	Andhra Pradesh	5	Bolapalli	Km 1200.000	Chikaluripet - Nellore (Km 1182.802 - Km 1366.547)
6	Andhra Pradesh	71	Brahmanapalli	348.720	Telangana Border to Erpedu
7	Andhra Pradesh	5	Budanam	Km 124.500	Tada - Nellore
8	Andhra Pradesh	40	Chagalmarri	Km 228.350	Kadapa - Kurmool(Km 167.750 - km 356.502)
9	Andhra Pradesh	16	Chilakapalem	Km 616.704	Srikakulam - Champavati (km 97.00 to Km 49.00)(New Chainage From Km 606.204 to Km 654.204))

Fig. Branch Details Page

Add Staff

STAFF26985

Name

Email Id

Phone

dd-mm-yyyy

Address

Salary

Select the branch Code

Night

Fig. Add staff Page

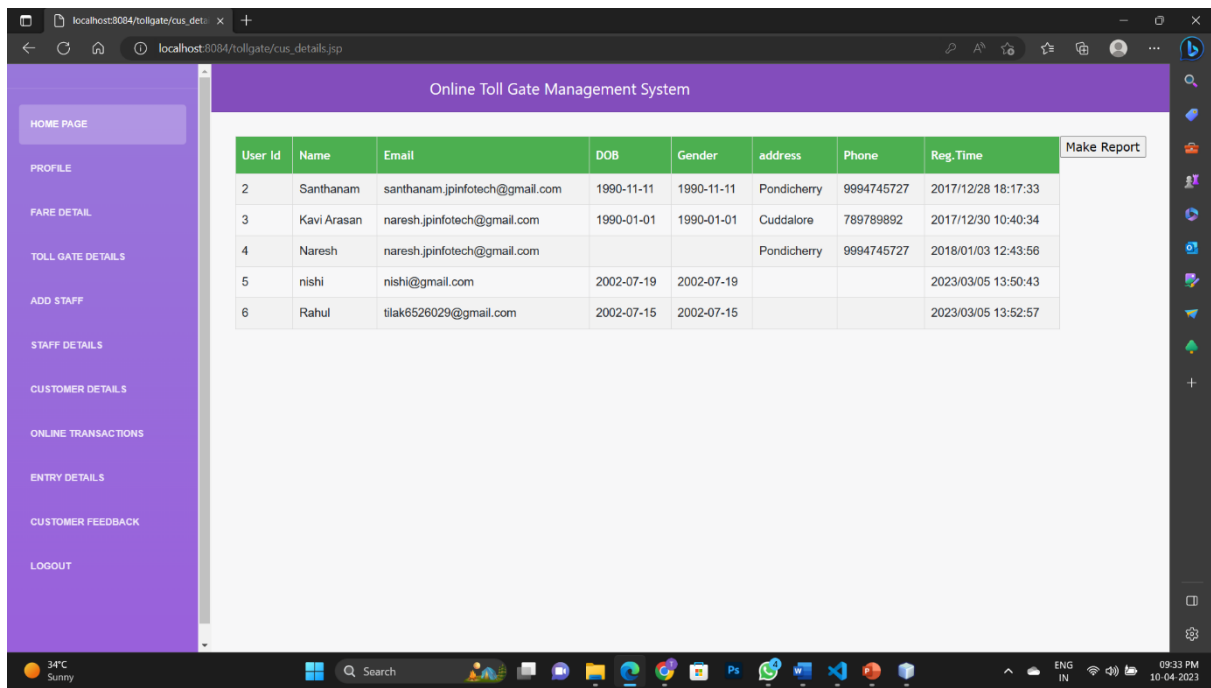


Fig. User ID Page

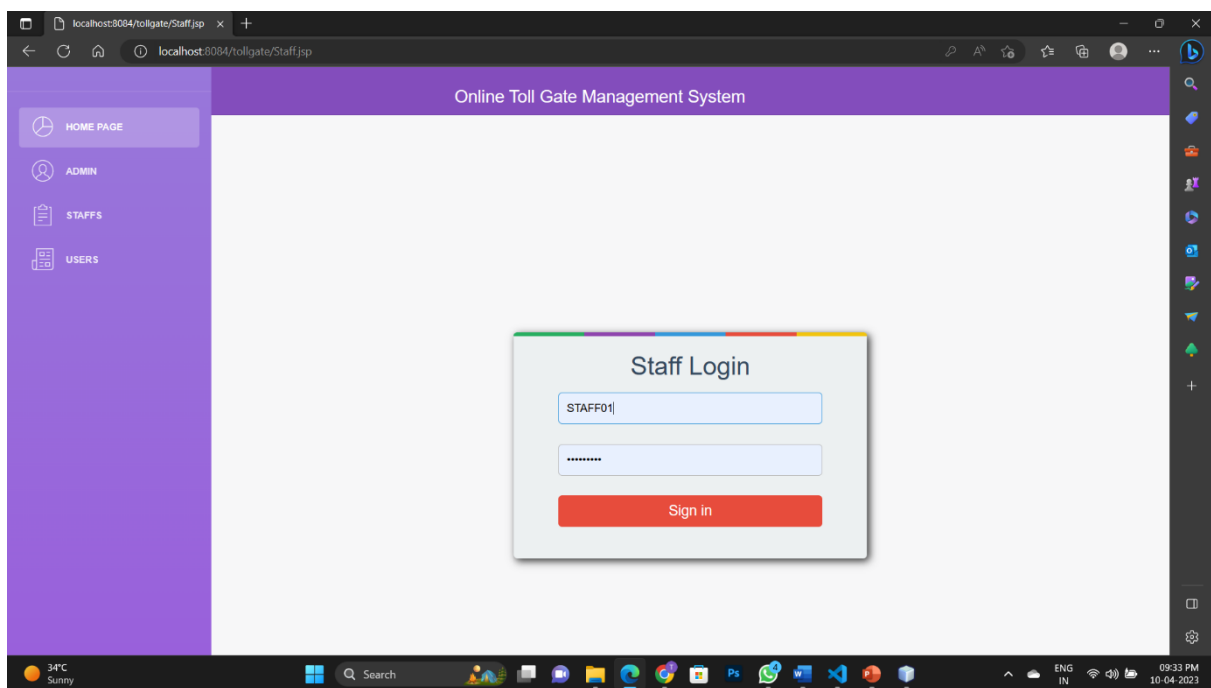


Fig. Staff Login Page

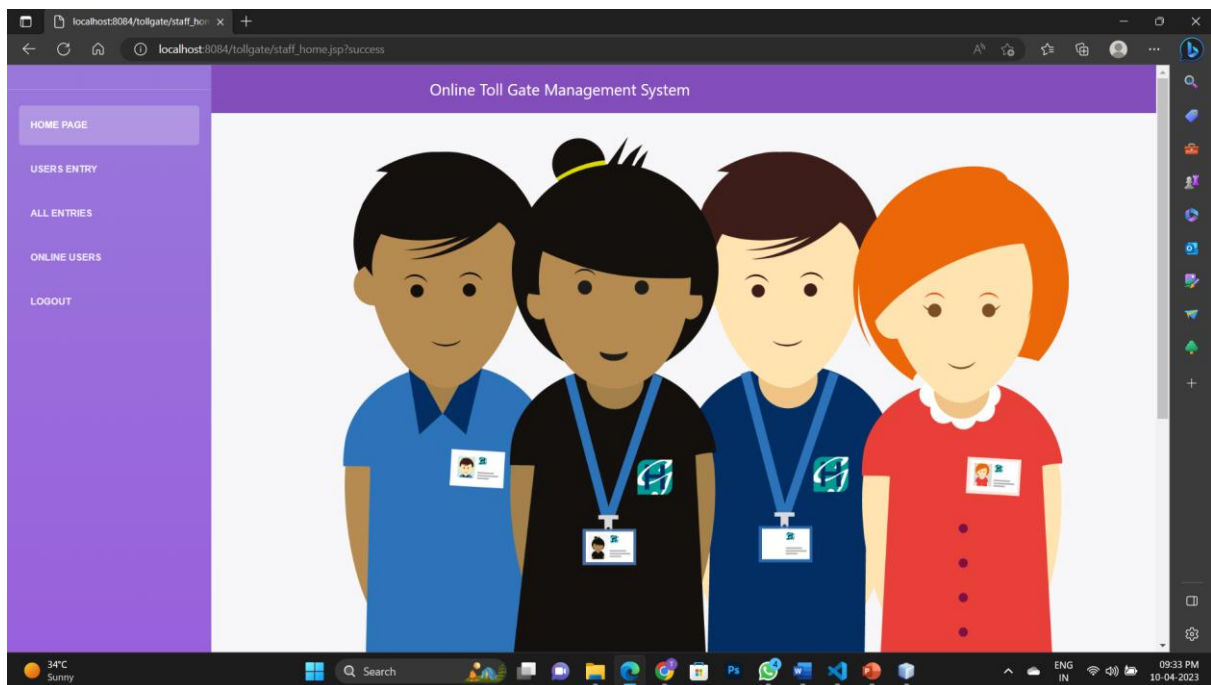


Fig. Staff Portal Page

Branch No	3
State	Andhra Pradesh
NH Number	221
Toll Name	Badava
Toll KM	35.800
Section	Imbrahimpatnam to AP Telangana Border
Vehicle Number	Enter Vehicle Number
Select Vehicle Type	Car,Jeep,Van,LMV,Three wheelers
Select Plan	Single
Submit	

Fig. Vehicle Entry Page

Vehicle Number	Transaction Id	Toll Id	Toll Name	Vehicle Type	Plan	Date & Time	Rate
TS16Ek7910	PAYID33045	3	Badava	Car,Jeep, Van,LMV,Three wheelers	single	2023/04/10 21:34:13	90
TS16EU6378	PAYID61462	3	Badava	3 axle commercial vehicle	monthly	2023/04/10 21:35:03	16670

Fig. Book Details Page

User Login

Sign in

[Don't have an account? Register](#)

Fig. User Login Page

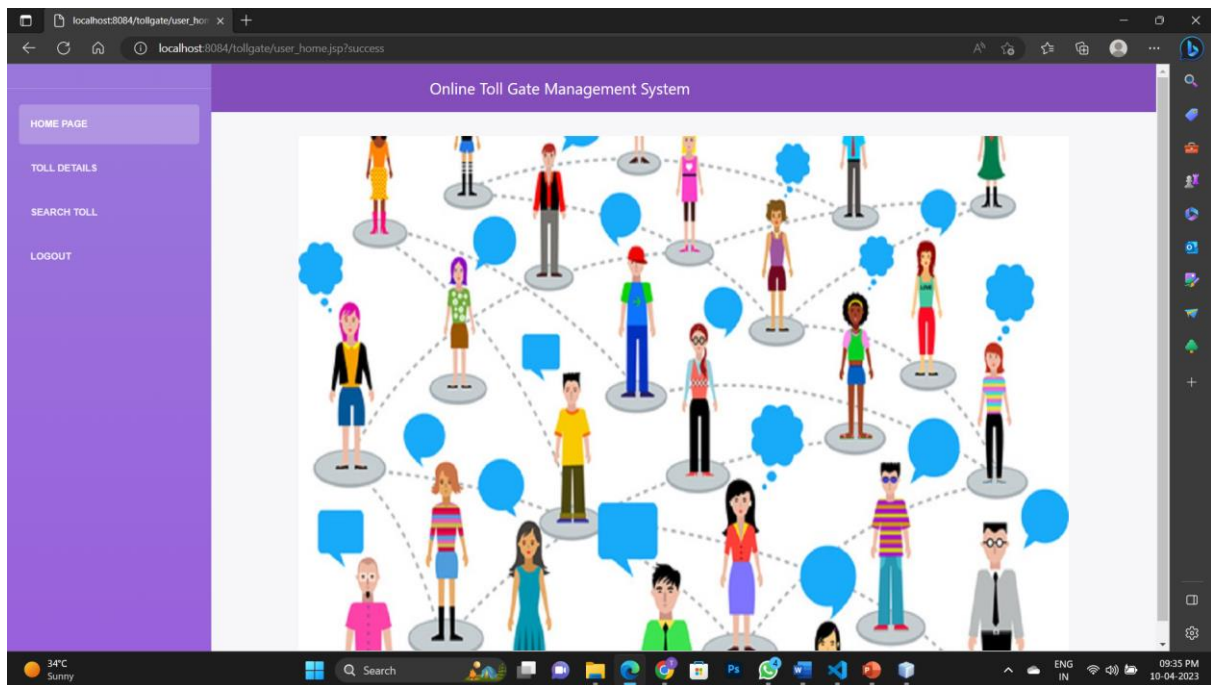


Fig. User Portal Page

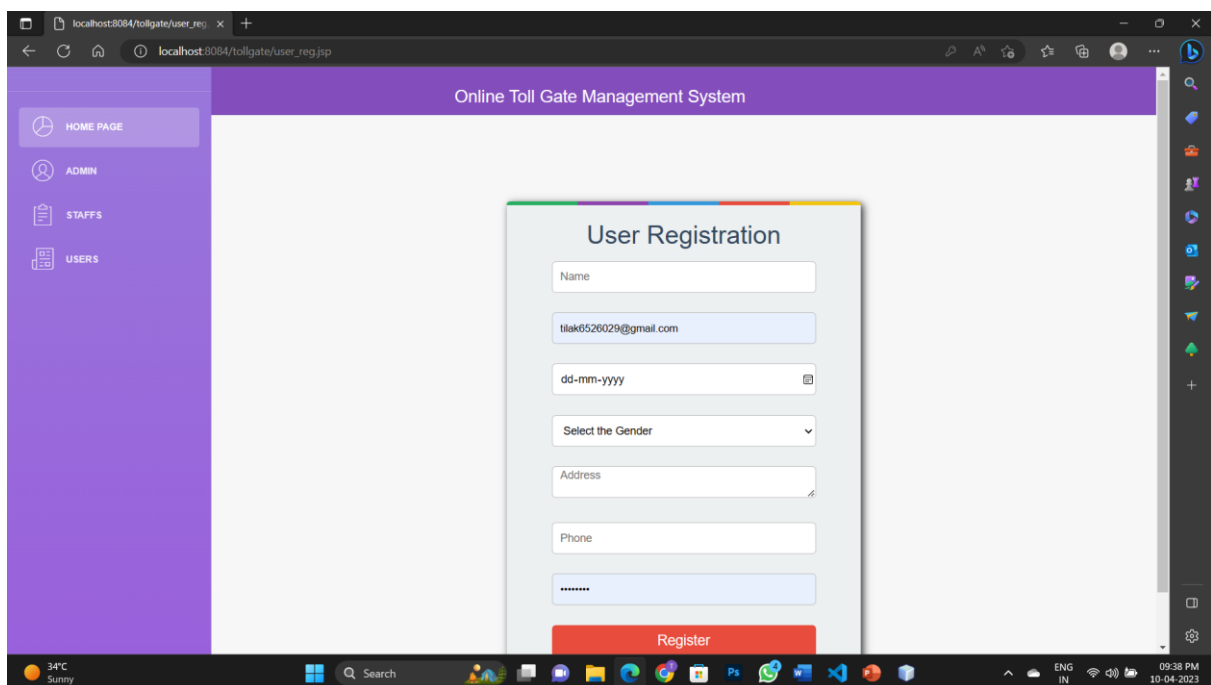


Fig. User Registration Page

C. Research Paper

Recommender System for On-line Toll Gate Management

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Abstract—The online toll gate control machine automatically tracks the car's motion, time, and details which include the proprietor's name, registration date, vehicle version, and so forth. This device may be very useful for self-using automobile, time control, as well as for automation. Toll gate Online toll management structures have been of first-rate help in lowering the congestion that has come to be part of metropolitan regions these days. This is one of the simplest approaches to power loads of site visitors. Passengers passing through this mode of delivery are carried by way of their vendors, which allows them to recognise the account of the cash that has been paid and the cash that has been left in the container. This relieves the vacationer of the load of ready to pay taxes, which reduces gas consumption and additionally avoids the want to carry coins. Our device is to avoid issues. The consumer gets the pass through the Internet, the person does no longer have to wait on the checkpoint.

Keywords—Radio Frequency Identification, Radio Frequency, Graphical User Interface Display, Global System for Mobile communication.

I. INTRODUCTION (HEADING 1)

Electronic Toll Collection (ETC) is a wireless machine for routinely amassing tolls or tolls from automobiles the usage of toll roads, HOV lanes, toll bridges and toll tunnels. This is a quicker alternative that replaces tolls in which vehicles ought to prevent and the motive force can pay manually in coins or processed money. Most systems, motors the usage of this system, are prepared with an automated transponder. When a automobile passes a toll reader on the street, a radio signal from the reader triggers the transponder, which feeds the identity variety that data the automobile's use on the road, and the person's digital fee gadget. The most important advantage is that the motive force does not prevent, which reduces delays at the roads. An digital toll system is less expensive than a staffed

toll, which reduces expenses for public or personal street owners. The ease of changing toll fees simplifies the creation of congestion prices, which includes excessive-visitors lanes, bypassed toll lanes, and concrete congestion charges. The charge device typically requires users to pre-sign in and deposit money into a bank account, that's billed each day. Electronic toll lanes can paintings at the side of normal toll cubicles so drivers who don't have transponders will pay the toll booth. Open street pulsing is an increasingly popular opportunity that gets rid of tolls altogether; electronic readers established subsequent to or above the street read transponders to permit cars to bypass at high speed, disposing of visitors bottlenecks due to vehicles slowing down to skip via the toll lane. Vehicles with out transponders are either banned or paid for by way of license plates - the license plate reader takes an photo of the license plate to become aware of the car and a request is despatched to the address where the car's registration code is registered, or the drivers may have. Registration code pay a positive amount of time online or by using telephone. As a part of this undertaking, we're looking to make the management of street theories online. It is an internet utility that permits users to pay for their fare earlier than beginning their journey from point b to factor b. In this utility, the user will pay the whole avenue tax between point a and factor b before beginning his adventure. It might be a completely painful series of sufferers.

II. LITERATURE SURVEY

This problem statement has been carefully studied with the aid of researchers over the years in an attempt to find a answer, and all of their solutions range from using generation to current structures. This assessment will offer an outline of the various structures which can be set up for on line tax series. Likhita M's paintings focuses especially on how the digital revenue gadget

reduces the weight on manual exertions by way of the usage of RFID generation. Ultimately, this system reduces environmental pollution due to gasoline burning, in addition to lowering the time users ought to wait in line to get theirs. Users can get admission to the website online and make their bills from anywhere. Their transactions are reflected in a centralized database. By the usage of online transactions, customers do now not want to carry money with them. This effects in the reduction of human errors that takes place in the taxpayers. Cashless fee adds transparency to this system. This system consists of designing an IoT module so that it will assist textual content the toll confirmation to the vehicle owner. The work of the authors Venkatesh Suvana and Jeet Patalia is as follows: "Many motors pressure on the street and it's miles necessary to rate the toll with the passengers, however that is a totally long manner and might lead to plenty of ready time and pollutants. Many systems were developed. To lessen the complexity of the procedure through bringing automation into the procedure. There are bundles of structures available, we're comparing some and also seeking out room for development in these systems. The work of Ms. Dr. Vinodha pursuits on the sensible toll gate device, the emergence of a global not unusual region for computerized round the world. This reduces human intervention and human-made errors. The introduction of automation into societies has the best benefit, as the dependence on machines and equipment will increase (more dependable) and the dependence on people decreases. This leads to the fact that the combination of automation with normal life will make lifestyles less difficult and less complicated. At gift, nearly all tolls are operated on motorways, in which the operator collects cash by way of force and issues a receipt. While this approach can be slow, site visitors jams are often encountered at tolls on busy roads. Automated toll series can shop money, strength and attempt. This paper is an inexpensive and powerful method known as e-tolling. The use of RFID modules that mechanically acquire tolls for transferring vehicles after they skip through a toll booth. This mission solves problems related to toll lanes and also introduces an identification tool for motors in which instances of robbery and unintended use of RFID are recorded. The work of the authors, Ms. Dipashri K. Mehendale makes a speciality of shipping, that is the idea of any united states's financial system. Due to the elevated range of vehicles at the roads, issues along with congestion, air pollutants and lots of others have end up a extreme problem. Traditional toll cubicles require a sequence of operations, together with locking the vehicle, rolling down the window, locating the correct coin or legitimate card earlier than passengers can continue their adventure. This studies paper describes an digital sales collection machine based totally on radio frequency identity (RFID) generation. Since time

and performance are now a priority, the traditional technique should be reformed. RFID generation used to clear up the primary problems with site visitors congestion and time wastage. An RFID reader connected to the bumper frame reads the tag on the auto's windshield. The item detection sensor within the reader detects the tag drawing close the vehicle, and the toll deduction occurs whilst the pay as you go card is assigned to the corresponding RFID tag that belongs to the owner's account. Electronic toll series (ETC) has numerous advantages over the traditional technique.

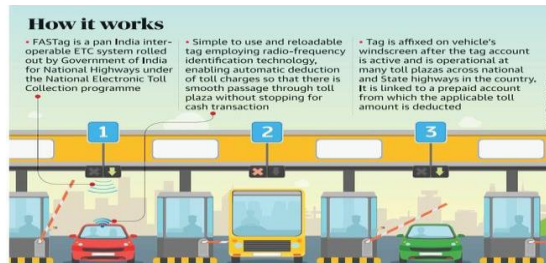
A. *Infresnces from literature survey*

- There are exclusive methods to solve issues.
- Many authors have pointed to a reduction in site visitors.
- All literature has one thing in common that is technological development.
- Many authors within the literature evaluate mentioned RFID generation.
- All authors are centered on improving or adding something new to the present day gadget instead of developing a very new generation for on line consumer management.

III. EXISTING SYSTEM

The National Payments Corporation of India (NPCI) has advanced the National Electronic Toll Collection (NETC) application to fulfill the e-tolling requirements of the Indian market. It affords interoperable move-border tax answers, consisting of clearing residence services for dispute decision and management. The interoperability applicable to the National Electronic Toll Collection (NETC) system consists of not unusual tactics, enterprise policies and technical specs that allow the customer to apply their FASTag as a payment approach at any toll booth, irrespective of whether they buy space. FASTag is a tool that uses Radio Frequency Identification (RFID) technology to pay tolls while using. The FASTag (RFID tag) is connected to the windshield of the vehicle and permits the customer to pay taxes at once from the account connected to the FASTag. FASTag offers the benefit of coins along side blessings including fuel and time savings because the patron does now not need to forestall at the toll sales space. The FASTag passive RFID tag is used to pay taxes immediately from customers such as prepaid or financial savings/checking bills. It adheres to the vehicle's windshield and permits the purchaser to pressure via the toll booth right now. The assessment is at once related to the client's account. FASTag is likewise vehicle particular and as soon as attached to a car, it can't be transferred to any other car. I bought FASTag from any

NETC member financial institution. If the FASTag is related to a prepaid account, it is going to be recharged / recharged as traditional. If the customer does no longer have the best balance, the FASTag have to be referred to on the toll sales space. In this sort of situation, if the client passes via the toll booth without imparting it, they'll now not be able to use the NETC offerings and will have to pay the toll in cash.



IV. REQUIREMENT AND RISK ANALYSIS OF THE PROJECT

After A hazard is an uncertain state of affairs or event that has a superb or terrible impact at the item of the occasion if it takes place. Risk has a cause, and if that risk takes place, there are outcomes. If an uncertain occasion happens, it'll affect the cost, time table and high-quality of the task. Meanwhile, hazard control is the artwork and technology of identifying, studying, and responding to hazard elements which can be projected into the task. Project hazard management is a systematic procedure of making plans, identifying, studying, planning, responding to risks, tracking and controlling dangers. Project chance management targets to growth attention of the in all likelihood outcomes of activities and to lessen the probability and impact of negative case histories at the mission. Each plan has distinct chance identification and response to lessen the impact of dangers. Risks may have an indirect impact on the agenda of the report. Types of dangers in production tasks include outside danger, monetary and financial chance, technical and contractual danger, regulatory danger. It is crucial that they correctly become aware of the risks and region these risks efficiently in the settlement/settlement. Risk outcomes from the uncertainty of an occasion inside a certain period of time that causes a loss, whether or not it is a small loss or a giant loss, this is relevant to the benefit of the undertaking. Proper chance management have to seize opportunities within the future and be proactive, not reactive. In this example, hazard control reduces the possibility of hazard and the impact of dangers. Levels of threat management:

- danger control approach
- Define threat
- Performing a pleasant threat analysis
- Risk reaction making plans toolbar.

V. SOFTWARE REQUIREMENTS

- Operating System : Windows 8 & above
- Processor : Intel/Ryzen Core
- Hard Disk : 256 GB
- Ram : 4 GB
- Coding Languages : Java, Javascript, SQL
- Tool : Netbeans
- Database : MySQL

VI. PROPOSED SYSTEM

This project is developed using java and mysql database. With this application, a customer can pay the toll tax before starting their journey.

A. Admin

In the executive module, the administrator will act as a delegate. He/she can add and replace non-public facts. He can view the entirety in detail, in each fare entry, online tax ticket, tax portal user ratings, he's going to accurate the fare information, he also can update the fare information. You can view character/all users. He/she will be able to adjust the connection in person inputs.

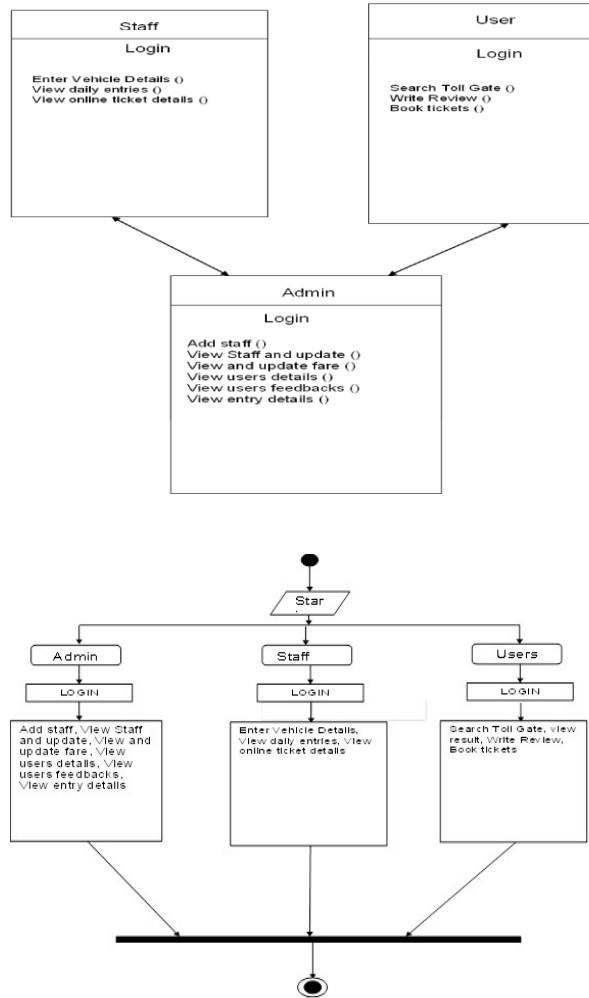
B. Staff

You can log in to the employees module with your particular private ID and password. He/she can view all the access information online at the required portal. He/she will bypass facts approximately the vehicle thru the toll booth. He/she can skip all statistics approximately the automobile thru the toll booth.

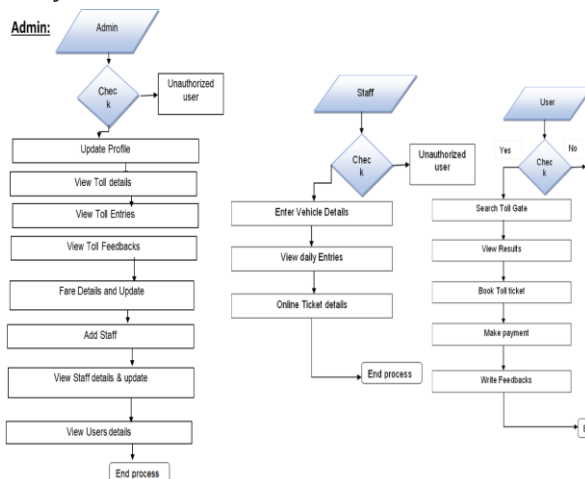
C. Users

In the customers module, users can search for charge gateway records by using coming into the keyword. The seek consequences will then be exhibited to the person. The user can e-book an e mail price tag. After a a hit fee, an automated electronic mail with statistics about the car and the transaction ID might be sent to the consumer's email ID, and the consumer can depart a assessment inside the selected toll plaza.

D. System flow and activity diagrams



E. System architecture



VII. FEASIBILITY STUDY

In this regard, the feasibility of the challenge is analyzed and an opinion is offered with the overall layout of the undertaking and some value

estimates. In the evaluation of the gadget, it's miles important to perform a feasibility look at of the proposed machine. This is to make certain that the proposed machine isn't a burden to the corporation. Feasibility studies require some knowledge of the primary machine requirements. Three most important issues are relevant to the feasibility examine:

A. Economical Feasibility

This study is carried out to check the economic effect that the gadget can have at the agency. The sum of money a company spends on studies and system improvement may be limited. To justify the fee. So the machine is evolved even on a budget, and this is the fact that most of the technology are available free of charge. I also best purchase character merchandise.

B. Technical Feasibility

This observe is performed to test the technical competencies, that is, the technical factors. Any machine advanced need to not location high demands on the technical sources used. This will lead to excessive demands on the technical assets employed. Here, the patron is looking you to bring in a high-profile picture. A device in improvement need to have modest necessities, on the grounds that only minimal or no modifications are required to enforce this machine.

C. Social Feasibility

The studies element is to prove the level of attractiveness of the machine by the consumer. This includes the process of teaching the consumer how to use the machine effectively. The user does not must do not forget the hazard, however need to take delivery of the need. Clearly, popularity through users relies upon solely at the strategies used to tell the consumer approximately the gadget and grow to be familiar with it. His confidence have to be raised to the quantity that he also can provide positive complaint, that's welcome, consisting of the cease consumer's machine.

VIII. CONCLUSION

The project is designed in such a way that future modifications can be done easily. The following conclusions can be deduced from the development of this project.

- Automation of the current toll collection system improves efficiency
- It provides a friendly graphical user interface which proves to be better when compared to the existing system.
- It gives appropriate access to the authorized users depending on their permissions.

- It effectively overcomes the delay in communications.
 - Updating of the information becomes easier.
 - System security, data security and reliability are the striking features.
- This system has adequate scope for modification in future if it is necessary.

REFERENCES

- [1] Likitha M, Member, IEEE, Alfio R. Grasso, Peter H. Cole, "Synchronization of RFID Readers for Dense RFID Reader Environments", International Symposium on Applications and the Internet Workshops (SAINTW'06), 2005
- [2] Venkatesh Suvana, Jeet Patalia, "RFID Field Guide - Developing Radio Frequency Identification Systems", Prentice Hall, 2005, pp 7-9, 16-225, 160, 231
- [3] Raj Bridgelall, Senior Member, IEEE, "Introducing a Micro-wireless Architecture for Business Activity Sensing ", IEEE International Conference RFID, April 16- 17,2008
- [4] Sewon Oh, Joosang Park, Yongioon Lee, "RFID-based Middleware System for Automatic Identification", IEEE International Conference on Service Operations and Logistics, and Information 2005.
- [5] http://www.ijresm.com/vol1%2Ciss4%2CApril18/IJRES M14_23.pdf
- [6] <https://www.ijcsmc.com/docs/papers/February2015/V 4I2 201515.pdf>
- [7] http://shodhganga.inflibnet.ac.in/bitstream/10603/141708/9/_chapter%201.pdf
- [8] https://www.researchgate.net/publication/263595027_Automatic_number_plate_segmentation_and_recognition
- [9] <https://ieeexplore.ieee.org/document/1688109>: A License Plate-Recognition Algorithm for Intelligent Transportation System Applications
- [10] Sewon Oh, Joosang Park, Yongioon Lee, "RFID-based Middleware System for Automatic Identification", IEEE International Conference on Service Operations and Logistics, and Information 2005