CHAPTER-1

Introduction

The **"Traffic Monitoring System"** comprises of a traffic control centre, a traffic information service centre, a cellular mobile communication system and an in-vehicle terminal (GPS tracer), which are connected with each other via a wireless communication network (satellites/telecom towers). The in-vehicle terminal communicates with the traffic control centre and the traffic information service center respectively via the cellular mobile communication system (satellite/telecom towers). By adopting the traffic monitoring system, its installation and construction cost will be reduced substantially.

The system is connected to a traffic control centre which in turn receives real time data from satellites/telecom towers to track different vehicles through electronic/E number plates (aided with GPS Tracker). This will not only help in tracing the vehicle for traffic management, automatic toll/parking fee deduction and inter-state tourism tax deduction but also will manage to store additional data (complete registration details of the vehicle), help in theft detection, a green monitor for regulating carbon emission in the city by synchronizing to the database of pollution checking central office, etc. In multilane network, this system identifies the traffic density in each lane which will get clearance priority signal from the real time system as per the needed traffic density clearance requirement guided by the priority algorithm criterion of clearing the densest lane first and so on. Therefore, allotted clearance time will be proportional to the density of the traffic of each lane in this multi-lane network traffic clearance system.

CHAPTER-2

System Analysis and Design

"Traffic Monitoring System" is a Database application which is helpful for the users . This mini-Project is implemented using **BOOTSTRAP, HTML5 and PHP**. The project also showcases **Cascaded Style Sheet3**(**CSS3**).

Operations supported by the application are insert, delete, update and retrieve. Admin has rights to insert, update and delete the traffic data. A Registered user can update his own details, check the traffic status and can select & view a particular traffic point.

2.1 HTML

HTML, which stands for Hyper Text Mark-Up Language, is the language for describing structured documents as well as the language used to create web pages in the Internet. The language is based on an existing, international formatting standard SGML, Standard Generalized Mark-Up Language, which is used for text processing.

HTML documents are nothing but web pages which contains HTML tags and plain text. The purpose of a web browser is to read HTML documents and display them as web pages. The browser does not display the HTML tags, but uses the tags to interpret the content of the page.

Tools in order to use HTML :-

Tools helps us in process of creating HTML document. Some are as follows

- TEXT EDITOR: To create the HTML code we require a text editor or a word processor. Such as Sublime Text3, Notepad, Notepad++, WordPad, etc. We are using notepad++ in developing this project.
- WEB BROWSER: The code created by an editor should be executed. This operation can be performed with help of a web browser. Such as Google Chrome, Internet Explorer, Netscape navigator, Mozilla Firefox ,etc.
- Web server: To make the document is to be available on the internet then, we will have to host it on a local web server.

HTML Code

Copy and paste the following HTML code into your newly open text file. Which just displays hello world..

```
<html>
<header><title>This is title</title></header>
<body>
  This is sample text...
  <!-- We use this syntax to write comments -->
  <!-- Page content and rest of the tags here.... -->
  <!-- This is the actual area that gets shown in the browser →
Hello world
</body>
</html>
```

HTML TAGS

HTML tags are keywords surrounded by angle brackets like <html>. These are in pair format such that every first tag in pair is start tag where as second tag is end tag. These start and end tags are also called as opening tags and closing tags respectively.

Tags Used In Project

Some basic text formatting HTML tags are listed:

Tag	Description
<html>	Defines an HTML document
<body>	Defines the document's body
<h1> to <h6>	Defines header 1 to header 6
<p>	Defines a paragraph
 	Inserts a single line break
<b>	Defines bold text
<!-->	Defines a comment
<small>	Defines small text

Some of the HTML tags used to create a table are listed:

Tag	Description
<table>	Defines a table
<th>	Defines a table header
<tr>	Defines a table row
<td>	Defines a table cell
<tbody>	Defines a table body
<tfoot>	Defines a table footer

A Simple Form

A form in a web page allows the users to input various data online. In an HTML document; forms can be created with the Form tags. In the following table, some basic Form tags are listed:

Tag	Description
<form>	Defines a form for user input
<input>	Defines an input field
<textarea>	Defines a text-area
<label>	Defines a label to a control
<fieldset>	Defines a fieldset
<legend>	Defines a caption for a fieldset
<select>	Defines a selectable list
<optgroup>	Defines an option group
<option>	Defines an option in the drop box
<button>	Defines a push button

Image Tags

In an HTML document we can insert and display images by using the image tags. In the following table, some basic Image tags are listed:

Tag	Description
<IMG SRC attributes>	Defines an image

The “src” stands for “source”, and its value is the url of the image to be displayed on the page. The url indicates the location where the image is stored. Attributes may be height, width, align so on.

Background colour

Using bgcolour attribute this can be done. This is body tag attribute. Six digit hexadecimal code represent the colours.

Syntax:- <body text=”text_color” bgcolor = ”background_color”>

Anchor tag

Anchor tag is used to link two or more different web pages.

Ex: click here where href stands for hyper link reference.

2.2 PHP

PHP is a general-purpose scripting language that is especially suited to server-side web development, in which case PHP generally runs on a web server. Any PHP code in a requested file is executed by the PHP runtime, usually to create dynamic web page content or dynamic images used on websites or elsewhere.

PHP originally stood for Personal Home Page, but it now stands for the recursive backronym PHP. Hypertext Pre-processor. PHP code may be embedded into HTML code, or it can be used in combination with various web template systems, web content management system and web frameworks.

Tags Description

<?php to open PHP section

?> to close PHP sections

ECHO prints the lines

2.3 DATABASE

A database is a collection of information that is organized so that it can easily be accessed, managed, and updated. In one view, databases can be classified according to types of content: bibliographic, full-text, numeric, and images. **Database** software systems are programmed in SQL, and examples include Microsoft SQL Server, MySQL, Oracle SAP HANA and FoxPro.

A DBMS system is also required to protect the integrity of data and provide its security. A database management system (**DBMS**) is system software for creating and managing databases. The **DBMS** provides users and programmers with a systematic way to create, retrieve, update and manage data.

2.4 MYSQL

MySql is a powerful database. It's very good and free of charge. Many developers in the world selected mysql and php for developing their website.

The MySQL database has become the world's most popular open source database because of its consistent fast performance, high reliability and ease of use. It's used in more than 6 million installations ranging from large corporations to specialized embedded applications on every continent in the world. (Yes, even Antarctica!)

Not only is MySQL the world's most popular open source database, it's also become the database of choice for a new generation of applications built on the LAMP stack (Linux, Apache, MySQL, PHP / Perl / Python.) MySQL runs on more than 20 platforms including Linux, Windows, OS/X, HP-UX, AIX, Netware, giving you the kind of flexibility that puts you in control.

Whether you're new to database technology or an experienced developer or DBA, MySQL offers a comprehensive range of certified software, support, training and consulting to make you successful.

2.5 EasyPHP Devserver 17.0

Devserver allows you to fit your needs and allows you to setup a local server with the same characteristics as your production server(if you have one). You can develop locally anywhere (at home, at work, on your laptop). Webserver turns your computer into a ready-to-use personal web hosting server. You can host whatever you want directly on your computer and share it on internet like any website. Your computer acts like a web hosting service and allows you to make your website / application / demo accessible via internet. The server is fully configurable, modular and easy to update and extend.

The acronym EasyPHP Devserver refers to a set of free (open source) applications, combined with Microsoft Windows, which are commonly used in Web server environments. The XAMP stack provides developers with the four key elements of a Web server: an operating system, database, Web server and Web scripting software. The combined usage of these programs is called a server stack. In this stack, Microsoft Windows is the operating system (OS), Apache is the Web server, MySQL handles the

database components, while PHP, Python, or PERL represents the dynamic scripting languages.

pHpMyAdmin

It is free open source administration tool for MySQL and MariaDB. As a portable web application written primarily in PHP, It has become one of the most popular MySQL administration tools, especially for web hosting services.

2.6 Sublime Text 3

Sublime Text 3 is an amazing piece of software. To start, it is a clean, functional, and fast code editor. Not only does it have incredible built in features (multi-edit and vim mode), but it has support for plugins, snippets, and many other things.

2.7 Web Browser

Google Chrome is a free **web browser** from Google which we are using here. With its clean design and advanced features, Chrome has quickly become one of the most popular web browsers worldwide. In this lesson, we'll talk about the **features of Google Chrome**, how to **download and install Chrome** to your computer, and how to **sign in to Chrome** using a Google account.

CHAPTER-3

System Analysis and Design

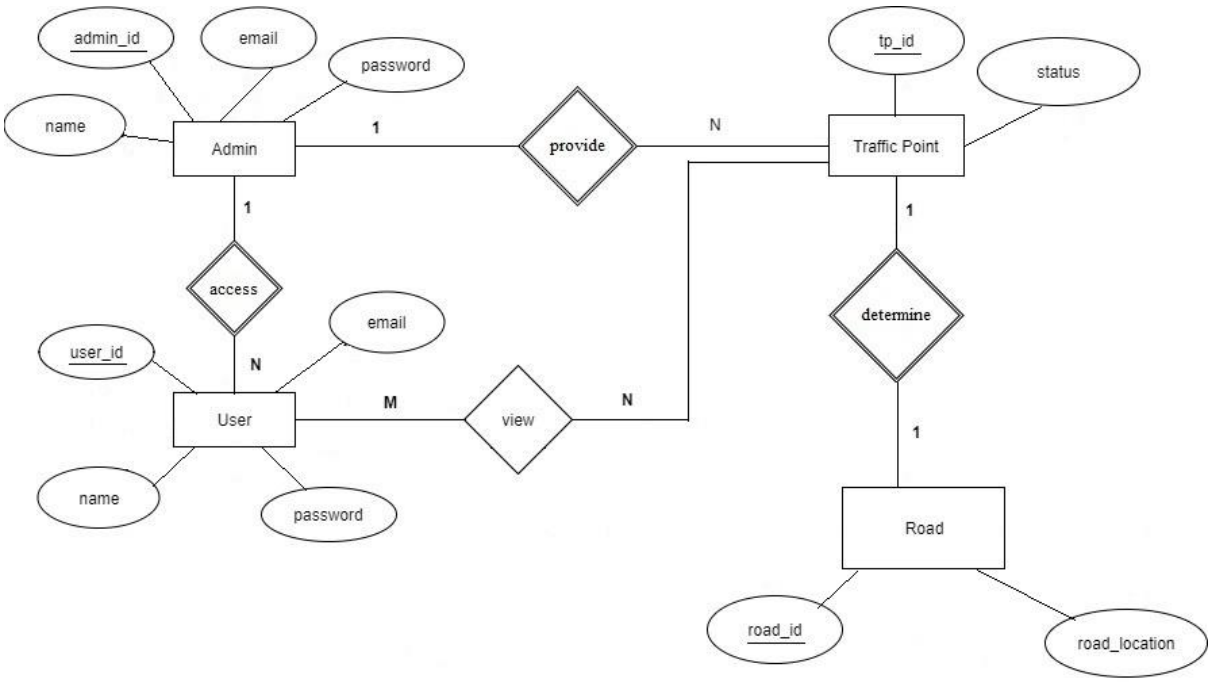
3.1 Feasibility Study

The feasibility study carried out showed that the requirements that were to be included could be provided by the use of RDBMS software such as MySQL which is available as an open source and for the front end HTML pages with processing capability provided by the Scripting language such as PHP and Javascript.

3.2 ER-Diagram

Following is the conceptual representation of the requirements identified as an ER-Diagram

Figure 3.2 ER Diagram for Traffic Monitoring System



3.3 Functional Requirements

Functional requirements of a software project that interpret the function of a part. It defines its functions, input and output. The typical functional requirements includes:

Application contains 2 modules:

- Admin module
- User module

Admin module

- Admin can able to provide a Traffic point.
- Admin can able to remove a Traffic point.
- Admin can able to provide the Road details.
- Admin can able to view Traffic point.
- Admin can able to monitor the User.

User module

- User must be to register to the database.
- User can be able to Update his details.
- User can able to check the Traffic Status.
- User can able to select & view a particular Traffic point.

3.4 Non- Functional Requirements

Non-functional requirements it specifies the canon of the articular process not the particular judgment of the system and particular behavior of the process. Non-functional requirements define how the system work.

- This project is developed inorder to make the user to save their valuable time by providing the Traffic point where the traffic congestion is less.
- This project work efficiently when the User registers to the database & sign in's.
- This database is available during all the time .
- This project reduces the congestion in the traffic .
- To run this project efficiently mobile network is the main important factor.

- Using of application is secure, because it displays appropriate information about a particular traffic point which is requested by the User.
- The system should capable to enhance with further technology in future to improve its features compared to the existing system .
- The system should be reliable and it should be related in all the condition and it should be recoverable in all the situation or condition if error occurs.

CHAPTER-4

System Implementation

4.1 Database Design

Below SQL query is to create the ADMIN Table-

```
CREATE TABLE admin (
name varchar(30) NOT NULL,
admin_id varchar(30) NOT NULL,
email varchar(60) NOT NULL,
password varchar(40) NOT NULL,
PRIMARY KEY (admin_id));
```

4.2 Database Connectivity

```
<?php

//connect to mysql database

$con = mysqli_connect("localhost", "root", "", "traffic monitoring system") or die("Error " . mysqli_error($con));

?>
```

4.3 Implementation of Database Operations

To add a Traffic Point:-

```
$insert_query = "INSERT INTO TRAFFIC_POINT (STATUS, TP_ID) VALUES ('".$STATUS."', '".$TP_ID."')";
```

To delete a Traffic Point:-

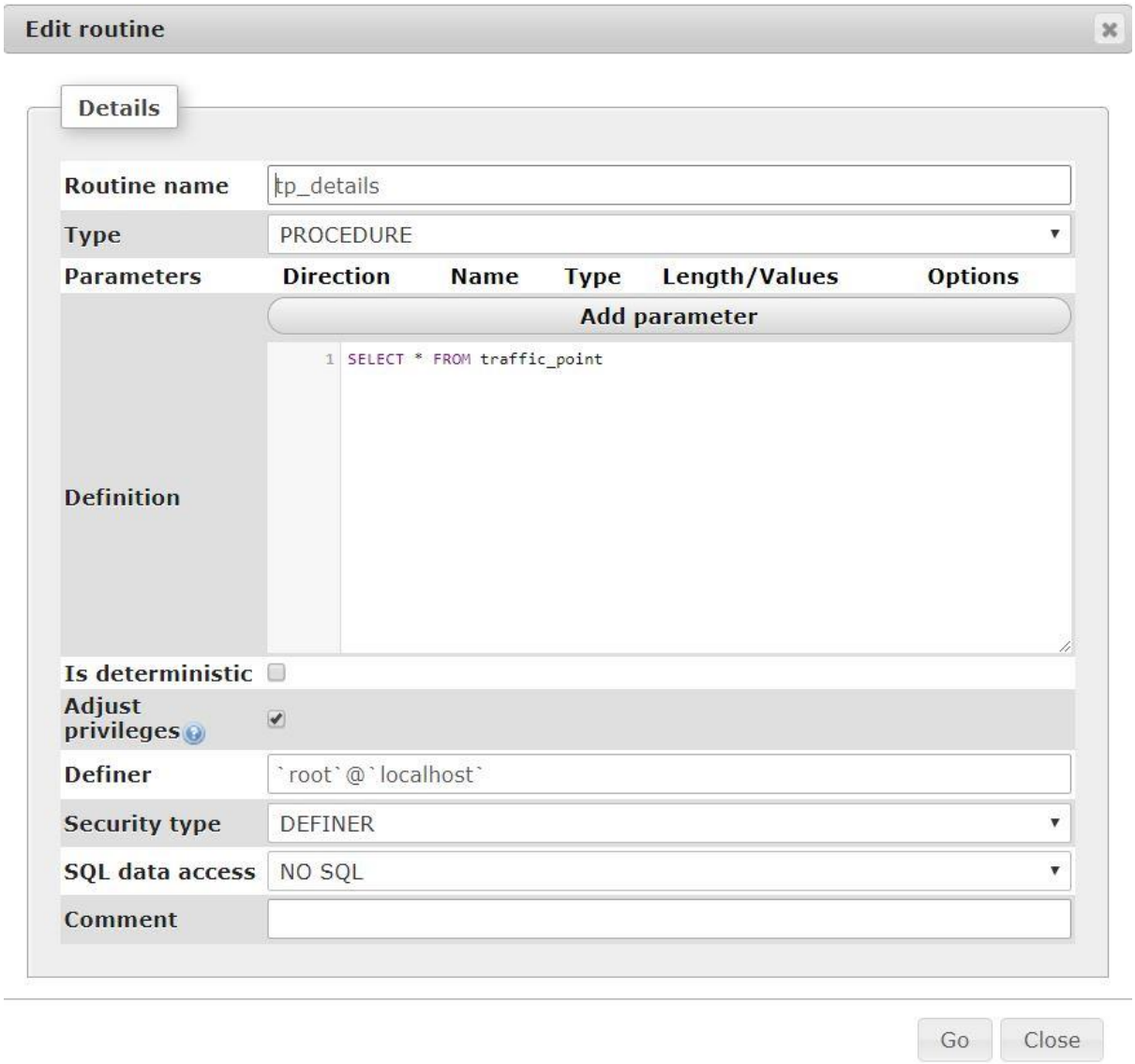
```
$query1 = mysqli_query($connection,"delete from TRAFFIC_POINT where id=$usr_id");
```

4.4 Stored Procedure and Trigger

Procedure-

This Stored Procedure helps to display Traffic Point details from traffic_point table-

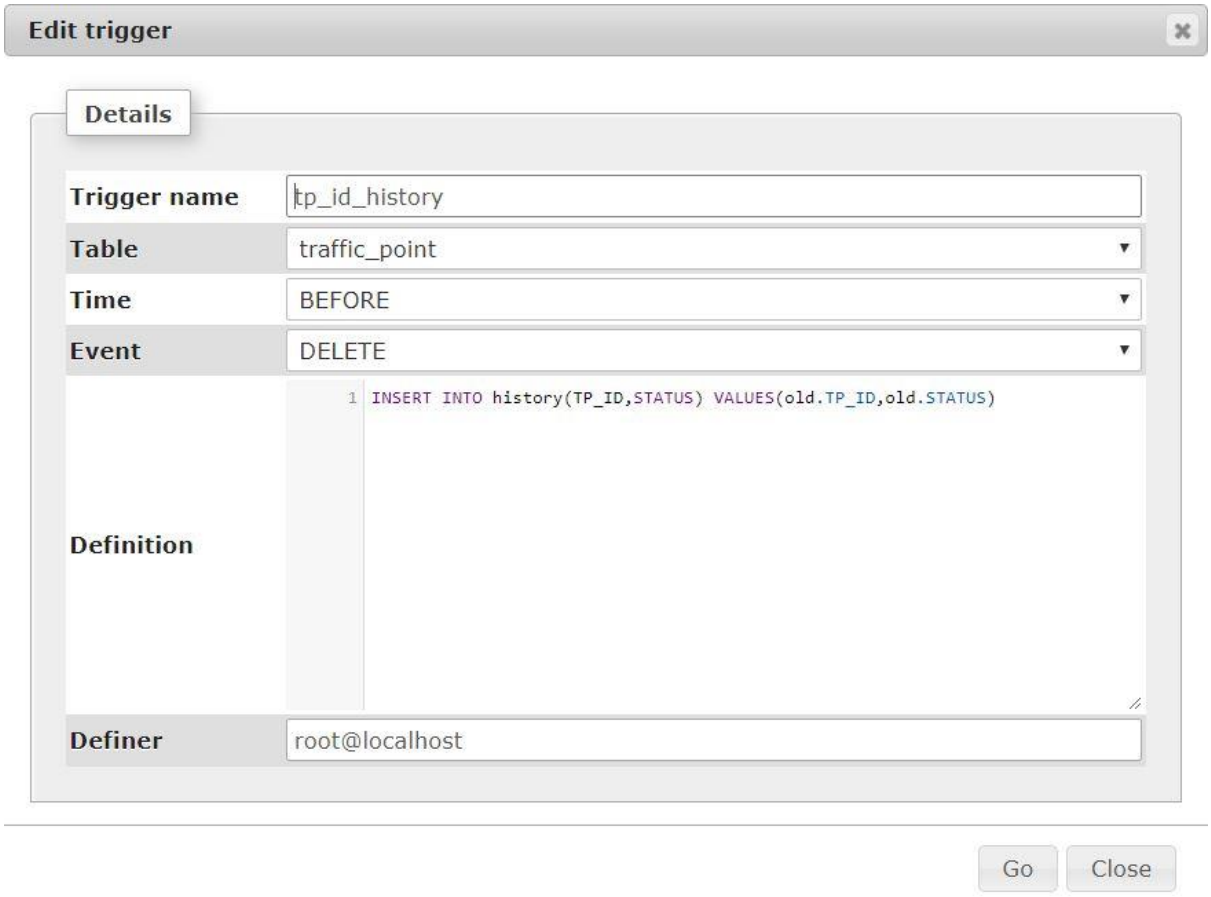
$sql = 'CALL tp_details';



Trigger-

This trigger helps to store the removed traffic point details such as TP_ID,STATUS in the new table history-

INSERT INTO history(TP_ID,STATUS) VALUES(old.TP_ID , old.STATUS)


Edit trigger
Details
Trigger name
tp_id_history
Table
traffic_point
Time
BEFORE
Event
DELETE
Definition
1 INSERT INTO history(TP_ID,STATUS) VALUES(old.TP_ID,old.STATUS)
Definer
root@localhost
Go
Close

CHAPTER-5

Results and snapshots

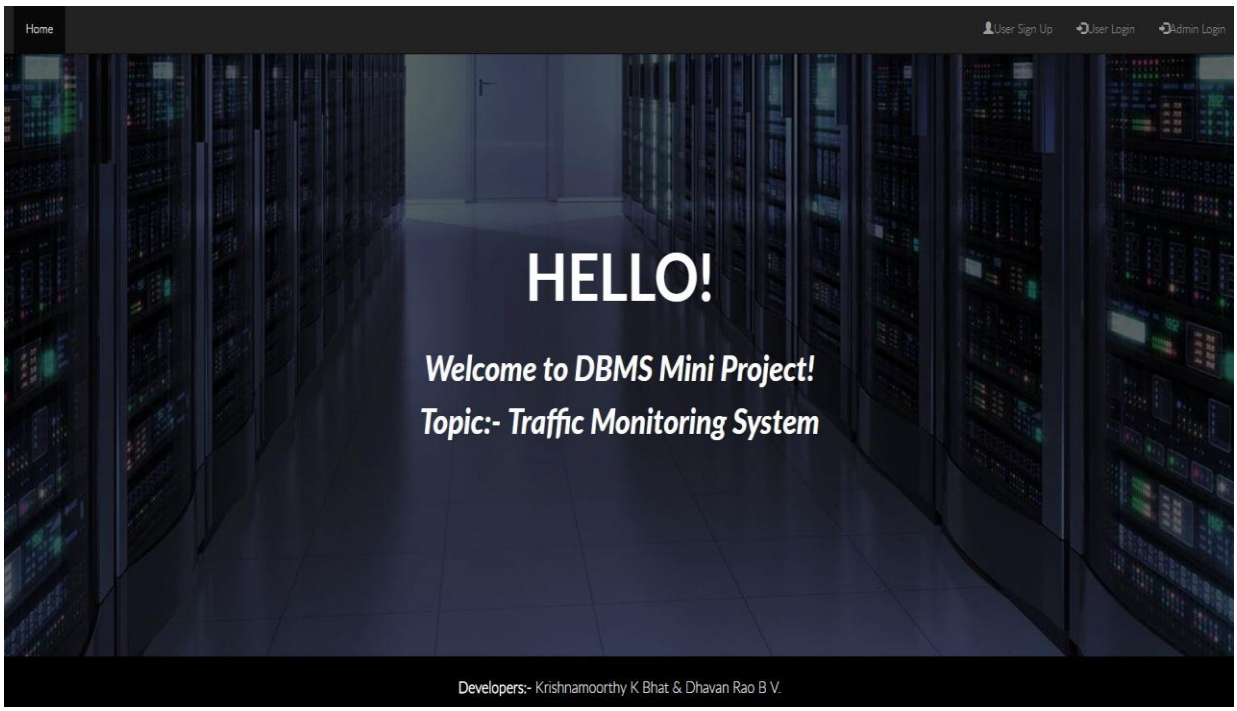
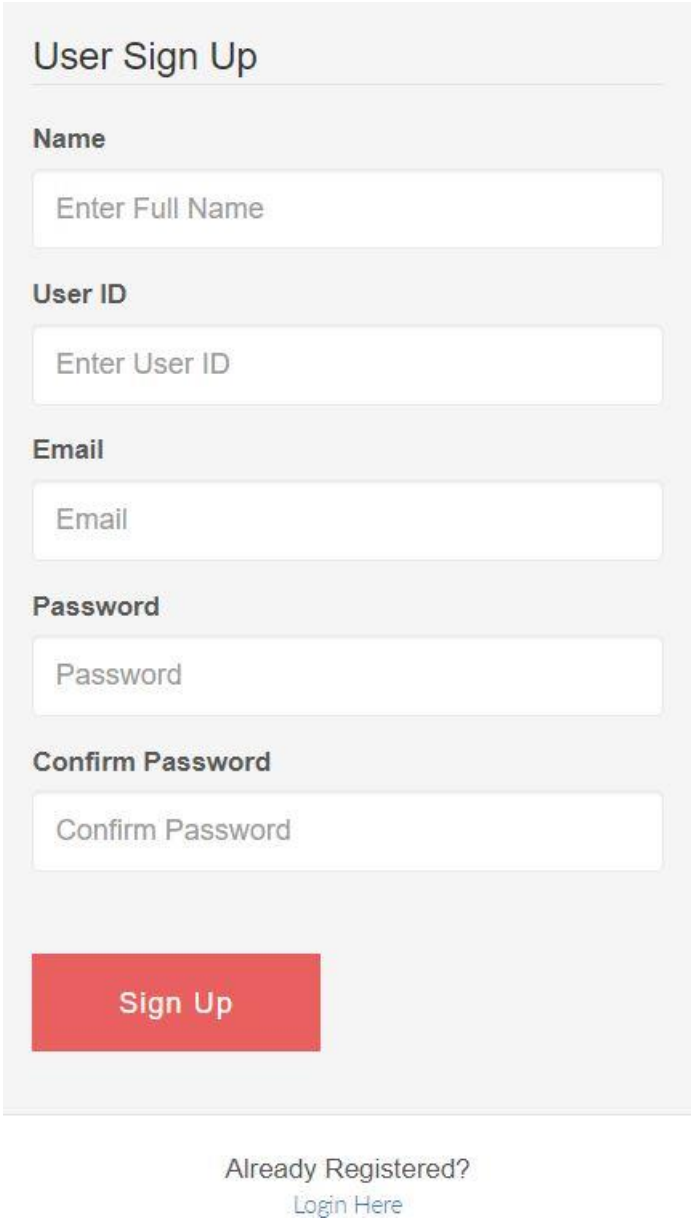
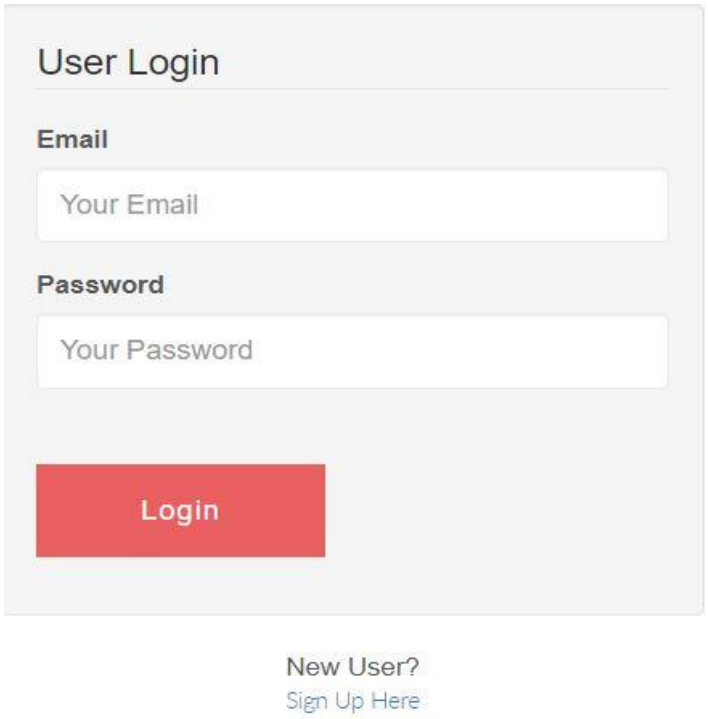


Figure 5.1 shows the welcome page of the project.

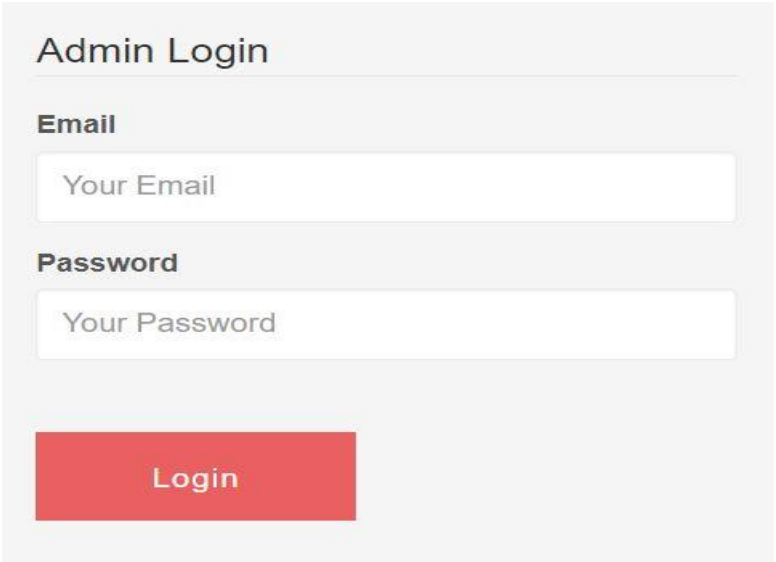
- In this page Admin can Log in to the database inorder to handle it. User must register first to the database, then inorder to access the database contents he needs to Log in.



- In this page an user must register himself with all the specified credentials with the database.

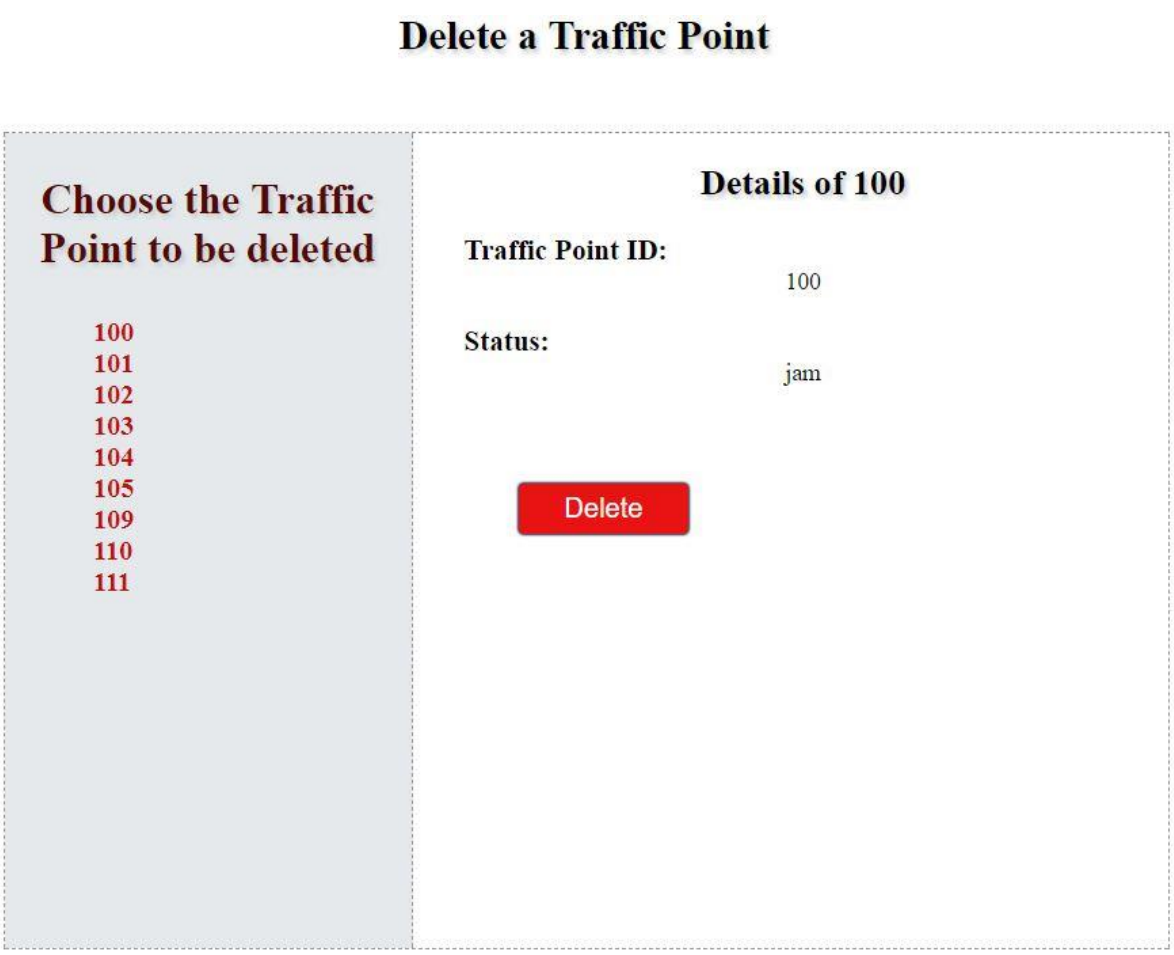


- In this page an user should login with his E-mail & Password to access the Database.



- In this page Admin should login with his E-mail & Password to maintain the Database.

- This is the page where the Admin i.e, Traffic police should enter the Traffic point details.



- In the above page Admin can delete a traffic point.

TRAFFIC POINT DETAILS

NO	TP_ID	STATUS
1	100	jam
2	101	clean
3	102	clear
4	103	unavailable
5	104	unavailable
6	105	clear
7	109	moderate
8	110	moderate
9	111	jam

- It displays the traffic point details.

TRAFFIC STATUS

NO	TP_ID	STATUS	ROAD_ID	ROAD_LOCATION
1	100	jam	1	moodbidri
2	101	clean	2	mangalore

- The above page displays the view of the traffic status to the user.

Traffic Point ID corresponding to the Traffic Points

NO	TP_ID	TRAFFIC POINT
1	100	moodbidri
2	101	mangalore

Select the Traffic Point ID from the table to view the Traffic Point details:-

Enter the User ID:

Enter the Traffic Point ID:

Submit

- The above page allows the user to select a particular traffic point ID and it displays the corresponding Traffic state corresponding to that ID.

CHAPTER-6

Conclusion

"Traffic Monitoring System" helps all the normal peoples by giving the traffic status of the user selected traffic point by a centralized database. It helps all in an efficient way by preserving our valued time by pre-determining the traffic status, so that they can select the other traffic point where the traffic congestion is less.

The theoretical process involved in database design have been practically implemented. The project provides user friendly interface for the users to interact with the database. All database operations including insertion, deletion, updation and Retrievals are supported along with support for trigger and stored procedure.