Efficient Vehicle Management System

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Abstract: —"Efficient Vehicle Management System" is a web based application that works within a centralized network. The "Efficient Vehicle Management System" will be used in bus transportation systems of Corporate Companies, basically a facility which is used to reserve seats, cancellation of reservation made, different types of route enquiries, bus tracking with the help of GPS. It is the need of every company to see the welfare of its employees by providing transportation facility for the employees to attend their duties on a regular basis. This is the reason many MNC companies maintain their own system and sometimes takes the help of third party transport systems. When many employees desire to make use of the bus services provided by the company, of course the company employees need a system to allot the buses and supervise the transportation. And "Efficient Vehicle Management System" is software that meets this need. In this system there are two users which include admin and employees. When an employee wants to avail the transportation facility, he/she will login to the system and can book the seats depending on the availability of seats in the bus. Employees have to provide his/her details and his/her pickup and drop point. And the charges for reservation will be deducted from the employee's salary. A GPS tracker is installed in the bus so that when an employee wants to track the bus position, he/she can track the position on android application with the help of GPS. This is a very important feature from the safety point of view. Admin will be able to create new users and change their passwords and update their details. The admin can add and view the information of available routes and make required updates into the system. This system works efficiently as it saves the time, money and energy of employees.
Keyword: Bus Membership Management , Transportation

I. INTRODUCTION

This project is suggested by our group members. This project is taken by considering the fact that in MNC companies the employees face a lot of problem during their daily travelling routine. Many MNC companies have different shifts. Employees travel timings varies according to their shifts. If employee have night shift then it gets difficult for the one to find transport and even if he find transportation then won't get a seat. Every time it is difficult for an employee to get transport easily or on time. Many times it happens that they wait for the transport for a very long time. Sometime it happens that an employee is unable to drive daily due to his hectic schedule in company so he needs a comfortable journey to travel from office to home.

The employees having health issues have to suffer from difficult situation as they have to wait for the transport for long time and even sometimes they need to walk on a long route to reach to the bus stops. Especially female employee face a lot of problem due to night travelling and which risks her safety. If most of the company will use this system then it will reduce pollution in a large number.

Once, one of our group member had to travel to some place, and she got a bus which took the long route so it took her nearly two and half hours to reach her destination and on other hand if she would have got the other bus which always takes the shortest route she would have reach to her destination in one hour and fifteen minutes. So from this incident we have learned that if this same incident happens with an employee who has to work daily for a long time then it would be very hectic journey for him. So due to this project an employee can choose his routes for daily travelling which will save his time, money and energy. The main purpose of this project is to automate the manual procedures to reserve a bus seat to go to the company and crowded sectors and make their life easier.

II. LITERATURE SURVEY

The main advantage of this system is allowing the customers to search and choose his/her seat position and ticket payment procedure. In this research, the gathered information is to define the requirements of the new application[1].

A unique characteristic of online ticket booking system is that it allows customers to book tickets with highly interactive features. This system will also allows the bus service organizations to monitor their booked tickets information online which reduces the human mistakes in off line bus ticket booking process, increases accuracy and enhance the flexibility of information processing[2].

It allows potential passengers to request service via the Internet or mobile phone, with requests for ride being processed by a server computer. The requests compose of pick-up location, delivery location and desired delivery time (or pick-up time)[3].

The bus operations and management system assures the real time processing of data related to monitoring the progress of bus, traffic regulation, management of the working schedule of drivers and the day-to-day maintenance of vehicles. The system also supports the preparation of the daily operations programme, data storage and management statistics[4].

This paper introduces a system design about bus management system based on ZigBee and GSM/GPRS, which implemented the basic functions of the intelligent public transport management system, such as monitoring the time of bus arrival, departing from the bus station and reporting stations name automatically[5].

III. PROPOSED SYSTEM

In our proposed system admin will have the facility for adding, removing and updating information of an employee. This Efficient Vehicle Management System maintains accurate results in terms of departure time and arrival time. This system provides a user friendly environment and it is easy to use and easy to understand. Employee can track the bus through which he is travelling. This system also helps in finding directions and routes. GPS allows accurate navigation details. In our proposed system there will be maximum cost reduction as the organization need not maintain heavy book records and do not need to worry about misplacement. This system is fast and convenient.
Efficient Bus Management System is a Web based application that works within a centralized network. This system helps the organization to keep a track of employee travelling details and helps maintain all the data into a database rather than maintaining manual records. The web application is server side implemented using apache server as a local server at company environment. It will be for two users that is User and Admin, which will play different role respectively.
Users information have to be compelled to be registered within the system that includes name, personal details, route etc. in order to avoid ambiguity of data and so that a bill can be generated at the end of the month. Admin able to view employee details and maintain records related to bus contractors their personal details etc. Employee feeds in his/her details which includes their name, contact number, address details, these details are requested during the registration process. The admin keeps the payment as per the range of kilometres (km). The same will be deducted from their monthly salary. The admin has the privilege of manipulating data and updating it into the system as per changes requested by the employee.

IV. WEB APPLICATION METHODOLOGY

Web Application is implemented using LAMP stack (Linux Operating System , Apache Http server, MySQL and PHP).The user end i.e. the landing page as well as the modules are designed using HTML5, CSS and JavaScript.

V. MOBILE APPLICATION

The mobile application uses GPS to track the location. This location is displayed on the mobile screen just as available on Google Maps. Every employee registered for the bus facility needs to mandatorily have the application in order to get details of the bus and driver on daily basis.

This is an easy to use application which includes employee details i.e. his/her name, id, location, driver details etc. This application will be implemented using android studio.The mobile application will be interacting with backend web Api's using PHP. The UI is designed using XML and business logic using Java.

VI. SYSTEM DESIGN

A.UML Diagrams

The Unified Modeling Language (UML) is a general “purpose modeling language in the field of software engineering, which is designed to provide a standard way to visualize the design of a system”.

It was created and developed by Grady Booch, Ivar Jackson and James Rumbaugh at Rational Software during 1994-1995 with further development led by the through 1996.

- Use-Case Diagram

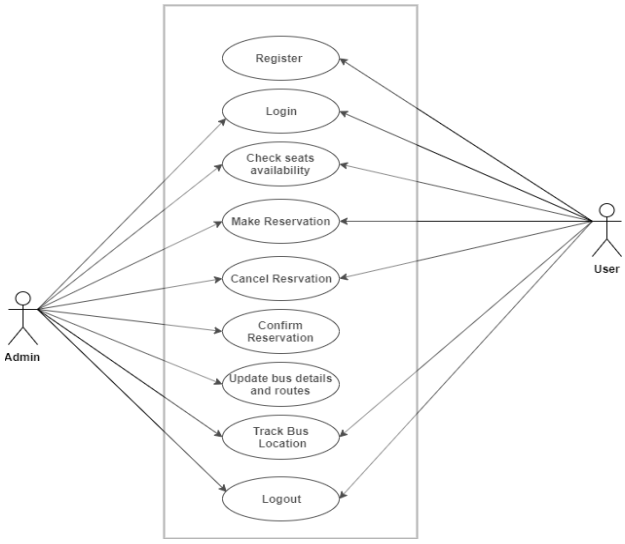


Figure No. 1 - Use Case diagram

Use case diagram in this system plays the role of interacting between the Admin, user and system as explained in figure no.1

- Admin:

Admin can login to the system and check the seats availability after He can make the seat reservation and also he can cancel it. Admin can update the route and also the bus details.

- Employee:

Employee register to the system and after that he/she login to it and depending upon the seats availability he/she reserve the seats. Suppose if he/she changes his mind then can cancel the seat reservation. Employee can track the bus location with the help of GPS.

VII. SYSTEM ARCHITECTURE

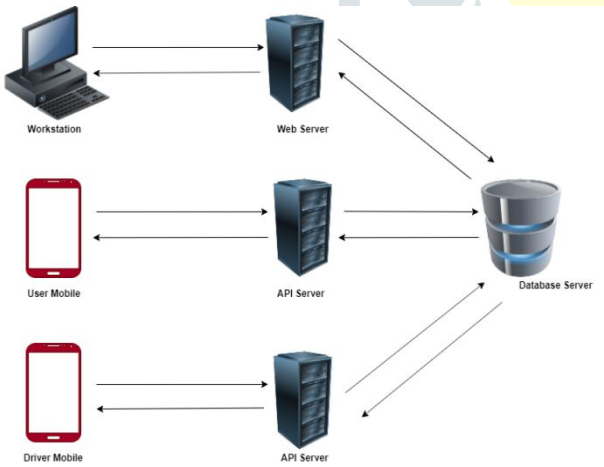


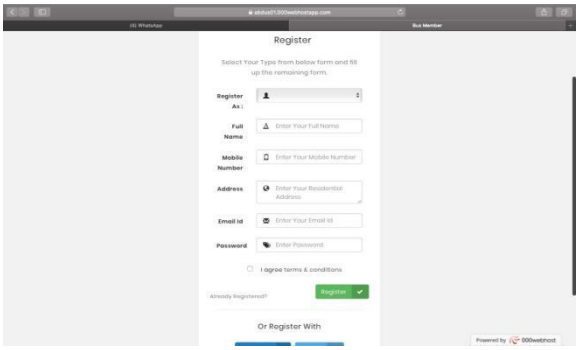
Figure No. 2 - System Architecture

To overcome the limitations of other existing vehicle system, we are introducing an Efficient Vehicle Management System based on Angular. It is a wireless system bus seat reservation using android devices. Android devices have gained immense popularity and have revolutionized the use of mobile technology in the automation of routine task in wireless environment. Android is a Linux based operating system for mobile devices such as smart-phones and tablets. One of the objectives is to design a system that is able to accommodate huge amount bus seat reservation at a time and automatically compute the bill. To evaluate its performance and acceptability in terms of security, user-friendliness, accuracy and reliability is an important objective. It provides transportation services as well as saves time and energy, allowing it to give confirmation.

It makes this application much easier for users to use. In another word, it has a good usability. It is safe Efficient Vehicle Management System that we are proposing here, greatly simplifies the seat reserving process for the customer. This system presents an interactive and up-to- date option with all available options in an easy to use manner. Employees can choose seats according to their own choice. Employees can view all the details of bus before making the payment. At the end, passenger gets confirmation notification.

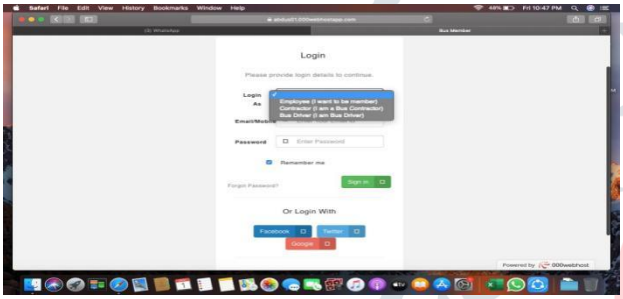
VIII. IMPLEMENTATION DETAILS

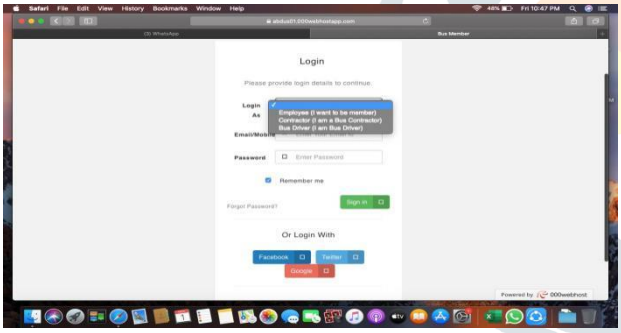
- Registration for Seat Reservation



This is the very first module of our project. In this module user has to register himself as an employee, contractor or bus driver. He has to fill all the credentials stated in the module like full name, mobile number, address, email-id and password. After that he will be able to register his name to the system and can proceed further.

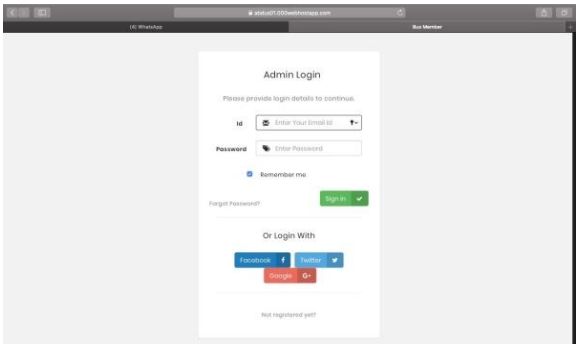
- Login for Seat Reservation





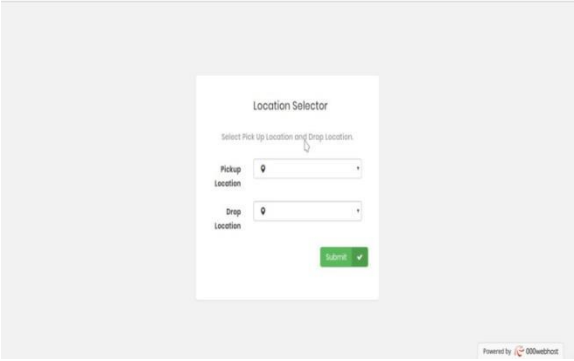
This is the second module of the system. In this module user has to login to the system. At starting user have to login as an employee or bus contractor or bus driver and choice is given for that. After that he has to fill the other valid credentials like email-id or mobile number along with password. After filling all the valid credential user will be able to login to the system successfully and can proceed further. And if user is filling the wrong credentials he will not be able to login to the system.

- Login by Admin



In this module user has to login as an admin and for that he just have to enter his email-id and password and after that he can login to the system successfully.

- Pickup and Drop



Here a location selector is given for the user and user has to choose his pickup and drop location so that the bus driver can pick them from their entered location.

IX. CONCLUSION

Efficient Vehicle Management System is based on the computers based technology which is easy to use by company. The Corporate Companies Efficient Vehicle Management System has rich user interface so that users can access easily. Our project is only a humble venture to satisfy the needs of the bus membership. Several user friendly coding have also adopted. This software program shall prove to be a powerful in satisfying all the requirements of the MNC company. The objective of software planning is to provide a frame work that enables the admin to make efficient use made within a limited time frame at the beginning of the software project and should be updated consistently as the project progresses.

Hence to conclude our proposed system is far better than the existing system because in our proposed system we are using GPS. It is easy to use and environmental friendly. Our system is based on computer based technology i.e. web application which is easy to use by any person. This system provides employment options for drivers, contractors and other staff that is acknowledged to use the system. It saves money and time.

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