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Implementation of Cloud Computing Technology for M-Ticket Booking

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Abstract: ***The current railway or bus ticket booking system is human dependent and tedious with regards to the ticket booking process.***
The core objective of our project is to develop the web-application which will serve as a medium for students/employees/anyone to book the tickets to travel through trains or bus. The principle motive force of this web-application is to ease the process of ticket booking by avoiding the hectic and boisterous process to stand in a queue and book the ticket for the short distance for travelling in the trains. Several applications are available in the market which gives information about the travelling destinations and their fares. However, none of these applications incorporate the ticket booking process coordinated for both train and bus. Our application contrasts from such a lot of existing applications as it would book the ticket as well as save the ticket in the cloud database for both train and bus. This website is for railway and bus ticket booking and one can easily validate those booked tickets using mobile.
Ticket can be bought with the help of smart phone, laptop using the web-application where your railway tickets can be carried in your phone. The ticketing information of the user is securely stored in the cloud database. Additionally, the ticket checker is given the checker application which is utilized for the approval of the ticket appeared by the user. This framework gives the ticket checker web-application to look for the user's ticket with the ticket number or other appropriate information in the cloud database for checking purposes. Consider that the user's display is being damaged and not able to show the ticket due to other reasons like battery failure we have another safeguard alternative to check the ticket by searching in the ticket database with the ticket number or user's other relevant information for validation purpose.
Keywords: Ticket Booking, Railway, Mobile, Cloud Database, Ticket Checker.

I. INTRODUCTION

There has been no advancement in Indian public transport system particularly railways and bus, still follows the regular old pattern of ticket booking and checking. With the growing population, the number of travellers ready to travel day by day is expanding abruptly and now the circumstances are deteriorating that individuals don't bother whether they have a ticket or not, they knowingly or sometimes because of some issue they are entered in the train or bus without a ticket. Indian public transport system and IT are loosely bounded. Presently the use of Information Technology is only limited to online checking of schedules and fares of public transport. The main motive of this web-application is to ease the process of ticket booking by avoiding the hectic process to stand in long queues and book the ticket for the short distance travelling in the trains and bus. Users can purchase the ticket over the Internet, 24 hours a day throughout the year, this solves the issue of bus ticket being misplaced or stolen in a real-life scenario. The application may get overloaded due to a huge number of users visiting at once. Thus to solve the issue this system is built up using cloud infrastructure for improved performance.

II. CLOUD COMPUTING

Cloud Computing is a form of distributed computing which has been evolving recently. Typically, the cloud symbol is used to represent the Internet. Cloud computing is now widely used to describe the delivery of software, infrastructure and storage services over the internet.
Cloud computing provides tools and technologies for various parallel applications with far more affordable prices compared to traditional parallel computing techniques.
The main purpose of cloud computing is to profit from all of these technologies without the necessity for deep knowledge or expertise with each of them. At present, whether large or small, all companies depend on public cloud platforms to host and implement applications because they supply flexibility, mobility, scalability, sustainability and it is cost-effective.

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A. *Software as a Service (SaaS)*

Software as a Service (SaaS) is a software distribution model in which applications are hosted by a third- party provider and made available to users over the Internet. The SaaS model enables your business to quickly access cloud-based web applications without committing to install a new infrastructure. Applications run on the vendor cloud, which they can control and maintain. On-site hardware is not required for this model, which keeps associated costs low. This reduces the expense of equipment procurement, delivery and servicing, as well as software licensing, deployment and service. Small businesses may find this cloud platform particularly attractive.

B. *Infrastructure as a Service (IaaS)*

Infrastructure as a service (IaaS) is a type of cloud computing that delivers basic computing, networking, and storage services to customers on-demand, over the Internet. IaaS allows end-users to scale up and reduce resources on an as-needed basis. Infrastructure as a Service (IaaS) is often referred to as Hardware as a Service (HaaS).

IaaS [3] was born out of a wider shift from conventional data centres to virtualized and cloud-based infrastructure.

The on-demand service model makes it easy for the user to transfer workloads from one cloud instance to another, ensuring that resources are still available when you need them. IaaS providers offer services on a pay-as-you- use basis. Users are expected to pay for what they have been using.

C. *Platform as a Service (PaaS)*

Platform as a Service (PaaS) is a full cloud-based development and delivery environment with tools that allow you to deliver anything from simple cloud-based apps to sophisticated cloud-enabled enterprise applications. User can buy the services from a cloud service provider on a pay-as-you-use basis and access them through the Internet. PaaS vendors sell a spread of tools that are mainly required for software development, including a source code editor, a debugger, a compiler, and other critical tools. Such methods can be provided together as a platform. PaaS offers all the skills you need to support a full lifecycle of web applications that are designing, reviewing, deploying, managing and upgrading within the same integrated environment

III. LITERATURE SURVEY

A Study by Mohezar et. al. identified trends in e-tickets among urban communities, especially in Kuala Lumpur. This research explores the trends and patterns of use of e-tickets. The study also focused on consumer perspectives for e-tickets in terms of their usability, reliability, protection, convenience and performance.

The research also explores the effect of demographic variables on e-ticket acceptance of e-tickets. A survey was conducted amongst Internet users in Kuala Lumpur. Questionnaires were randomly distributed to 5,000 individuals. Kuala Lumpur was selected to have the largest number of Internet users.

The study found that e-tickets are not a new trend, as an almost good number of respondents have been purchasing online tickets for the past two years and the purchase of rail and bus tickets seems to have dominated online ticketing services. It was also found that comfort and ease of use were among the factors that inspired respondents to buy tickets online.

The study also found that online ticket purchasers are young, qualified and with a higher income bracket, Sahney et al. found that the modus operandi of the online ticket booking system needs particular attention to factors such as the functionality of online search information, website design, and the capacity of all time network availability for online booking. We propose that the flexibility of the Internet should be combined with the convenience of a simplified decision making and collaborative booking from traditional travel agents.

The expertise of travel agents should help online customers to find the best travel option under given constraints and provide efficient support for impulsive decision.

IV. PROBLEM STATEMENT

The need to build this website was the technological development of almost everything around us. The user needs all the tasks to be accomplished in an effective and relaxed manner. In such a time, there was a desperate need to construct a website for the convenience of the user. Also, this website will aim to solve the tiresome task of managing the crowd easy, without confusion, during ticket booking times. Cloud Technology will help to add flexibility and scalability.

V. PROJECT MODULES

1) *Registration:* This module is meant to record user details on the website database. It collects general information about the user such as name, mobile number, email address, etc. This module also includes a unique Email Id. and Password that would allow the user to sign-in to the website. The information received by the user is recorded in the 'Register' database. Once the user has given all the information needed for registration, the website redirects the user to the sign-in page.
2) *Sign-In and Authentication:* This module facilitates the user to sign-in on to the website. It collects user information, such as email address and password, and compares the information against the entries in the database. If the user entered information that matches the authentication parameters that is email address and password entered during the registration process, the user shall be authenticated and will be redirected to the user homepage. If the user entered information that does not satisfy the requirements for authentication, the user will not be authenticated and cannot access the user homepage.
3) *Booking and Allocation:* This module is available once the user has signed-in onto the website, our application displays two modes of transport to the user that are the train and the bus. User can select any one mode according to his choice. If the user selects train he is prompted with the form where he has to enter his desired selection for booking process, that form includes source station, final destination, train class, train type, number of tickets, route. Once the user selects these parameters the script code accepts the entries and checks for matching entries in the server database and accordingly displays the fare amount. after that user can go forward and proceed to checkout. Similar functionality is available for bus booking but form choices are different.
4) *Transaction:* This module displays a confirmation message that the user has successfully booked the ticket. It also makes an entry in the transaction database and the unique transaction id is allocated to the user in this module. User can print a ticket in the next step.
5) *Admin:* This module is designed for Ticket-Checker. Firstly, Ticket-Checker must sign-in to use the application. Once he has singed-in, he is provided with the transaction database for both bus and train ticket. The checker can select any one of this option to verify and validate the ticket. In this module the checker is provided with an option to search a particular keyword this will help checker to save time if he has to select any specific entry.

VI. PROJECT DESIGN

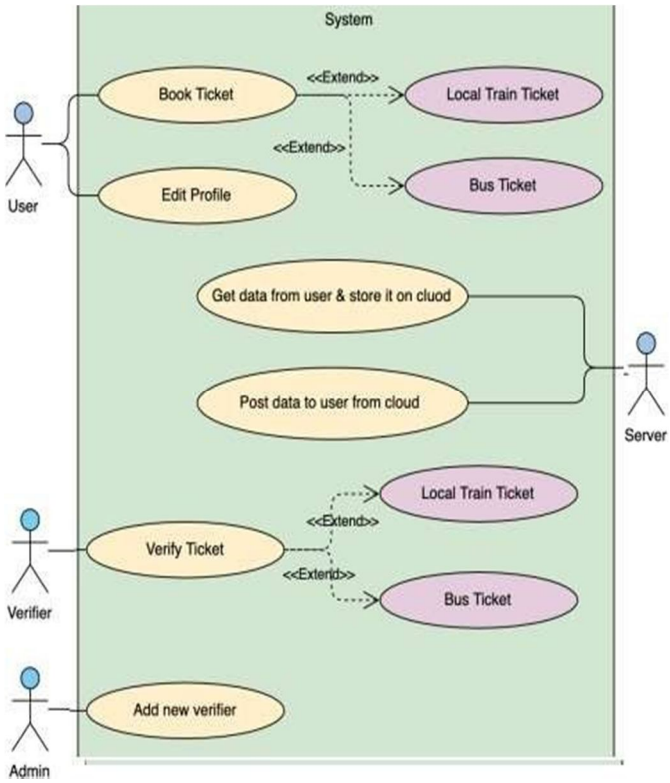


Fig.1. Use Case Diagram

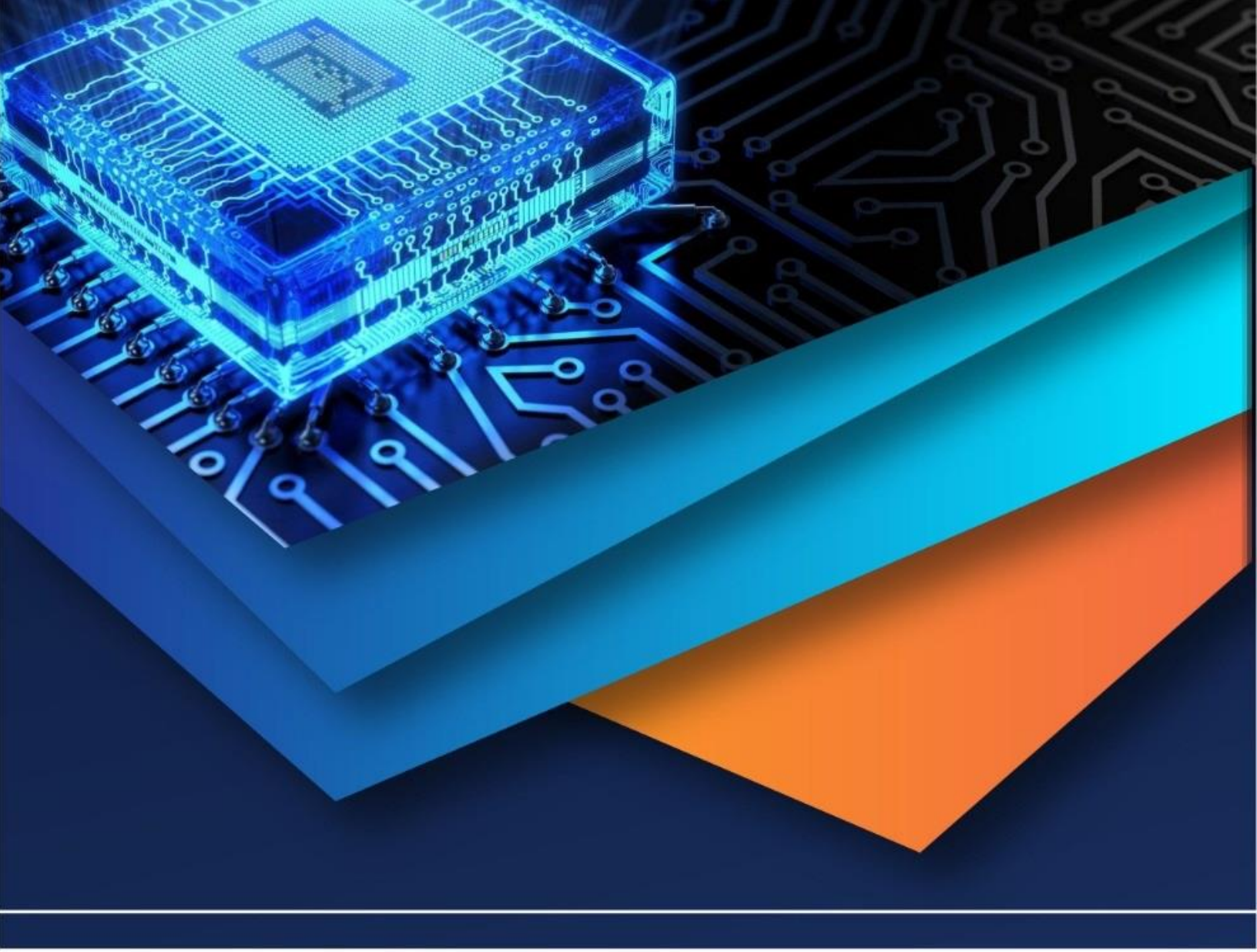
1) *User:* Open web-application in the appropriate browser. Enter desired information to book the ticket.
2) *Admin:* Manipulate and manage the system database by adding new bus stops or train stations, removing stops. Adding new Verifier if required.
3) *Server:* Takes the desired entries from the user. Calculates the fare by checking in the database. Displays the ticket in a valid format. Post the details of user on cloud with its ticket.
4) *Verifier:* Open the web application in the appropriate browser Takes booking id or other relevant information of the user and verifies.

VII. CONCLUSION

There are many issues in existing railways and bus ticket booking system, To deal over this issue, we are working towards a web-based platform. We have identified the loopholes and started our systematic investigation. Our investigation focuses on these major issues and has put forward a desired result for the same. We have introduced an application on how to secure passenger information. With this experimental analysis, there will be an increased usage of public transport systems, as everything can be done independently. There is no need of any dependence on the conductor or ticket collector while entering into the bus or railways for collecting the ticket, all that we need to do is get a digital ticket by using the web application available in the mobile device and verify it by using users Booking Id or other credentials. This would eventually boost the will of the people and people will use the transport very often. We can visualize that M-Ticket system will have an application portfolio with a mix of cloud-based services delivered across a combination of private, hybrid, and public cloud-based infrastructure deployment models. Thus, using cloud computing technology in train and bus system is the most efficient, cost-saving, time-saving and serializable technique for waiting ticket holders.

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