

Android Based Online Bus Booking System

Nikhil Sawant¹, Sankalp Mhatre², Kunal Sardesai³, Navnath Pachpind, Prof. Sujay Pawar⁵

Student, Department of Information Technology^{1,2,3,4}

Assistant Professor, Department of Information Technology⁵

Dr. D. Y. Patil Institute of Technology, Pune, Maharashtra, India

Abstract: *Online Bus Seat Reservation is a system where bus users can reserve their seats using a web-based application. It is made for the ease of access for both the bus trip administrators and the bus users. It maintains all customer details, their bus information which includes their bus route, bus seat, bus trip arrival time, bus trip destination time, and bus fare. To gather data, the researchers use Google Forms since it is not possible for the researchers to gather data physically since there is a pandemic which hinders the researchers from going outside. The application achieved is capable of checking the reservations made by a certain person which includes their personal information and bus seat reservation information. Despite the existence of the application, there is still a need for usage of Email for sending the confirmation email and also for the ticket which can be presented to the person-in-charge of the bus trip on the day of the trip. This study is conducted to see if there is an impact on the bus users if instead of going to the bus companies themselves to reserve a bus seat, they can reserve the bus seats online and also to determine what options do passengers need when it comes to an improved bus reservation system.*

Keywords: OBTRS, Electronic Ticketing, ITC, Reservation, Transportation

I. INTRODUCTION

The prevalent view in various global circles is that man is presently living in an age growth of information gathering, processing and dissemination, popularly called the information age. For this reason, managers and other users of information especially in transport industries are demanding more kinds of information to support management and operations. They must therefore respond to the increasing requirement for information and data management.

Electronic tickets, or e-tickets, gives evidence that their holders have the permission to enter a place of entertainment, use a means of transportation, or have access to some Internet services. The design of this online system will be beneficial to the company because it has not existed before.

Therefore, Imo Transport Company, Owerri, a viable investment owned by the state government whose primary objectives are: to spread comfort and hospitality to passengers away from their home, to make profit, will definitely appreciate a system which can automate its manual operations in the area of bus ticket reservation in order to meet customers increasing demand during peak and off peak seasons. The ultimate expectation is to inspire a feasibility study aimed at providing proper guidance and awareness to any future potential investors, particularly those in the bus industry, to consider utilizing the Imo transport, as a gateway to the fertile soil of unlimited opportunities in the south-east Nigeria.

Currently, staff at the bus ticket counter is using an internal system to sell tickets at the counter and customers who are unable to buy bus ticket online at this moment would have to go to the counter to a buy bus ticket. Sometimes, customers' needs to queue up a long queue to buy bus ticket and ask for information and this brings a lot of inconveniences to customers.

However, Online Bus Ticket Reservation System enables the customer to buy bus ticket, make payment, and ask for information online easily. Furthermore, staff cancel bus ticket using Bus Ticket Reservation System after checking the bus ticket availability for the customer and print the bus ticket to the customer.

II. DESCRIPTION OF THE PROBLEM

2.1 Statement of Problem

Currently, the type of system being used at the counter is an internal system which is manually used in selling the bus tickets. The problems facing the company are that customers have to go to the counter to buy bus ticket or ask for bus schedule, customers will also have to queue up for a long time in order to secure a bus ticket and will also need to pay cash when they buy the bus ticket.



Objectives

The main purpose of this study is to automate the manual procedures of reserving a bus ticket for any journey. This system is said to be an automatic system and customers can select seats by themselves. Specifically, objectives of this project will consist of:

- Providing a web-based bus ticket reservation function where a customer can buy bus ticket through the online system without a need to queue up at the counter to purchase a bus ticket.
- Enabling customers to check the availability and types of busses online. Customer can check the time departure for every ITC bus through the system.
- Easing bus ticket payment by obtaining a bank pin after payments is made to the various designated banks.
- Ability of customers to cancel their reservation.
- Admin user privileges in updating and cancelling payment, route and vehicle records.

III. METHODOLOGY

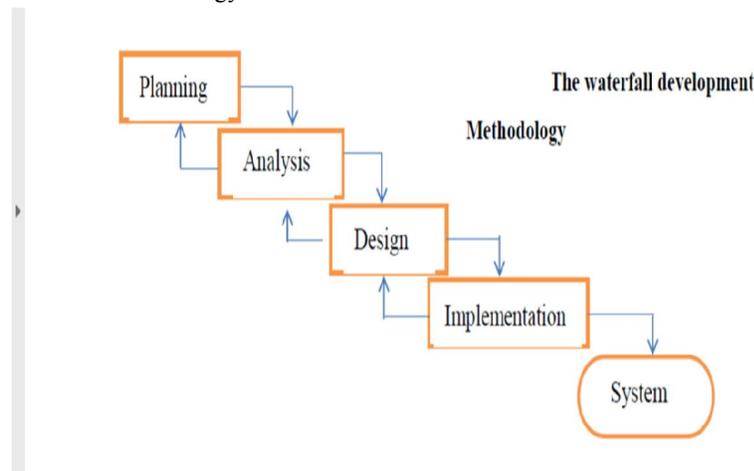
Research Methodology

The system of collecting data for research project is known as research methodology. The data may be collected for either theoretical or practical research for example management research may be strategically conceptualized along with operational planning method and change management. Information which was used for this study was carried out by oral interview.

Choice of Methodology

For any project to be completed, it has to go through stages called Development Life Cycles. System Development Life Cycle (SDLC) is the process of understanding how an Information System (IS) can support business needs, designing the system, building it and delivering it to users. The SDLC composes of four phases: Planning, Analysis, Design and Implementation.

In order for this project to be developed, the methodology that will be used is the System Structured Analysis and Design Methodology. The SSADM is classified as a Waterfall Development. With Waterfall Development, analyst and users proceed sequentially from one phase to the next and each phase can be mapped out and evaluated (Hevner, 2004). Below, is a diagram on the waterfall methodology.



IV. LITERATURE REVIEW

A bus reservation system is not a new concept in use as it has been implemented for different but stations around the globe. However, in most developing countries, bus reservation is basically done manually i.e. the manager picks which bus to include on the traveling queue and the bus is then assigned to passengers. In turn, a passenger goes to a bus station and books for a ticket and is manually issued a ticket which is a slip containing his name, seat number, destination and amount paid. This may be done online or offline.



Data Collection tools: It observed that their system is not sufficient on keeping a passenger registration details. This give the passenger a hard time. if one loses received issued.

Documentation review: All the documents used to record transaction and capturing of information available in this give me views of what kind of data is involved in the current system to enable me borrow from it. Identified in the collection.

Data security: Data stored in database can be accessed by authorised person because of using access database which is weak and it cannot prevent unauthorised people from accessing it. Is lead to information stored in the database being interfered and damage? This system is low because it's used as keeping information manually in the books which can be easily be over it.

Research Gaps

According to Kevin (2012) Web-based Bus Reservation and Ticketing System is a generic web portal application that aids bus customers to reserve a seat in a certain bus company anytime and anywhere and variety of buses that satisfy the customer’s requirements are provided. The project, on the bus company’s side, serves as a marketing strategy and aids an efficient processing and delivery of itinerary receipts. The project used software like Adobe Photoshop CS4 for the creation of the images, Adobe Dreamweaver CS4 and Notepad++ as a development tool, MySQL for the database, Apache as the web server, mpdf for the creation of PDF and PayPal Sandbox for the payment. For the main effects, it used jQuery. However, the softwares adopted in this project, has in recent times been upgraded. Therefore, Adobe Dreamweaver CS6, Adobe Photoshop CS6, MySQL v.5 are going to be used to implement this project.

Online Transport Booking System

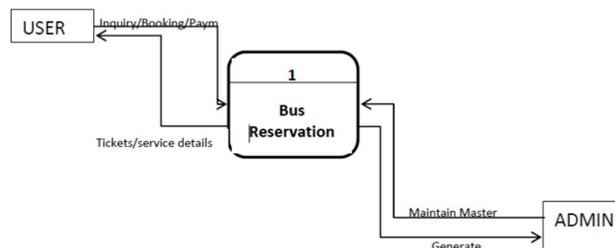
Badariah, (2007) emphasized that the Online Transport Booking System which was developed at Politeknik Kota Kuala Terengganu (PKKT) was to make sure that users could make their online booking or reservations to their desired transport companies with facilities provided by the new system. He pointed out that the methodology and technology being used in this new transport system could be applied to other areas of activities. The user who wants to use the transport must make an application to book the transport before boarding.

Similarly, after considering the type of system which Badariah adopted, this project will be designed with the same aim of presenting the customers of Imo Transport Company with the opportunity of making reservations at the comfort of their homes or offices without being faced with the challenges of queuing at counters before embarking on any journey. This project will also enlighten prospective customers and users of the system on the need to patronize the system as it displays more advantages over the old system by providing an easy to use Graphic User interface (GUI) interaction, checking availability of routes before boarding etc.

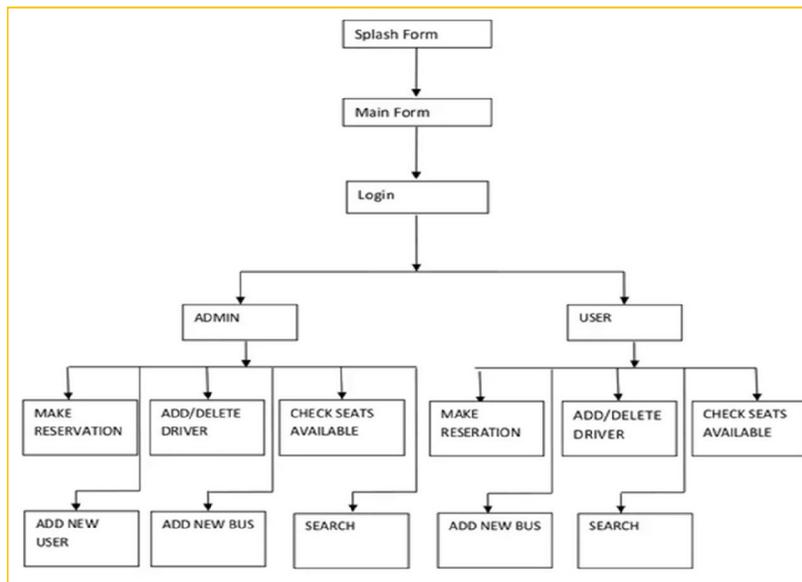
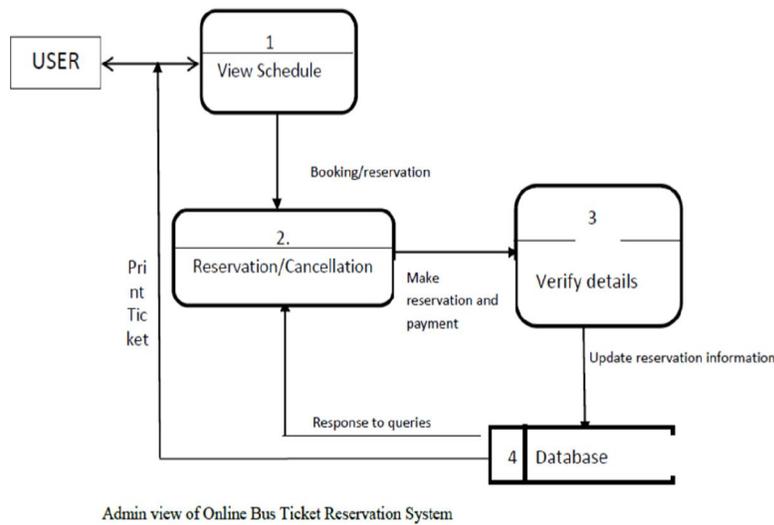
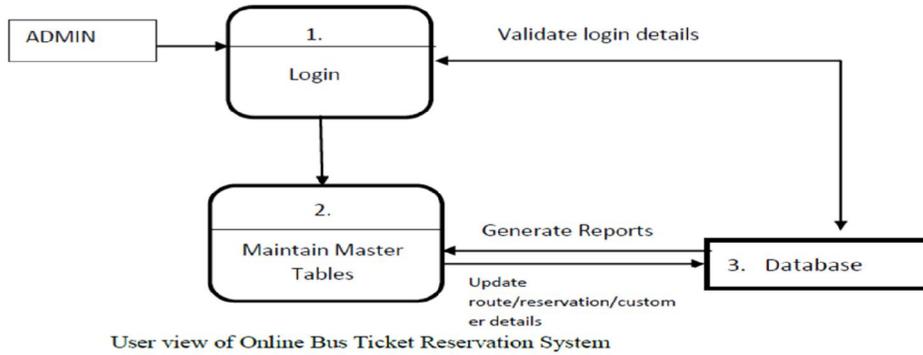
V. SYSTEM DESIGN AND FLOW

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modelling its process aspects. A DFD shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored.

The development of DFD’S is done in several levels. Each process in lower level diagrams can be broken down into a more detailed DFD in the next level. The Top-level diagram is often called context diagram. It consist a single process bit, which plays vital role in studying the current system. The process in the context level diagram is exploded into other process at the first level DFD. Figure shows a data flow diagram about the system.

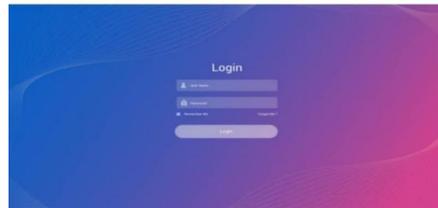


Context View of Online Bus Ticket Reservation System



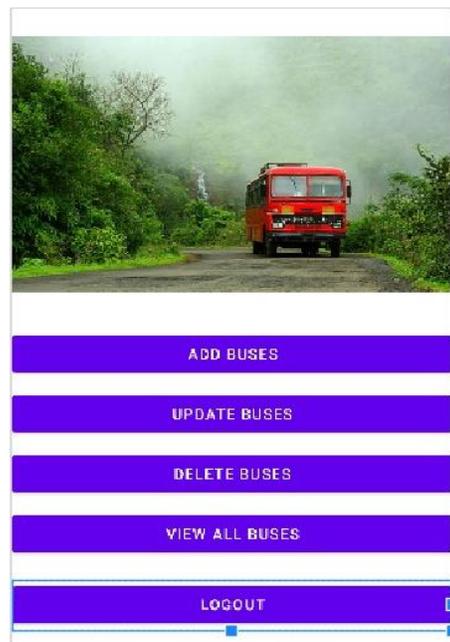
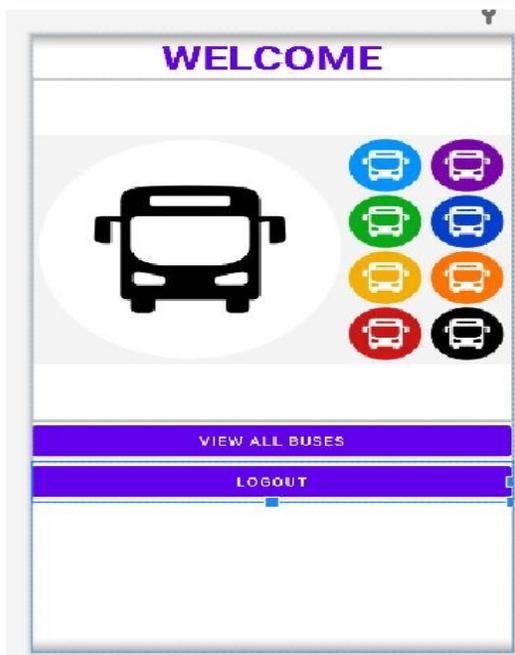
VI. PROJECT IMPLEMENTATION

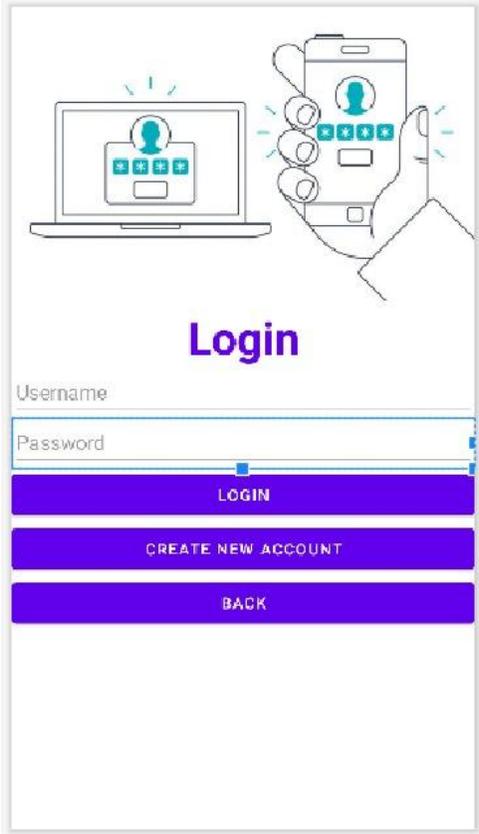
The input design is the link between the information system and the user. It comprises of the developing specification and procedures for data preparation and those steps are necessary to put transaction data into a usable form for processing data entry while an output design is a process that involves designing necessary outputs in the form of reports that should be given to the users according to the requirements. Below are some screenshots which comprises of both input and output designs of the system.



Username

Password





The illustration shows a login interface. At the top, there is a graphic of a laptop and a hand holding a smartphone, both displaying user profile icons and plus signs. Below this graphic, the word "Login" is written in a large, bold, purple font. Underneath, there are two input fields: "Username" and "Password". Below the input fields are three purple buttons with white text: "LOGIN", "CREATE NEW ACCOUNT", and "BACK".

This system will be developed using a waterfall methodology for research and design purposes, PHP as the programming language because of its server-side processing capabilities that makes data process less on the client personal computer, an implementation strategy as well as testing and maintenance strategies suitable for efficient deployment of the system.

Research and development are continuous processes; this is the same in computer and software development. However, this work is recommended for Imo Transport Company Limited, Owerri, since their operation are still carried out manually and it can also be useful to other Bus Transportation industries whose processes are still manually done. The system can contribute more on those bus representatives handling the account if it can generate reports by trip so that they will no longer go to a certain module to check the reservation and its details. Also, it will be more beneficial to both clients and bus representatives if clients can create an account just like in airlines websites. With that, the system can record the modifications made. Other functionalities such as E-Mail facility for sending Ticket to passenger, Online Payment with Credit Card / Debit Card etc. could also be integrated into the system in order to enhance user friendliness and interactions.

VII. ADVANTAGES & DISADVANTAGES

Advantages:

- Open 24/7 for reservation: This is the most important reason why you should book bus tickets online. You can book anytime from anywhere you wish to.
- Commission Free: When you book tickets through a travel agency or a travel agent then you have to pay some additional amount as commission fee but if you book online you get commission free booking.
- Good customer service: You can ask any sort of queries to them and they will answer in the best possible ways. They will also let you know about various bus tickets offers so that you can get discounts on your bus booking. Discount codes online shopping became popular because of this thing. You get lots of discount and coupon codes which help you save money while bus booking.

- Clear and simple process: No hidden catch or charges are there. It is very simple to book online and you get an overview of the entire process.
- Seat of your choice: You can choose a seat of your choice from the sitting arrangement and pay only what you should pay and nothing more.

VIII. CONCLUSION & FUTURE WORK

It can be observed that computer applications are very important in every field of human endeavor. Here all the information about customer that made reservation can be gotten just by clicking a button with this new system, some of the difficulties encountered with the manual system are overcome. It will also reduce the workload of the staff, reduce the time used for making reservation at the bus terminal and also increase efficiency. The application also has the ability to update records in various files automatically thereby relieving the company's staff the stress of working from file security of data.

An online bus reservation system for your mobile application would help in an easy management of reservation, ticket availability and data of the client who are using online bus reservation service. The customized features that a travel management company can add to a bus reservation system includes route scheduling, display the data in regards to availability of the seats, availability of the seat map for the travelers and the option for the travelers to select their seat from the seat map.

With the number of travelers increasing with each passing years, the demand for a well-equipped bus service has increased. Bus travel has gained a very eminent position when it comes to travelling within the country. Bus reservation system has become an important part of the travel technology and travel portal development initiatives. Travel portal development companies are working towards the development of bus reservation system and mobile apps, which are user-friendly for the travelers and a source of revenue generation for the travel management companies.

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