

# Multiple Models based Real Time Bus Facility using Machine Learning

**Vasanta Sanga<sup>1</sup>**

Department of Computer Engineering  
Wagholi, Pune

**Dhanashri Patil<sup>2</sup>**

Department of Computer Engineering  
Wagholi, Pune

**Mayuri Shirke<sup>3</sup>**

Department of Computer Engineering  
Wagholi, Pune

**Priti Navale<sup>4</sup>**

Department of Computer Engineering  
Wagholi, Pune

\*\*\*

**Abstract :** This project aims to provide an effective solution for maintaining and detecting Bus pass, route management, crowd management, license number, bus location and searching the bus information using a ML(Machine Learning). Online Bus pass generation is useful for people who are facing problems with the current manual work of bus pass registration and renewal. Online bus pass Generation system is a web application for people to get Bus passes through online. Online bus pass generation system is helpful as it reduces the paper work, time consumption and makes the process of getting bus pass in simple and faster way. User can refill their account and extend the validity every time when the pass expires. And we also provide searching of bus like, bus name, bus time, bus location, route etc. so people no need to worry about bus info. Also we will use ML for route management so it will predict best possible ways. We provide users to real-time crowd management so that user can see how many people are in the bus and we can suggest users to take other suitable bus. And one of the important things is that by using ML we can detect license number plate of any bus in real-time. The main purpose of this system to help customers in terms of bus pass, smart ticketing, and route management of bus System

**Keywords:** *smart Bus, Digital India, Machine Learning, Android, PHP, Html, CSS, MySQL etc.*

## I- INTRODUCTION

The major population of India travels by buses and trains, for the long motion distance most of the individuals like a train and for shorter and medium motion distance they like bus, even these days because of the attention policies like "save the earth" and "go green" evolutions individuals area unit driven to use the general public transport, however, the main drawback of the general public transport is that the inconvenience to passengers because of the irregular temporal order of buses, the unknown current standing of buses, bus ticket system so the motivation of the project is that the convenience of the individuals within the field of transport. Finding the matter by exploitation by using smart ticket and bus pass system, Seat counter, ticketing theme are our main project plan. One could say such a

system is obtainable however the main. So providing the whole system in a single unit is the main purpose of the project and additionally at a cheap value.

## II -LITERATURE SURVEY

[1] Development of an effective online Bus Pass Generation system proposed a method of online transaction but, it will not work efficiently in this system bus transaction not available.[2] Online Bus Pass Generation system proposed provide authentication using scanning of Aztec code, in this system take basic information of user and perform operations but accuracy and result of system are not efficient. [3] Developing a Smart Bus for Smart City using IOT Technology proposed a method of tracking the detailed information and the live location of bus. This system only focuses on route management most using IR sensor and Arduino, but still system cannot predict correctly. Also In this system verification of ticket is lengthy process. And system is costly as compare others because it is hardware oriented system. [4] Identification of Critical Buses based on between ness Centrality in a Smart Grid proposed E-system that simulates and analyzes the failure of busses in a power transmission system; sometimes it does not provide accurate information about failure of bus. [5] Smart E-Ticketing System for Public Transport Bus proposed to provide E-ticket , where e-ticket generated in phones as an SMS. And because of ticket sending though SMS, it does not provide much security.

## III - BACKGROUND

### 1. Machine Learning:

Machine learning having ability to learn without explicitly program and perform operation in efficient manner, three types of machine learning algorithm perform on various algorithm.

**I- Supervised Learning:** Supervised learning is the machine learning task of learning a function that maps an input to an output based on example input-output pairs. It infers a function from labeled training data consisting of a set of training examples.

**II- Unsupervised Learning:** unsupervised machine learning, uses machine learning algorithms to analyze and cluster unlabeled datasets. These algorithms discover hidden patterns or data groupings without the need for human intervention.

**2. Android:** Android is a mobile operating system developed by Google. It is used by several smartphones and tablets. Developers can create programs for Android using the free Android software developer kit (SDK). Android programs are written in Java and run through a Java virtual machine JVM that is optimized for mobile devices.

**3. PHP:** PHP is a server side scripting language. that is used to develop Static websites or Dynamic websites or Web applications. PHP stands for Hypertext Pre-processor, that earlier stood for Personal Home Pages. PHP scripts can only be interpreted on a server that has PHP installed.

**4. MySQL :** MySQL is a relational database management system based on SQL – Structured Query Language. The application is used for a wide range of purposes, including data warehousing, e-commerce, and logging applications. The most common use for mySQL however, is for the purpose of a web database.

**5. HTML5 :** HTML stands for Hyper Text Markup Language. HTML is the standard markup language for creating Web pages. HTML describes the structure of a Web page. HTML consists of a series of elements. HTML elements tell the browser how to display the content. HTML5 is the latest evolution of the standard that defines HTML.

**6. CSS:** CSS is the language for describing the presentation of Web pages, including colors, layout, and fonts. It allows one to adapt the presentation to different types of devices, such as large screens, small screens, or printers. CSS is independent of HTML and can be used with any XML-based markup language.

#### IV – PROPOSED SYSTEM

In our system we overcome the drawbacks of Bus Pass in effectively by using smart application. In the proposed system user register their details through online and get their unique user-id for further processing. After registration Successful the bus pass will be differ for different types of users in this bus pass, all the required details such as candidate name, address, date of birth, mail id, name of the school, validity period, amount paid and photo copy of the customer are provided. User can easily renew bus pass at the end of every month, if renewal not done by user then automatically pass will expire.

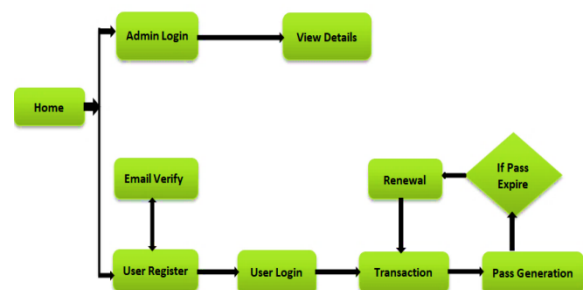
Customer can buy pass over the internet, 24 hours a day throughout the week, and solves the issue of bus pass being misplaced or stolen. Online transaction done by user using credit or debit card, after successful transaction bus pass will send to users email id and also available in users profile, pass also available on user profile online as well as offline.

#### 1. Admin:

Admin controls the overall system of Smart Bus.

#### 2: User

User can manage their account such as Bus Pass, renewal of pass, etc.



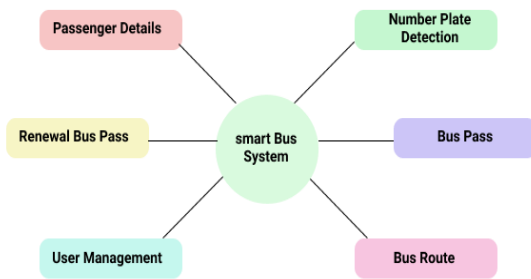
**Figure1: Block Diagram of Bus Pass System**

#### 1. System Implementation:

Our application will then provide the user with a list of buses for their route from that bus-stop. The list will also contain the information about seat availability based on that information the user has to decide the bus he/she wishes to travel with. This change in route will primarily be done to take up the option of a lesser crowded bus. Through this commuters can get live information about the different routes and crowd status in each bus. The destination and fare will remain the same.

Counting the passengers inside the bus can be done by predicting with the help of sensors. These sensors will help to detect the inbound and outbound movement.

Along with the real time tracking and crowd management it also provides details like Bus Number, Bus Route, Stops, Daily Schedule, and Arrival time of the bus at the desired bus stop. The expected time of the bus will be



**Figure: System Architecture of Smart Bus System**

Calculated by using the GPS enabled device which will be with the bus conductor. The facility of chatbots and voicebots is also provided for easy interaction with the system. In this system we also provide ML based license number plate detection of any bus, it is one of the important feature that we will provide.

**V – CONCLUSION**

Multiple model based real time bus System Project is a real time project which is useful for the everyone who Are facing problems with the current manual work of bus pass generation and some other bus related information. Machine learning is used for route management and for predicting best possible route. This system also generates bus pass and can renew it. The database records number of passengers is entered into an exit from bus using Machine learning. Overall this system also provides information about bus details. By using ML we provide different modules wich can help users for better performance.

**VI – BIBLIOGRAPHY**

[1] Parashuram Baraki, Sandhya Kulkarni, Spurthi Kulkarni, Arpita Goggi, Keerthi Priya. (Development of an Effective Online Bus Pass Generation System for Transportation Service in Karnataka State)

[2] N.Nandhini, S.Pavithra, E.Sangavi, K.Aravindhan (online bus pass renewal system using web application) Wee Kimli (Bus ticket reservation system)

[3] Melisa Kaur A/P Narjan Singh (Study and Development of an Online Bus Ticketing System)

[4] Oloyede, M.O., Alaya S.M., Adewole, K. (Development of an Online Bus Ticket Reservation System for a Transportation Service in Nigeria)

[5] Akshay K, Abhishek Chowdhari, Keerthana D, Rajeshwari S (A Survey on online Bus-Pass Generation System using Aztec code)

[6] S. Chandurkar, S. Mugade, S. Sinha, M. Misal and P.Borekar, (Implementation of Real Time Bus Monitoring and Passenger Information System

[7] Macia Mut, M. magda, Payeras-C (2007)-" A survey of electronic ticketing applied to transport" <https://crisesdeim.urv.cat/web/docs/publications/journals/721.pdf> [8] Feng Bao(2004)- "A scheme of digital ticket for personal Trusted device"- <http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=9435> [9] Transport for NSW, Annual report 2016-2017, 2017 [10] Jay Lohokare, Reshul Dani, Sumedh Sontakke, Asst. Prof. Rahul Adhao "Scalable Tracking System for Public Buses Using IoT Technologies" 2017 International Conference on Emerging Trends & Innovation in ICT (ICEI)