

LOCBUS: Travel Automation and Customer Satisfaction

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Abstract— This project is mainly used for Govt bus timings these apps are designed to make public transport easier and more reliable for all. The public transportation is used for everyone in this days if we want to go any places means we use the public transport but we don't know the bus timings that's why we create a app Local Bus (LOCBUS). It will help to find the arrival timings and the distance of the destination we see the local stops while we reaching our destination and etc. using of this app we can able to plan our trip or anything according to the bus timings using of it we can able to reach the bus stand before it. In the context of technology and apps, automation ensures repetitive or complex tasks, such as data collection, notifications, tracking, or decision-making, are handled seamlessly. For instance, in a bus timing app, automation might, predictive algorithms for arrival times, or push notifications about schedule changes. This reduces manual effort, eliminates errors, and provides users with timely and accurate information. Using of the Government bus timing apps have brought public transportation closer to users to make it a user-friendly and efficient system catering to the needs of public community. Technology to provide real-time tracking of buses, eliminating uncertainty about waiting times while allowing for better journey planning. Features such as interactive maps, service alerts, and route change notifications ensure that users stay informed and can plan their travel accordingly. It will mainly use for the village people and the travelling people to know about the bus arrival timings, and it updates timings if the bus gets any trouble or if the timings are changed These apps improve convenience and reliability, thus enabling more people to use public transport and reduce traffic congestion. In that way, they contribute to environmental sustainability and play a vital part in the development of smarter, more connected. Using of this app people can easily plan there travelling.

Keywords: *Environmental Sustainability, Reliability, public transportation, Travel Automation, Convenience, Connected Transportation, User Friendly.*

I. INTRODUCTION

Information on public transit might be seen as crucial for educating prospective passengers about their alternatives. Information is also necessary to help users of public transport anticipate or deal with disturbances during their journey and to advise them before their trips about the options and

timetables accessible to them. After arriving at their last bus stop or train station, users might additionally need information on how to go to their destination, especially if the trip is not part of their typical pattern [1]. This study's objective is to evaluate the accuracy of Delhi's bus transit network's static timetable by utilising real-time data from the Open Transit Data (OTD) platform in Delhi. An algorithm that can transform Specification (GTFS) format must be created to access and manage the data. Additionally, A mechanism that can translate raw bus location data into link trip times, thereby aiding in the identification of problematic links. Researchers may be aware that the data made available by GTFS may deviate systematically from real-world transportation operations as they continue to use it. Users would gain from the GTFS static file's accuracy being continuously improved [2]. The information on websites, applications, notice boards at stations and bus stops, and on board trains and buses is fragmented and sometimes not easy to use. Online modes only operate if the user is already familiar with the desired route, which negates the website or app's purpose. The validity of the material is not indicated on notice boards, which are frequently not bilingual. If a person wants to plan a trip in advance, they are also useless. In summary, before making travel plans, a user would have to gather information from various sources, assess it, and consult them. At the bus stop or station, commuters prefer to ask friends, relatives, or other commuters. This is understandable [3]. The public sector offers residents a wide range of services. An essential part of the e-government plan is the electronic dissemination of information for these services over the Internet. However, merely offering information is insufficient; it is crucial that this distribution meets the needs of those who use government services. Two study periods are summarised in this publication, together with the results of the first phase. It provides specifics on the design and findings of the usability preliminary research (n=71) that was carried out in two large cities, Minneapolis and Los Angeles. In light of phase I results, a more thorough understanding of general satisfaction with these services has [4]. As it relates to transportation, accessibility is the second crucial component of tourism. There are three different forms

of transportation: air, sea, and land. Land ways are further divided into railroads and roads. Roadways provide services for walking, bicycling, scootering, vehicles, coaches, and buses. Bus services fall into three categories: intrastate, interstate, and local services, sometimes referred to as *mofussil* and local services. They link all district headquarters, and they are widely used [5]. A new and creative form of demand-responsive transit systems, the Customised Bus (CB) including the Internet, phone, and smartphone, to offer sophisticated, appealing, and user-oriented services to particular clients, particularly commuters. Due to its superior comfort, convenience, and dependability over traditional bus transportation systems, as well as its efficiency, affordability, and environmental friendliness over private vehicles, CB has grown in popularity in an increasing number of Chinese cities in recent years. Thus, CB is an excellent substitute to lessen traffic in cities, increase traffic safety, and solve issues with energy use and greenhouse gas emissions [6]. The efficiency of public transport routes must be put to the ArcGIS Server map may be used to publish service functions, making it easy to view each bus's current status in real time [7]. Web-based solutions also make it possible for client sides to be readily utilised and organised in this revolutionary scheduling system. Additionally, having access to real-time traffic data may assist create trustworthy vehicle routing plans by estimating journey times more precisely [8]. This study examines the issue of recommending intermodal itineraries in interurban networks, taking into account various public transit options, multiple businesses, time and capacity limits, and seat reservations. Prior to proposing a solution that utilises a network graph transformation, the intrinsic network optimisation modelled for a not being request. In order to solve each request, the user-specific time-space network is pruned, and then the algorithm is integrated into a Web client-server that allows customers to request travel recommendations via the Internet or a mobile device, enabling on-demand real-time itinerary recommendations [9]. Web 2.0 was introduced, data needs were discussed, and a framework for classifying various Web 2.0 application kinds was provided. It went on to provide examples pertaining to transportation and a more thorough explanation of these four types of Web 2.0 apps. It concluded by offering suggestions for businesses thinking about creating Web 2.0 apps, along with three examples of applications that may be utilised to enhance transportation operations and systems. Because Web 2.0 is still evolving and there is much more to say about the concepts discussed in this article, its purpose is to only pique the reader's interest [10].

II. LITERATURE SURVEY

The advent of new technologies that enable us to better understand the demand for passengers on public transport (PT) in real time allows for (ASBS) from the operator's and user's point of view. This study creates a novel approach to figuring out the best PT schedule that incorporates vehicle scheduling, which may involve employing the skip-stop strategy in response to passenger demand in real time. When a skip-stop operation is taken into account, the overall journey time for passengers can be decreased [11]. Different time and space values that can influence one another make up bus timetables. That is to say that are used to generate

planning output. Bus timetables may be created in two ways: by hand, which relies on trial and error, or by computer. Since computer technology has advanced, most transportation authority's now employ it to arrange bus timetables for convenience and scope. In the interim, companies view the which may be accomplished by data mining using a classification technique. The procedure known as data mining is that [12]. In cities, bus transportation is gradually taking over as a mode of transportation. People utilise it extensively, particularly in urban and rural areas. However, nothing in life is flawless, and the same is true of buses: passengers are waiting for the bus for too long without knowing its whereabouts. People are encouraged to utilise their private vehicles as a consequence of this insufficiency, which raises fuel consumption and contributes to air pollution. Thus they are not familiar with every area of the new town. Some of these new locations in the town are hard for them to get to. To improve people's quality of life, the Indian government launched the Smart Cities Mission [13]. ML-based solution-oriented works in bus transportation address a variety of issues, including passenger flow forecasting and journey time prediction. These solutions seek to enhance several facets of transport services, such as the information given to customers on the duration of their journey or the dependability and regularity of the services. [14]. Almost every country has been fighting the Diagnosing COVID-19 and its variants is still difficult because the current methods aren't very efficient. In the past, machine learning methods like as well as deep learning methods like have been used to classify COVID-19. These methods need a lot of computing power and mostly depend on data about the virus's genes. This paper looks at the evaluates how well they perform. The comparison shows that deep learning methods are better at classifying, but they also need data preparation beforehand. The paper also points out areas where more research is needed and suggests future directions for improvement [15]. DeepSkinNet is a new method that uses Convolutional Neural Networks (CNNs) to better identify skin diseases. Skin problems can cause symptoms like rashes, itching, and swelling, and can be caused by lifestyle or genetics. This study looks at how CNNs can improve skin disease diagnosis, especially for diseases like melanoma, where early detection is very important. The research uses advanced CNN techniques, along with data from Kaggle and web scraping, to make skin disease identification more accurate. The data is prepared by normalizing pixels, rotating, flipping, and increasing the variety of images. The CNN model includes layers to extract features and make classifications, using special functions like ReLU and SoftMax. To reduce errors, extra techniques like batch normalization and dropout layers are added [16]. As more people and cars move into cities, it becomes harder to meet important needs like traffic efficiency, safety, service quality, and cleanliness These methods are usually based on separate, limited Intelligent Transportation Systems (ITS). This paper suggests using a different parts. It also describes the main services offered by an app in Guangzhou for urban public transportation, such as real-time bus tracking, taxi information and booking, mobile payments, and traffic updates [17]. In recent years, passenger trip data has been gathered by urban bus operators in enormous quantities. Despite their high potential for optimising bus schedules,

which are created when people get on and off the bus—to determine customer demand and traffic patterns over time. In order to minimise the average waiting time, we develop an optimum when demand and traffic data are available. Experimental findings demonstrate that our approach can significantly minimise waiting times when compared to the current bus scheduling method [18]. Technologies that allow real-time tracking of bus whereabouts from a central site have recently been used by bus transport operators. This study contrasts control tactics that rely primarily on local information As is typically the case in timed transfer systems, we also create techniques to predict [19]. Bus travel times can change a lot due to factors like traffic and the number of passengers, which makes it hard to stick to the scheduled times and affects the quality of the service. To solve this, a system for managing bus dispatch is needed. Initially, a method was proposed to Kalman Filter (K-SVR) and Support Vector Regression (SVR). This method improves accuracy by reducing factors that cause delays between two nearby bus stops, using the time between buses (headway) as a key variable. Additionally, by adjusting the parameters of the Kalman Filter, the predictions are made more practical, reducing the need for frequent adjustments [20].

1. TABLE
BUS TIMINGS :

From	To	Bus Type	Departure Times
VPT	KOIL	U	5.00,5.30,6.00,6.30,7.00,7.30,
MDU	KOIL	R	4.45,5.15,5.45,6.15,7.15,7.45

From above table we create using as an example data that gather information from various bus stand and set Krishnan Koil as centre point of it and it will show as the bus timings. Here, we are demonstrating the village names into code names like VIRUDHUNAGAR– VPT,MADURAI -MDU, KRISHNANKOIL - KOIL.

And also we are using the bus types if ULTRA - U, REGURAL – R.

III. METHODOLOGY

Here mainly do how the data set was built and how it could be done and the how we create an app for it to use for the public.

While doing of this project Local Bus(LOCBUS) we mainly think about the public transportation we know that some major state like Delhi or Chennai have an app was built to help people while knowing about public transport timings and where it was going and what are the timings for the bus stops then we why only have some states then what about villages. Then we think about it to create an app called Local Bus(LOCBUS).

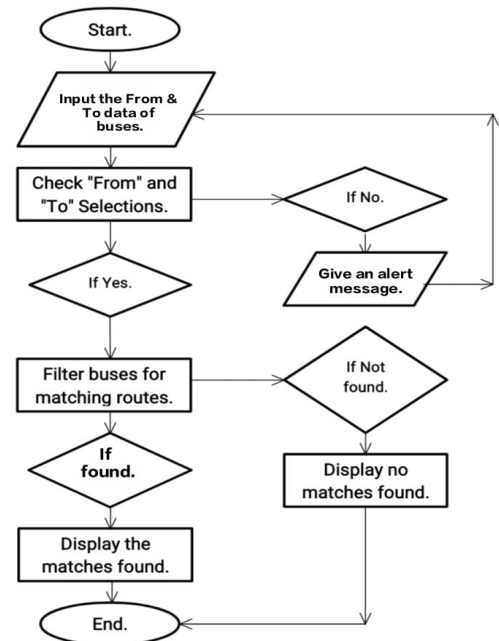


Fig 1: Flow chart

Fig. 1. The above flowchart shows the algorithm of the program, and it simplifies complex workflows, guiding step-by-step understanding and decision-making.



Fig 2 : logo of the app

Fig. 2. It is logo of the app which was design call Local bus (LOCBUS).

First, we built a website and create a dataset about bus timing in all near villages.

Website: To build a website we are using the Html and CSS and JavaScript the Html and CSS can make front end of the website like writing headings, tables and info about the bus timings and using of CSS we design the layout of the heading, colouring and layering, fonts etc.

JavaScript is used for backend of the website to make it interactive like it makes things happen when you click, scroll, type, or interact in other ways.

JavaScript allows you to add features like:

- **Click Buttons:** A pop-up message appears when you click a button.
- **Form Validation:** It checks if a form (e.g., email or password field) is filled correctly before submitting.

- **Slideshows:** Automatically rotate through images, or let users click "Next" and "Previous" And used for animations, slideshows, graphics, expanding menus when clicked.

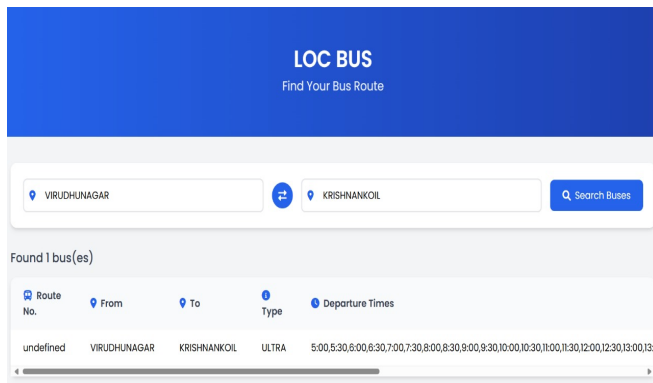


Fig 3: UI of the app

Fig. 3. It is showing us the framework of the output image like inserting button, text and the User Interface (UI) of it.

In short, JavaScript makes websites more than just text and pictures it brings them to life, making them fun, interactive, and useful for visitors. We use JSON (JavaScript Object Notation) because it's a lightweight format that's easy for people to read and write, and also simple for machines to process and generate. It's commonly used to send data between a server and a web application, as well as to store configuration data. By using JSON, we can build a website.

APP: We develop that website into mobile app in Android Version and IOS version using some tools.

- 1) First, we check our website can be a PAW (Progressive Web App).
- 2) Then we add to manifest file it will helps to our website looks like an app.
- 3) Then we wrote a code to upgrade it into an app.
- 4) PWAs only work on HTTPS our site isn't secure, so we get an SSL certificate.

Using of this we can able to downloaded the app using from the website itself we just click downloaded on website and add to the home screen then we going click and enter means we can able to use the app like an ordinary app. It's not an app which directly we can downloaded from app store or play store it's an app which downloaded from website.

Using of the java script we make better the app for using bitterly and also using of it we may change the app mode into offline mode in future it will help full to people who are not getting proper internet in surrounding areas and also using of it will use full to update the user using it will sending notifications to your mobile phone and also Respond to user actions quickly.

IV. ALGORITHM

Homepage:

There are two primary input areas on the home page where the system first launches.

"From": The user enters their beginning point here.

"To": The user enters their destination here.

A "Search Buses" button is also present. After entering the "From" and "To" locations.

- 1) Contains data related to bus routes, such as departure times, stops, and route information.
- 2) The main HTML structure which includes:
 - a) Dropdowns for selecting the source and destination.
 - b) A search button to trigger the bus route search and results container that displays a table of bus timings and routes.
- 3) Fetching bus data from bus_timing_data.json.
 - a) Populating the dropdowns with source and destination options.
 - b) Filtering and displaying bus data based on the selected route.
- 4) CSS file for styling the page elements, such as the table, buttons, and dropdowns.
- 5) Already provided in your snippet. It includes:
 - a) Dropdowns for selecting source and destination.
 - b) A table structure to display search results.
 - c) A script to load the script.js.
- 6) Already provided. It includes:
 - a) Code to fetch the JSON data.
 - b) Functions to filter and display buses based on user selections.
 - c) Functions to populate the dropdowns with available bus stops.
- 7) This file defines styles for the HTML elements, including:
 - a) Button styles for the search action.
 - b) Table styles for displaying bus data.
 - c) Styling for dropdowns and search results.

Using of it we able to create a website called Local bus (LOCBUS) to help people while traveling one place to another place easily and also we turned the website into a app to use to freely and also we built a multiple options in it.

V. PERFORMANCE AND EXPERIMENT RESULTS

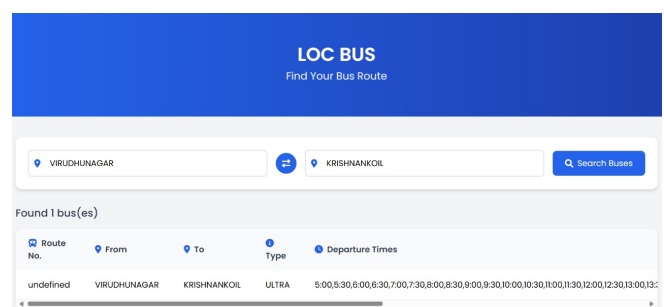


Fig. 4. It is a performance and result of the output program it show the timings of the each and every stop also from which place to which place its travel.

VI. CONCLUSION

Using of the Government bus timing apps have brought public transportation closer to users to make it a user-friendly and efficient system catering to the needs of public community. Also eliminating uncertainty about waiting times while allowing for better journey planning. Features such as interactive maps and route change notifications ensure that users stay informed and can plan their travel accordingly. It will mainly use for the village people and the travelling people to know about the bus arrival timings, and it updates timings if the bus gets any trouble or if the timings are changed. These apps improve convenience and reliability, thus enabling more people to use public transport and reduce traffic congestion. In that way, they contribute to environmental sustainability and play a vital part in the development of smarter more connected by bridging the gap between technology and public transit, Local Bus (LOCBUS) brings public transportation closer to users and fosters a seamless, user-friendly system for all. And It's called Local Bus (LOCBUS).

VII. FUTURE WORK

In Future using of the AI we are update the user interface in the app and using of it we can able to create the routes to the other districts and try to update with the all Tamil Nadu state using of the government bus timings and update the app with more options to visualize the bus route with more accuracy and if possible we create the online booking system in the app for government buses and also we try to complete the app using while in offline also using of it will help village people with internet issues. If possible we can add the live tracking system on it in future work.

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