Research Article

TranspoInfo- A Real-Time Web Application

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Abstract:
We all Familiar with that, In India approx 75% of Public uses Public Transportation Service in their daily life, and majority of public in cities (Delhi, Mumbai) Prefer Buses and Metro-Trains to reach their offices at time. Through this paper we have solved the major problem which the public faces Every day in Delhi, by finding bus stops, perfect location and bus timings. In this paper we have implemented a web application which is a user interface application and can easily work in mobiles and desktops. In our paper we have approached two methods: [1.] Primary Research:- We have Performed a survey in which we did a questionnaire from 15 Delhi residents about what problems they face in the transportation system . [2.] Secondary Research:- Under this research we have gone through many famous web services and app services which are being provided in Delhi, In this case study we solved the major daily life issue which public faces of Delhi in the Transportation System.

Keywords: Public Transportation, Smart Web Application, Bus Routes,Bus Timings, Bus Information

1. Introduction

Plays an important role in public transport. I look at some of the benefits of public transport, the challenges they face in their broad acceptance, and the role that passenger information systems can play in meeting those challenges. For individuals, public transportation provides transportation for those who cannot drive or do not drive, including access to jobs, education and delivery services. In general, consciousness - the power of the people in its community - is a strong indicator of employment, studies show, for example, the direct relationship between ownership and employment. By helping passengers stay isolated on public transportation systems, communities can reduce traffic congestion and its impact on the environment. I have outlined here our efforts to increase the satisfaction of current public transport customers and encourage more people to travel. An important feature of a modern mobile device is that it can install itself. Not only for device usage, but also for remote applications that require device tracking. In addition, tracking posture and communication reproduction should be accelerated when dealing with changing conditions such as delay and changing position accuracy. The accredited system follows guidelines for pedestrians with GPS-enabled devices. I focus on devices that provide real-time information on a variety of mobile devices. Such details are important for new and regular passengers. users can access the information by navigating through the stops list of a specific route. With the full view of the Web, users could see the stop and route information displayed on the map but still had to look for stops by the bus number, route, or bus-stops.

2. Literature Survey

The design of the navigation system was driven by a set of premises that distinguish it from other navigation solutions.

- The Web deployment of the application should be cost Efficient.

- Usage cost of web-application should be efficient. ➢ Application must be user interface and can be easily operable by the customer.

- The application must have a usable memory space.

After deployment our next concern had a major impact in system design: User Comforting. The System should require a little interaction with the user and all interface between user and navigation system should be thoroughly designed so that users are unfamiliar with that technology but feel comfortable and helpful in using it.

A navigation system must be designed in a cost efficient way, Data of bus routes, bus number and bus stops must be analyzed and implemented in an enhanced way so that optimal routes and bus numbers can be provided by the navigation system. network connectivity between buses and applications should be compatible so that bus timings can be perfectly notified to users.

3. Approaches (Methodology)

[1] Primary Research: Under this approach we have done a survey by asking 5 same questions from different Delhi residents and we have received similar answers about what issues they face in the transportation system. In

this approach we have created a google questionnaire. questions we asked on DTC-BUS NUMBERS, bus routes and bus timings. and we received answers in the form of google excel sheet.

[2] Secondary Research: In this approach we gone through famous websites and did a case study on : what services are provided to

Delhi for public transportation and we analyzed after through study that till now there are only official websites which is not updated since 2018, and it is not possible for everyone to open websites every time.

Through our both approaches we analyzed that a web app will be helpful and usable for navigation system and bus routes tracking and which should be user interface.

4. Abbreviations & Acronyms

BN - Number is mention on buses

BUS Info– details of buses

FAQ: Frequently Asked Questions.

Calendar: it is a tool which user enters monthly program **Logon -ID -** To access the system, you'll need a user identification number.

Password - a concept that allows one to gain access to a device **Web-based application** - an software application that runs over the Internet

Firebase - a query language that can be used to query the program

5. Product Functions

The following are the functions of the system:

● **Registration:** IIt is a registration access control system must first register in order to use the service. The system validates information such as his or her date of birth, address, and phone number.

● **Login :** It allows users to login and access web applications to anywhere and anytime.

● **Bus Info**: Details on specific bus information are provided by the system.

● **Administrators:** The one who manages and maintains computer systems and software.

6. User Characteristics

The system will be used in the public areas and bus stops are the main areas of operating. Given all the customers are not tech guys, we make designs simple to use.. The system is also designed to be user-friendly.

7. Functional Requirements

SRS001 Add user

TranspoInfo shall allow adding new users in the system.

SRS002 Login

The user must be a member of the system to access the application. **SRS003 Logout**

The system logs out the user successfully and redirected to the homepage.

SRS004 Sign Up

It is used when you are simply adding your details to some system for future use or access.

SRS005 View User Info

Viewing the user info.

SRS006 View Buses Info

The system shows the buses information in a new page.

SRS007 Update Buses Info

The one who manages and maintains computer systems and software.

DESIGN CONSTRAINTS

SRS008 Database

The system will be using Firebase, which is an Open Source service by Google..

SRS009 Operating System

The Development env shall be Windows 10 / Linux..

SRS010 Web-Based Application

The system will be a Web based app.

NON-FUNCTIONAL REQUIREMENTS

SECURITY

SRS011 User Identification

For User Identification purposes, a user must identify himself through phone number.

SRS012 Login ID

Login Id and Password is necessary for the users to use our application.

SRS013 Improvement

Improvement and Modification in the application can only be done by the admin panel.

SRS014 Administrators' Rights

Admin panel has the authority to update all the information in application.

[**4.3.2] Performance Requirements**

SRS015 Response Time

After checking the client's details, the system should respond in that second.

SRS016 Capacity

At any particular time, the device must be able to manage 1000 people.

SRS017 User-interface

We have a timeout of 10 secs.

[**4.3.3] Maintainability**

SRS018 Backup

The data will be backed up.

SRS019 Errors

The system will be keeping the logs of the errors.

[**4.3.4] Reliability**

SRS020 Availability

We use third party servers like GCP, Azure for the maximum uptime.

SURVEY

In this Paper we have approached a method: Primary Research. After implementing this approach we received our questionnaire’s answers, and to understand our data more visually and clearly we have formed a bar-chart with the help of our data and Analytics.

We have used Python Inbuilt Packages and modules for our visual bar-chart.and Python Packages which we used to form graph from our survey data are:

>> MatplotLib

>> NumPy

>> Pandas

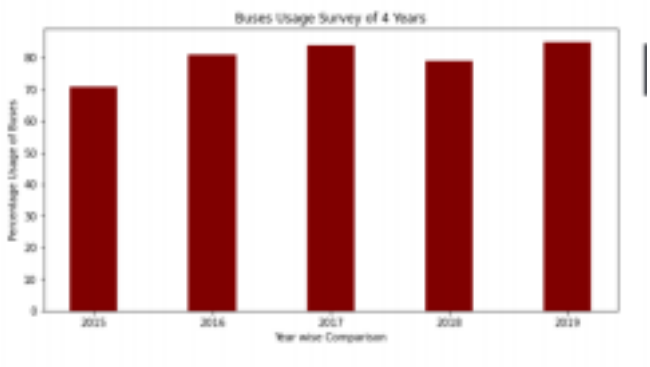

Fig:1 : Survey Graph

8. Conclusion

We Concluded our Paper and from our case study and survey we analyzed the issues that the public has been facing while using the transportation system. In this Paper we have Thoroughly described and analyzed what tools and technologies can be used to solve this problem. In this paper we have described all the architecture and methods that will be used to implement this idea to develop a web application in real life. Our Solution is going to help the public a lot and finding- bus-routes, bus-stops and bus tracking will be easier and time saving. As Technologies are emerging at a high ratio in our daily life, so in future we will merge our solution of bus tracking web application with advanced features and technologies.After Implementation, Passengers can find all the buses information easily, finding the bus stops wouldn't be harder as they follow our optimal path finding navigation system.

9. Future Scope

This Paper is having a wide scope. A web based application which we are using as bus stops and bus routes finder, In future by implementing advance technology for real time detection, and our future goal is to merge our web application with Artificial Intelligence which will help the public in taking fast and accurate decisions. we will use cloud technology and data warehouse technology in the future so that we can expand our application across the country, also our future plan is to add more features and functionality in our web application that will be discussed in our next paper.

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