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E-Mail

editor.ijmece@gmail.com

editor@ijmece.com

www.ijmece.com

Streamlined System for Managing Bus Passes

¹ K. Shivamani, ² M. Pavan Kumar Reddy, ³ M. Nikhil, ⁴ N. Srujungoud, ⁵ Mrs. A. Jayanthi, ⁶ Mrs. G. Suguna,

^{1,2,3,4}, UG Scholar, Dept. of CS, Narsimha Reddy Engineering College, Maisammaguda, Kompally, Secunderabad, India.

⁵ Assistant Professor, Dept. of CSE, Narsimha Reddy Engineering College, Maisammaguda, Kompally, Secunderabad, India.

⁶ Assistant Professor, Dept. of EEE, Narsimha Reddy Engineering College, Maisammaguda, Kompally, Secunderabad, India.

Abstract—

People who use bus services for their regular travels may renew or maintain their passes with the use of a software application that is shown in this article. Eliminating the need to buy tickets every day, the app makes getting and renewing travel cards a breeze. A user may renew a current pass or purchase a new one after logging in and completing the registration process. Users are shown the relevant payment amount after choosing the desired route and pass length. After the payment is processed, you may find the updated pass under the "Current Pass" area. There is no longer any need to physically visit bus stops thanks to this revolutionary web-based architecture that makes it simple to acquire transit pass information online. Students and tourists especially like the platform's transit pass options, which eliminate the hassle of buying individual tickets or waiting in line. The technology streamlines installment transactions by accepting online credit and business card payments. The program integrates several components that work together to provide a transportation pass solution that is both efficient and easy to use. These components include testing, information systems, web servers, computer architecture, bus operators, and public transport services.

Various terms related to public transportation, including: web servers, information systems, testing, cellular networks, bus operators, and computer architecture.

I. INTRODUCTION

Lessening the burden on recipients/travelers and the public authority is the goal of this initiative. In addition, the vehicle division's restoration and enrollment of transport passes requires less paperwork, which means less time spent on that task. The customer must enroll in the approved application design in order to acquire another transit permit, and students using this service must provide the necessary documents, such as proof of address and photos, in order to get it. Following the completion of the engagement, they are coordinated to proceed with the installation mode. You may renew your bus pass without making a monthly trip to the station by following the instructions in this app.

II. LITERATURE SURVEY

A. Existing System

Quite a few practical shortcomings plagued the present transit pass architecture. Not being incorporated was one of its biggest drawbacks. Also, as shown in Figure-1, the interaction was sluggish, which caused the counters to have lengthy lines.



Fig.1. Standing in queues to renew passes at counters

Since the previous transit pass could not be used as a character card, employees were still required to provide an ID verification with the pass, even after having one produced. The suburbanite found this cycle to be somewhat uncomfortable. Figure 2 shows that all riders are required by law to have a valid bus pass on them at all times. There can be a possibility that this pass gets misplaced if the bus is overcrowded.



Fig 2. Current buspass id

Drawbacks of Existing System—

The system is not without its flaws at the moment. These are the following:

- Waiting in Lines at the Bus Pass Counter to Get or Renew Their Pass.
- Time lost because people have to wait in line to buy bus passes.

Documentation for the authorities. Their bus permits need to be renewed, thus they'll need to take time off, etc.

B. Suggested Methodology Students and tourists may use this program to get transit passes online, saving them time and avoiding the hassle of buying tickets for each trip or waiting in line. You should be able to pay online with a credit or business card after selecting the origin, destination, and pass length. The program will produce the pass after the payment is properly processed. Figure 3 shows the online bus pass that was created by this program.

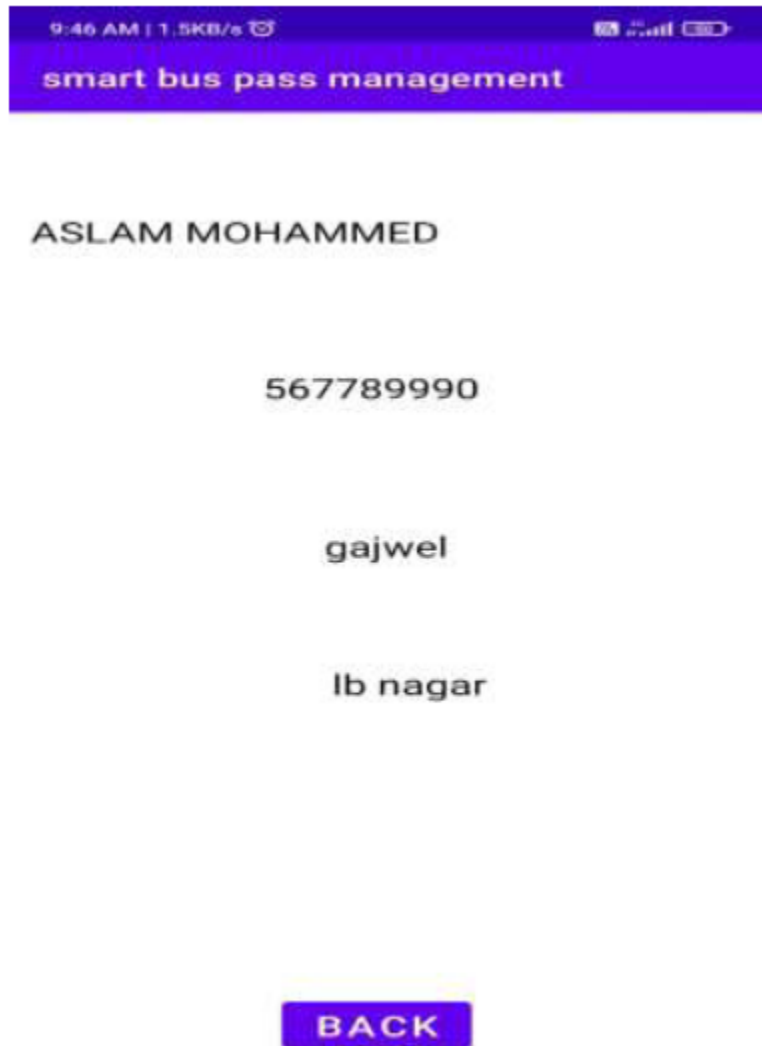


Fig .3. Bus pass generated through android application

III. METHODOLOGY

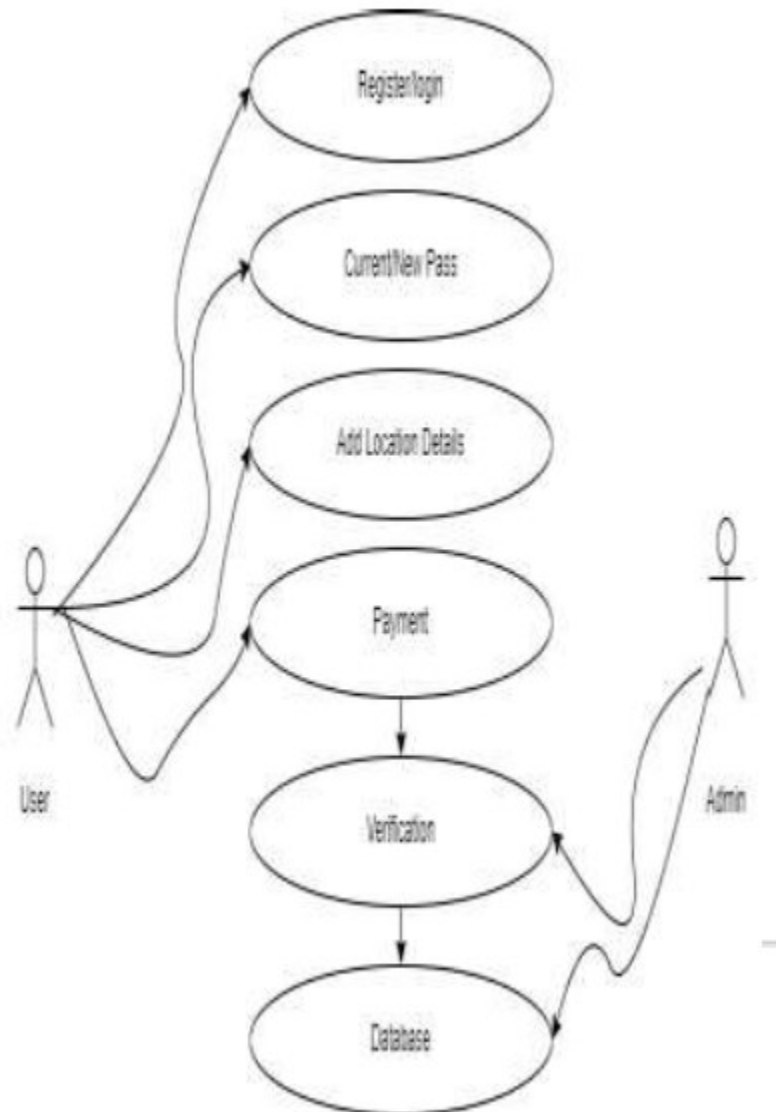


Fig .4. Module design and organization

Figure 4 depicts the application's login screen, which leads users to the next page where they may choose either their existing pass or a new one. When you choose the current pass, it shows you the passenger's name, ID, origin, and destination. After choosing a new pass, a new page will load asking the user to provide their location data, which will show their starting and ending points. After that, the user is sent to the payment page, where they may finish the payment process using a bit card or credit card. Following the successful completion of the purchase, the user will be sent to a website that displays two options: current pass and new pass. To produce their pass, they may simply pick the current pass.

IV. USECASE DIAGRAM

Let's now look at the use case diagram for smart bus pass management system.

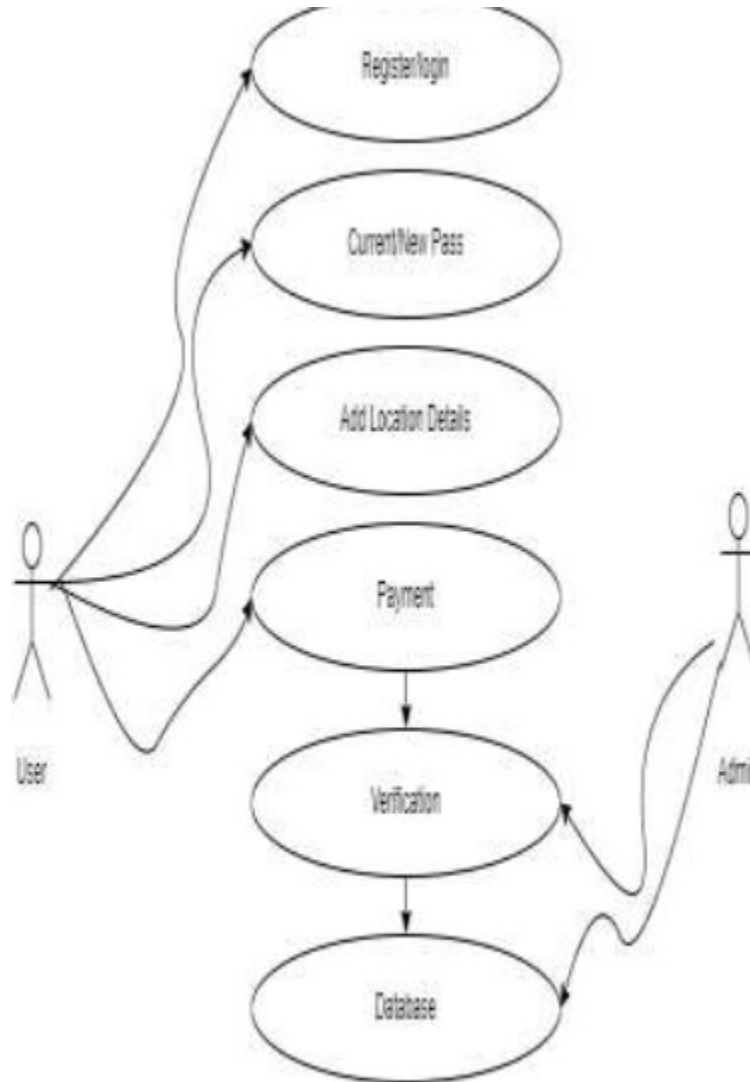


Fig .5. Use Case diagram

V. RESULTS AND PERFORMANCE ANALYSIS

This software is great for both travelers and the government. Benefiting passengers are those who are able to miss out on work, school, or college in order to escape the lengthy wait that is required to renew their pass. This software is designed to be user-friendly and accessible to everyone with a smartphone. The government may benefit from this software as it can cut down on paperwork significantly. Designation selection is the first page that users will see when they open this program. The designation determines the variation in the student pass and employee pass. The software program directs the user to the choice page depending on the designation they've selected. Users may choose between the "Register" and "Login" buttons on the "User Choice" page. A user's credentials may be obtained by clicking the "Register" button if they are new to the system. Anyone already registered may go to the next page by selecting the "Login" option and then entering their login details. The app's main page displays the "New pass," "Current pass," and "Logout" buttons after a successful login. When the user clicks the "New pass" button, they will be sent to a screen where they may submit their basic pass information. After you click the "Payment" button, the website will take you to the payment gateway. A current pass is produced after a successful payment.

A. Analyzing the Results From what we could tell, the outcome was satisfactory. The analysis is predicated on the

user's successfully filed bus pass renewal application. The security may be managed with the use of an admin login. Using this android app, bus riders may renew their passes quickly and simply (as shown in figure 6), relieving the government of a lot of paperwork. People who are experiencing trouble with the present laborious process of registering for and renewing bus passes will find our software, which is both a real-time project and user-friendly, to be very helpful and simple to use.



Fig .6. Comparing Existing and proposed application

B. Challenges

It is not possible to do passenger verification online. They need to visit their schools to verify their identification before they may use this service. A large database and enough of RAM are essential.

VI. CONCLUSION

This online bus pass software solution is great for students and other bus passengers who want to renew their passes online. It does away with the monthly hassle of picking up or renewing bus passes at the counter. It gets rid with the need to renew bus passes and wait in line to get tickets at separate counters. Online payment is accepted for bus passes using Mastercard or Visa. Through the integration with the government database, we want to use this application to manufacture it on a worldwide scale. All throughout the world, people will be using this software.

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[7] Android Application for Issuing Bus Pass Prof. N. V. Chaudhari¹, Komal Malewar², Komal Sukhadeve³, Jayashri Uke⁴, Arti Panpate⁵ Dr. Babasaheb Ambedkar College of Engineering and Research Nagpur, India.

[8] INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH TECHNOLOGY DIGITAL BUS PASS FOR LOCAL BUSES Snehal Banale*, Prajakta Dudhade, Rajshree Pal, Sayali Patil Department of Computer Engineering, APCOER, India¹²³⁴⁵ Prof. Sneha Jagtap, Department of Computer Engineering, APCOER, India⁵