

## A SMART SYSTEM FOR COLLEGE BUS TRANSPORTATION

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**Abstract** –This paper aims at making the present system of bus transportation paperless and more digitalized. The system will make easy of the work due to user friendly and easy to use system. Utilization of this system will increase the productivity. This paper mainly aims to provide an effective facility of bus pass virtually and keep the user updated about transport details on daily basis. Consequently this leads to decrease in the manual work of transport department. Resulting in having more time investment in other productive tasks. The need of this system arose because of the problems faced by users and transport department. the problems faced by users are, to know details of transportation on daily basis, to stand in long queues to collect their respective passes, and to carry it daily without forgetting. The problems faced by transport department are to create, to supply and, to check the bus pass on daily basis. On implementing this system above problems can be solved. Hence this mobile application will help in smooth management of transportation for both user and the transport department.  
*Key Words:* Mobile application, virtual bus pass, manual efforts

proposed, to generate the bus pass virtually which will help the admin as well as students in a better way. In the existing system majority of the work that is being carried out is time consuming. like manual efforts involved in checking of paid users, students or users standing in a long queue for issuing the bus passes, carrying out paper work like printing and laminating the bus pass and enquiring details of transportation on daily basis which is burden on both the admin and the student. To overcome all the problems faced by the existing system, the proposed system is designed. In the proposed system user who wants to opt for transportation has to make the payment in the offline mode. Once after the payment is done, the user has to register by entering his/her details. After the login, by scanning the QR code provided in the bus, virtual bus pass will be generated. After the validity period of user's payment, the user's details stored in the backend will be deleted by admin and the user will lose his access to the virtual bus pass.

### 1. INTRODUCTION

This system is designed to provide timesaving, comfortable and safe services to the students and the administrator. Due to the drawbacks that are present in the existing system, this system is

## 2. LITERATURE SURVEY

Literature survey is conducted by considering the perspective of both student as well as admin by creating the Google forms. By analyzing the responses from the student and admin ,we were able to identify the problems faced by the existing system.

### PROBLEMS FACED BY TRANSPORTATION DEPARTMENT

The responses of survey from the admin of transport Dept. is depicted below in a table.

Sl.no	Problems Faced	Responses
1	Is it difficult to generate bus pass for every individual?	Yes
2	Do you difficult to appoint a person to check bus pass on daily basis?	Yes
3	Is existing system friendly?	No
4	What features do you think should be added?	The generation of virtual bus pass without admin entering entire details of every user.
5	Any other problems you are Facing?	Maintaining details of every user is quite difficult.

**Table 1:** Response of transportation department

### PROBLEMS FACED BY USERS

A google form was created and was circulated it in 40 students. Its response have been shown below.

Sl.no	Problems Faced	Responses
1.	Are you facing problem to know your bus number ?	Yes was a majority response
2.	Do you face problem when checking the bus pass in such a rush?	Yes was a majority response
3.	Do you think there are unpaid users traveling with you.	Yes was a majority response
4.	When you forget your bus pass, what happens?	Most of the times we are said to get down the bus. Or they insult us.

**Table 2:** Response of the users

### 2.1 SURVEY PAPER 1

Title: Digital bus pass for local buses

Author: M. Bani-Hani, Yarub A. Wahsheh, Mohammad B. Al-Sarhan

Abstract:

In this paper, the author has implemented a smart card for digital bus pass system. They have used QR code in card to fetch the information of the user like username, source, destination, DOB, expiry date etc. In our system, the user has to make the payment offline and register by providing basic credentials. Then one can log-in to scan the QR to generate

Digital bus pass.

## 2.2 SURVEY PAPER 2

Title: Exploring ticketing approaches using mobile technologies

Author: Joo Leal, Rui Couto, Pedro Mauricio Costa, Teresa Galvo

Abstract:

the growing interest in integrating public transportation with the smart phone and mobile ticketing provides just that. To do so, different technologies can be used, such as Near Field Communication, Quick Response Codes and Bluetooth Low Energy. This paper explores the possibility of implementing a mobile ticketing solution, with focus on the ticket validation process, using these technologies. They are analyzed and compared at different levels and two possible approaches proposed. Both solutions are presented in terms of infrastructure and maintenance cost, as well as passenger interaction and benefit. The feasibility and performance of the technologies is analyzed and presented in the context of the proposed approaches. As a result, a mobile ticketing solution can be implemented using different technologies.

## 2.3 SURVEY PAPER 3

Title: Android system for identification of objects based on QR code

Author: Dijana Jagodi, Dejan Vujii, Sinia Rani

Abstract:

This paper shows an Android-based system for identification of objects based on reading of QR codes. The system is developed to facilitate

identification of various items that exist in already created inventory. The designed system is composed of a database, Web service for intermediary access to the database via Web, and the client Android application, that can be run on mobile phones or tablet computers. It is shown how this system can be used for cataloguing the computer equipment, but the usage of the system is not limited solely to this.

## 2.4 SURVEY PAPER 4

Title: A Flexible Mobile Ticket for Intelligent Public Transportation

Author: Rafael Martnez-Pelez, Patricia Romero-Navarro, Aaron Garca-Molina, Joel Ruiz

Abstract:

In this paper, the highlights of the wireless technologies and mobile devices are becoming more and more popular around the world; as a result, many mobile services have been created. Among these mobile services, mobile ticket is an emerging technology which can be use for intelligent public transportation. Although many mobile ticket schemes have been proposed, the expiration date and effective time are ignored. In this paper, a flexible and practical mobile ticket scheme where the transport service provider embeds the expiration date in each mobile ticket during the withdrawal phase. The proposed scheme permits that each mobile ticket can be used more than one time if the mobile ticket is valid.

## 3. PROBLEM STATEMENT

To design and develop a mobile application for college

bus transportation which will generate the virtual bus pass and reduce the manual efforts of transportation department and the users.

#### 4. OBJECTIVES

- To develop a virtual bus pass required for transportation.
- To reduce the manual work of transportation department.
- To quickly update transportation details.
- To avoid unpaid users and allow only the paid users.

#### 5. METHODOLOGY

##### BLOCK DIAGRAM FOR USER

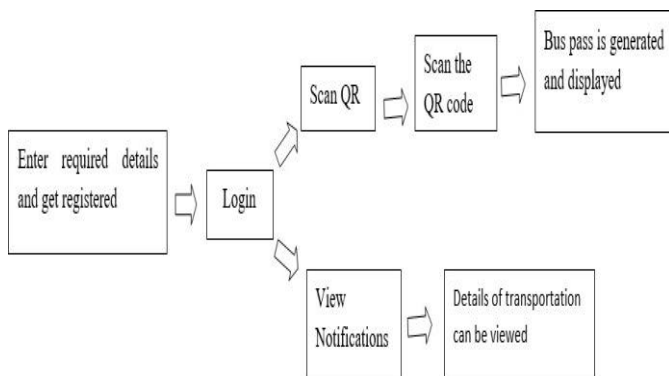


Fig 1: Block diagram for user.

In order to have the transportation facility, the user has to first make the payment offline and get registered through the application by entering all the necessary details. Registration is followed by log in, to access the bus pass virtually. The password and user-id that is set during registration is used as the credentials to login. On the successful log-in of the user, one gets the privileges of scanning the QR code and viewing the transportation details. By scanning the QR code, one can obtain their bus pass virtually which include details of the student like name, USN, receipt no, semester, validity and email id. By

choosing to click on to the transportation details one can get the essential information for the respected bus routes which includes bus number and the concerned driver details like contact number.

##### BLOCK DIAGRAM FOR ADMIN

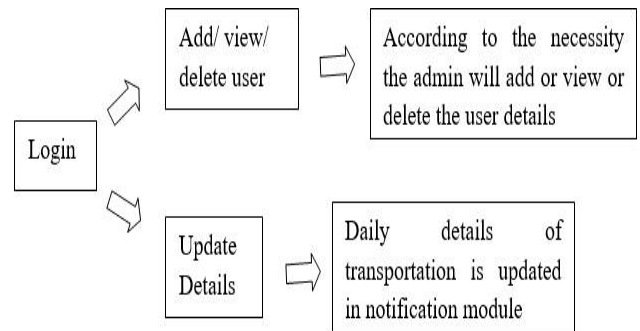


Fig 2: Block diagram for user

Admin is given access to the database present in the backend. In order to verify all these details, the admin has to login through admin login to perform some task which includes adding/ viewing/ deleting the user and updates details of bus on daily basis. Based on the necessity admin adds/ deletes/ views the user record. For instance, when the validity of the pass expires the admin deletes the concerned record. By clicking on to the update details, admin has to enter the updates like bus number and concerned bus driver contact details.

#### 6. ALGORITHM

Algorithm for mobile application of online bus pass

Step 1: Login into the Mobile application

If user account exist and login credentials Matches

Goto step 5.

Else if user account is doesnt

exist

Step 9: Sign out

Goto step 3.

Else

Display "USER IS NOT AUTHORIZED"

Step 2: Register into the mobile application

If Registration details matches with Database authorized user details then

Goto step 4

Else

Display "Check Information correctly"

Step 4: Upload user profile picture into the portal

Step 5: In main page of mobile application click 1 for Scan QR and 2 for Notifications and 3 for Sign-out.

Assign click to choice If choice is equal to 1

Goto step 6

Else

if choice is equal to 2

Goto step 8

Else

Goto step 9

Step 6: If scanned QR code matches with respective user details then

Goto step 7

Else

Display "No match"

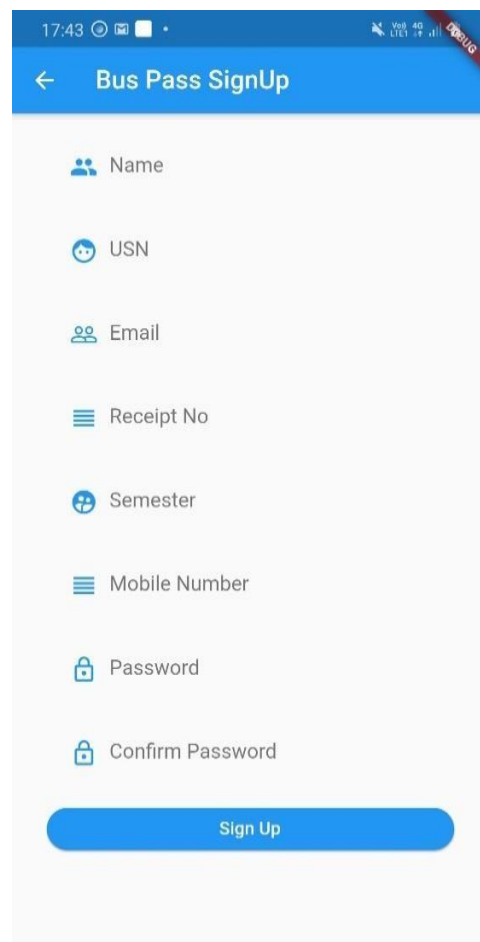
Step 7: Generate digital bus pass with user uploaded picture.

Step 8: Check the notifications for regular updates of transport details.

## 7. RESULT AND DISCUSSION

There are only few researches available on bus transportation which mainly focuses on public transportation problems, like making digital payments, automatic generation of bus tickets, tracking bus, reservation of seats, etc. Where as, our paper discusses about the daily problems faced by college's transportation department and students as well. By implementing this papers system, the difficulties faced by transportation department and students as discussed earlier in the paper can be resolved.

Few snapshots of the system:



**Fig 3:** User registration page

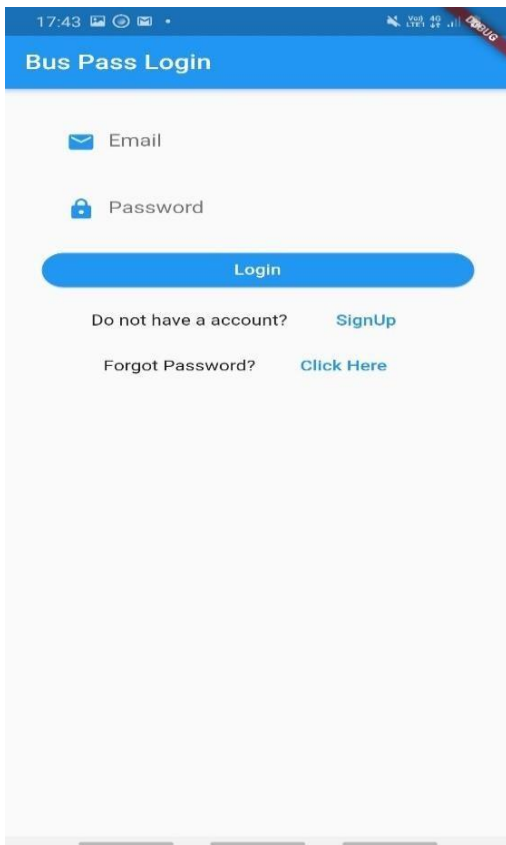


Fig 4: User login page

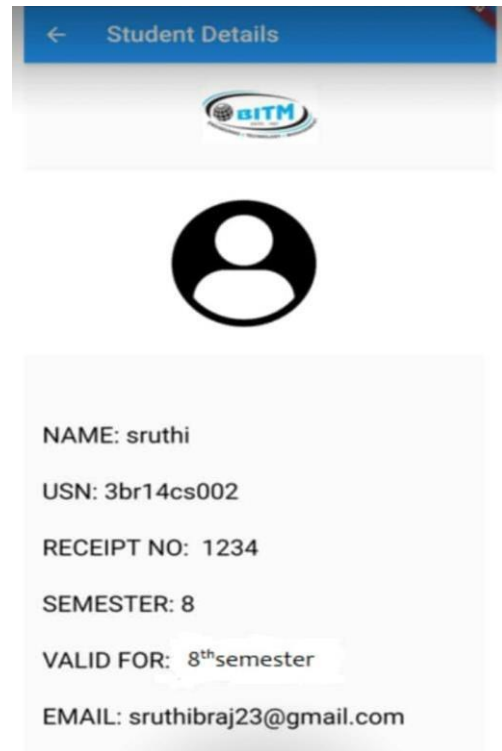


Fig 6: Virtual bus pass generated when given QR code is scanned.

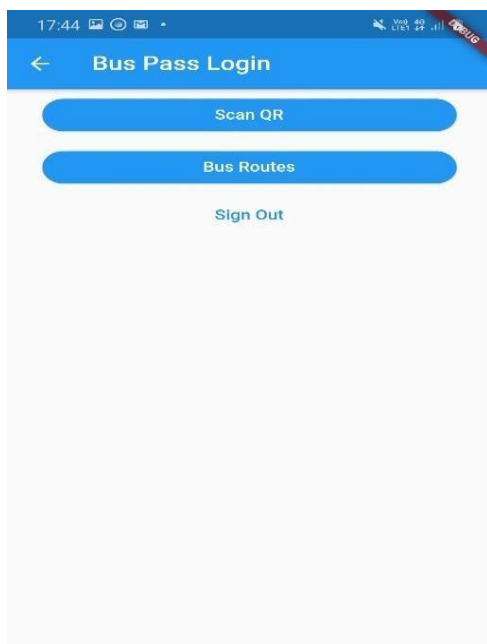


Fig 5: Options available to user after successful login

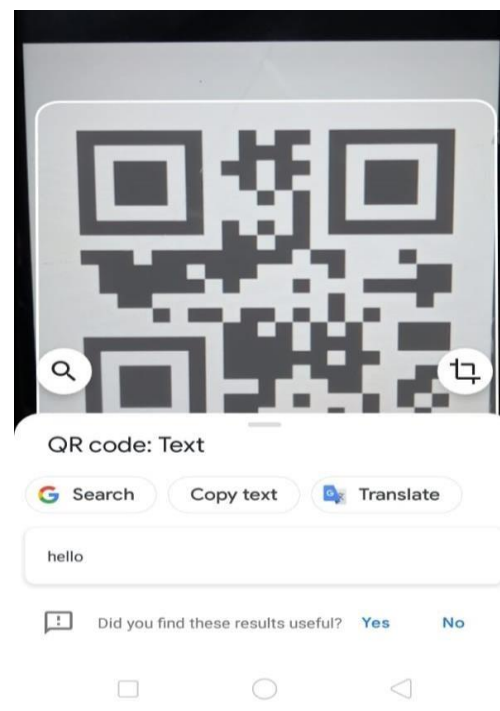


Fig 7: When QR code is scanned with random scanner, instead of application scanner, hello text is displayed



## 8. CONCLUSION

This system will be useful for the transportation department and users who are facing problems with the currently existing manual system of the bus pass issue and renewal. The proposed system would enable the people to register for the bus pass online. This system would also enable the admin to renew the pass online by updating the details online. Moreover, it would eliminate the paper work that is present in the current system. Further, the verification of the validity of the pass would ensure that the fraudulent activities would not be possible by the users, because the device used for verification would connect to the database wherein the information is stored. This would ensure safety and minimize the time wastage and would make life easier and comfortable for the users acquiring the pass.

## 9. REFERENCES

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