

BUS PASS WITH QR CODE

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Abstract

The Bus Pass with QR Code scheme is a database-driven solution for managing bus pass information. People can get their bus passes online by using the web application provided by this scheme. People should obtain their bus passes electronically rather than standing in long queues. This approach reduces documentation, saves time, and allows the customer to access a bus pass quickly and easily. It's designed to be a low-cost way to keep track of bus pass information by using a QR code. The system has two logins: one for the user and one for the administrator. The controller has access to all of the user details across the account. Each user access would have a QR code that includes the user's details as well as the pass's validity.

Keywords: QR code, Sign in, Sign up, Admin, Renewal.

1. INTRODUCTION

Since technology is rapidly evolving, we must constantly refresh ourselves to stay current. The regular bus pass application process is time-consuming and inconvenient. People must wait in a long line at the bus depot to get a bus ticket, which takes time and is stressful for both the Depot staff and the commuters.

The current bus pass scheme has certain disadvantages, such as the fact that the pass must be regenerated any time it is used. This is a tedious method that necessitates reprinting the pass each time. Furthermore, the current system does not have any authentication solutions, and there is no common online bus pass control for college students. This system provides useful software for college students to manage bus passes. An automated bus pass generating system allows users to get their bus passes digitally rather than waiting in long queues. This method removes paperwork, saves time, and simplifies and expedites the process of issuing passes. Users can use the pass for an extended period by simply recharging their digital pass account and extending the validity of the pass every four years. There is no need to print the pass each time. This system executes functions such as accessing simple user authentication information. The scanning of the QR code is given on the recommended smartphone, such as an Android mobile phone, and after scanning, the user is notified when the pass is accessed.

2. RELATED WORK

2.1. QR Code Analysis

The abbreviation QR code stands for 'Quick Response' code. It was created by Japan's Denso Wave Corporation. QR codes are easily readable codes. Since a smartphone has the capability of scanning and decoding a QR code, the use of QR codes has increased. The advancement in technologies in the field of mobile internet access allows online advertisers, newspapers, and magazines to use QR codes for product advertising. These codes have many advantages over standard barcodes, including increased storage space, faster readability, 360-degree reading, small print size, error correction, support for more languages, and resistance to soil and destruction. Because of these advantages, the use of QR codes has spread around the world. This paper aims to illustrate QR codes, their features, how they function, their importance, and their pitfalls.

2.2. A Review on Smart Bus Ticketing System using QR-Code

In general, public transportation bus services are focused on the routine operation of transit buses along a route, calling at agreed-upon bus stops by a published public transport timetable. As a result, people waste time waiting for the bus at bus stops because they are ignorant of bus schedules. Another issue is that the conductor is expected to collect fares, and passengers can run into cash issues. The new scheme is beset by a slew of issues, such as these. To address all of these issues, we developed a new framework based on an Android application that will minimize passenger wait times as well as a variety of other issues. The proposed framework

would have two Android apps, one for travelers and one for bus conductors, as well as a web server for administration. The customer would be able to see the current path of a bus as well as its time and several other choices by using a GPS module. The user may also book a ticket through the application by choosing the source and destination, after which a QR code will be issued. The conductor will check the QR code created on the passenger's app in the Conductor's app, and the amount will be deducted from the user's wallet and the ticket will be sent to the passenger. Passengers may use this to find out where the bus is in real-time. The conductor will determine the count this way. If the bus breaks down, the conductor will notify the server by clicking the failure button.

2.3. Bus Pass and Ticket automation System:

Because of the increasingly aging population, there are huge queues for bus passes. Bus pass automation would be helpful for the government to introduce proper and better pricing for passes, and it would also be useful for people who fail to upgrade their bus passes. Getting a ticket on an MTC bus is also a time-consuming operation these days. In this article, we suggest a service for purchasing bus tickets and bus passes using an Android Smartphone application. This method allows users to book tickets and pay online when on the move by scanning a QR code. The device also includes a digital wallet where the customer can load money in bulk and use it on each bus ride.

3. METHODOLOGY

3.1. Sign-in Module

The sign-in module (Fig.3.1.1) has two parameters: the registration number and the date of birth. The registration number must be identical and consist of seven digits. The date of birth would be the same as the corresponding user's date of birth. When logging in, the user must enter the registration number as the user name and the date of birth as the password. If these two parameters are appropriate, the user can log in and see his or her information. After sign in, the user can generate a QR code for data verification by selecting the QR code option. Besides, there is a payment option available there.

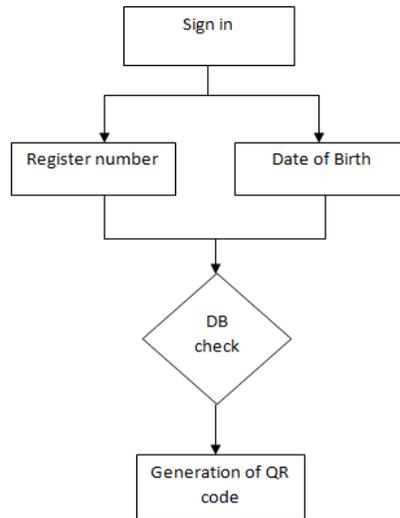


Fig. 3.1.1- Sign in module

3.2. Sign-up Module

The sign-up module (Fig.3.2.1) is where new registrations are made. It includes several criteria such as name, register number, branch, year of study, date of birth, gender, email, destination location, and bus pass validity year. Each of these fields is validated by a set of constraints. The user will sign up for new registration by giving all of that information.

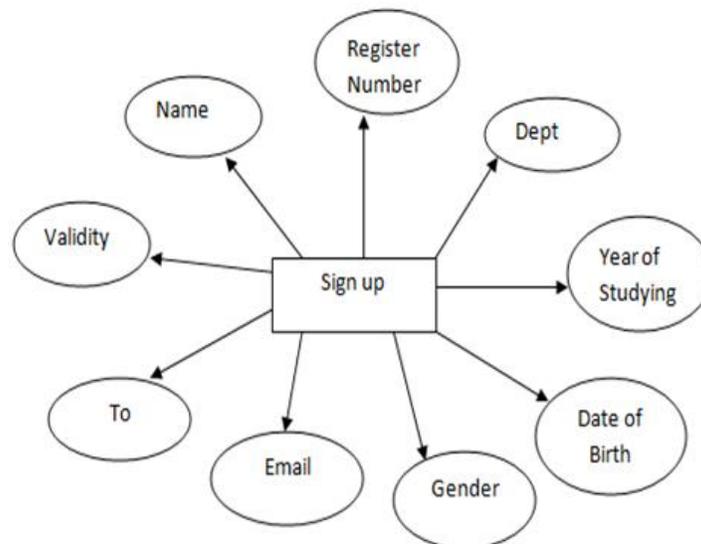


Fig. 3.2.1 - Sign up module

3.3. Admin Module

The administrator side module (Fig.3.3.1) is made up of multiple parts, including display, search, and delete. The display choice displays all of the current signup information. The search option is used to find specific student records, and we can retrieve details from either people who paid the fees or people who did not pay the fees. As a search element, it requests the specific registration number. The database may be queried for the user's information. The delete choice also makes use of the unique registration number to remove a certain student's records.

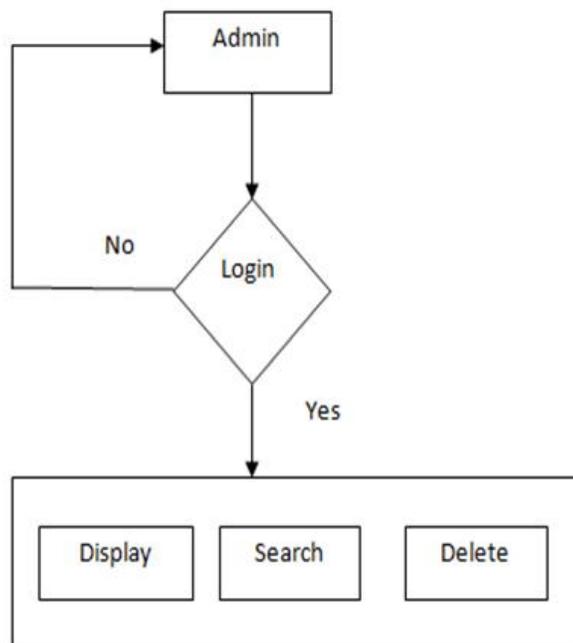


Fig. 3.3.1 - Admin module

3.4. Renewal Module

The renewal module (Fig.3.4.1) allows a student to upgrade their bus pass depending on certain constraints such as the validity of the previous bus pass and the student's academic year. Students may also switch their destination here, and an amount is created depending on their selection.

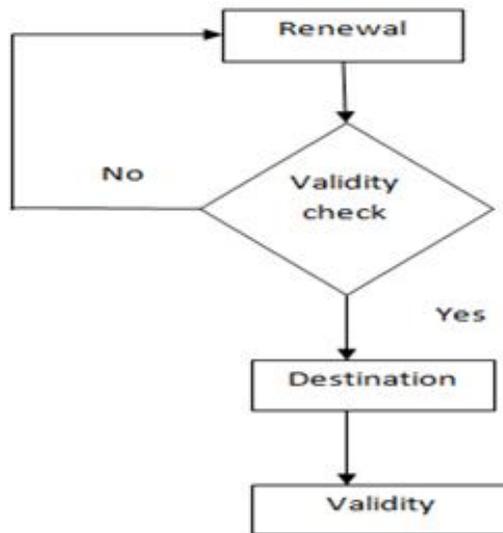


Fig. 3.4.1 - Renewal module

4. RESULT AND DISCUSSION

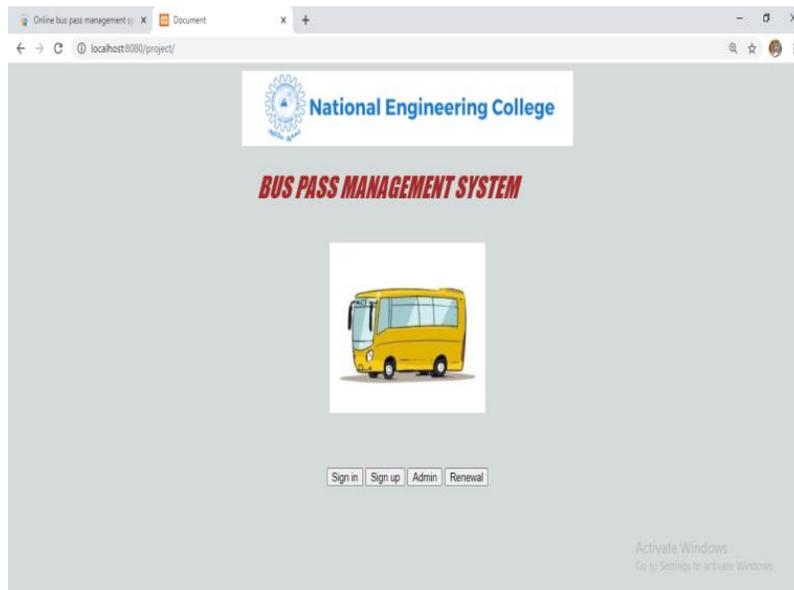
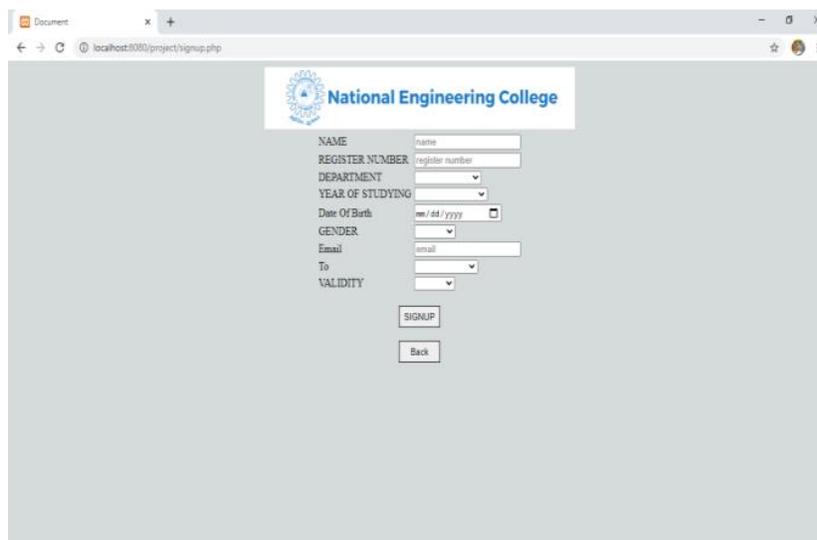
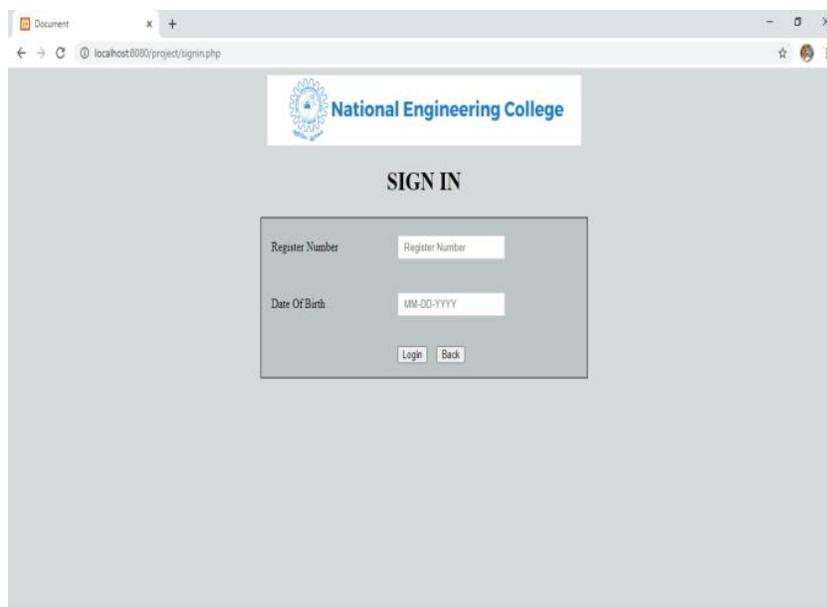


Fig. 4.1 - Home page



The screenshot shows a web browser window with the URL 'localhost:8080/project/signup.php'. The page header includes the 'National Engineering College' logo and name. The main content is a registration form with the following fields: NAME (text input), REGISTER NUMBER (text input), DEPARTMENT (dropdown menu), YEAR OF STUDYING (dropdown menu), Date Of Birth (text input with a calendar icon), GENDER (dropdown menu), Email (text input), To (dropdown menu), and VALIDITY (dropdown menu). Below the form are two buttons: 'SIGNUP' and 'Back'.

Fig. 4.2 - Sign up page



The screenshot shows a web browser window with the URL 'localhost:8080/project/signin.php'. The page header includes the 'National Engineering College' logo and name. The main content is a sign-in form with the title 'SIGN IN' centered above it. The form has two fields: 'Register Number' (text input) and 'Date Of Birth' (text input with a date format 'MM-DD-YYYY'). Below the form are two buttons: 'Login' and 'Back'.

Fig. 4.3 - Sign in page

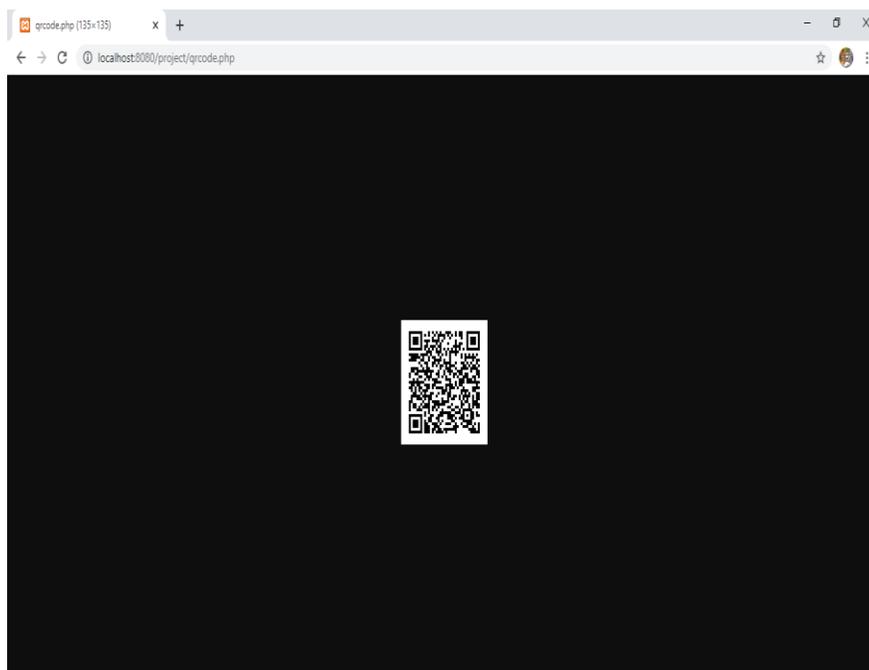


Fig. 4.4 - QR code generation

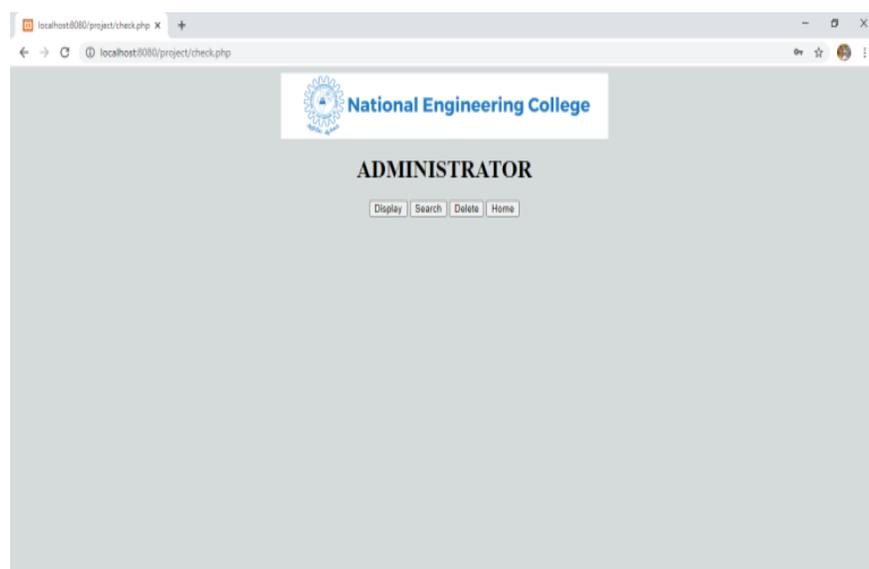


Fig. 4.5 - Admin page

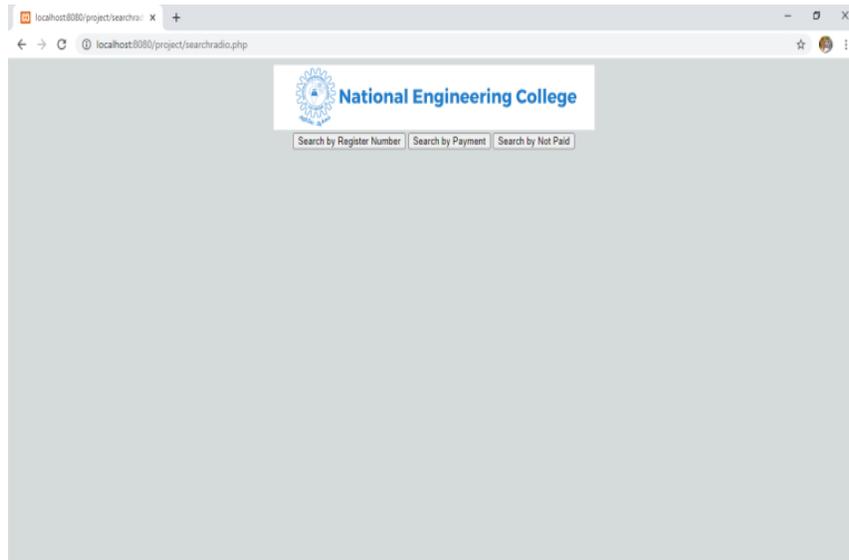


Fig. 4.6 - Admin search page

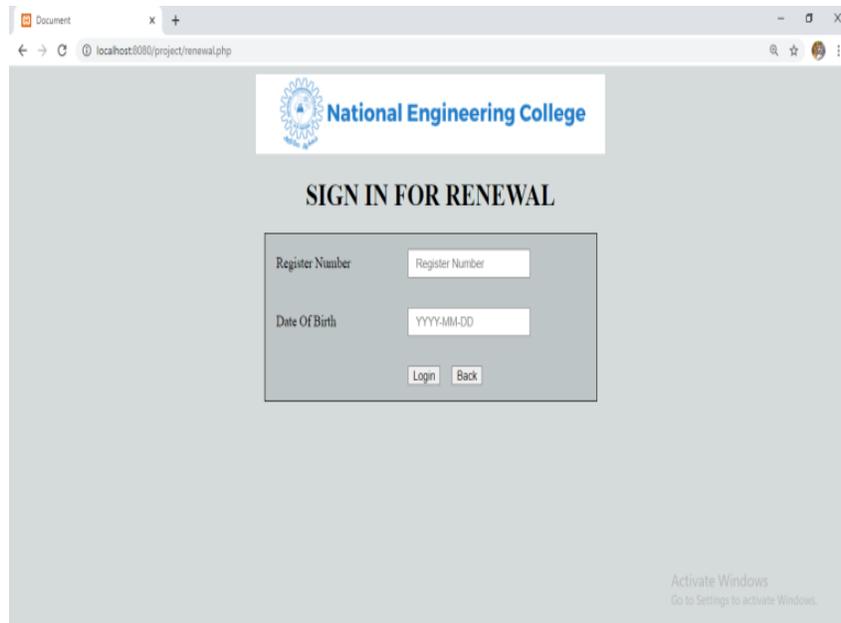


Fig. 4.7 - Renewal sign-in page

By clicking the signup button (Fig.4.1), the new user will sign up for their registration. It includes the following information: name, register number, department, year of study, date of birth, gender, email, to, and the bus pass's validity period. The college provides the student's registration number, which is a unique number, as well as the email id, which is also a unique email id. The college email address is the only

one accepted on the sign-up form. Following the sign-up process, the entered data is modified on the database. On the sign-in tab (Fig. 4.3), the individual registration number is used as a user name, and the date of birth of a student is used as a password. The database entry validates both of the fields. We have a button on the login page that allows you to have the specific QR code that is created with the students' information as shown in (Fig.4.4). To pay the student's bus fees online, use the make payment option. The student must pay bus fares based on their destination. The website is redirected to the home page after successful payment. The display choice presents all of the students who have registered for this scheme. The delete choice is determined by the student's registration number. The administrator can remove the record by entering the registration number. There are three search options available. There will be: search by registration number, search by payment, and search by not paying as shown in (Fig. 4.6). The search by register number choice would include information about a specific student. The search by payment choice would return a list of students who have all paid their bus fees. In contrast, the search by not paying alternative would return a list of students who have not paid their fees. Students will upgrade their bus passes under certain conditions. They must first sign in (Fig. 4.7) using their registration number and date of birth. Students can upgrade their bus pass by validating their academic year and validity. When renewing, students can change their destination, and a payment sum is issued based on their destination.

5. COMPARATIVE ANALYSIS CHART

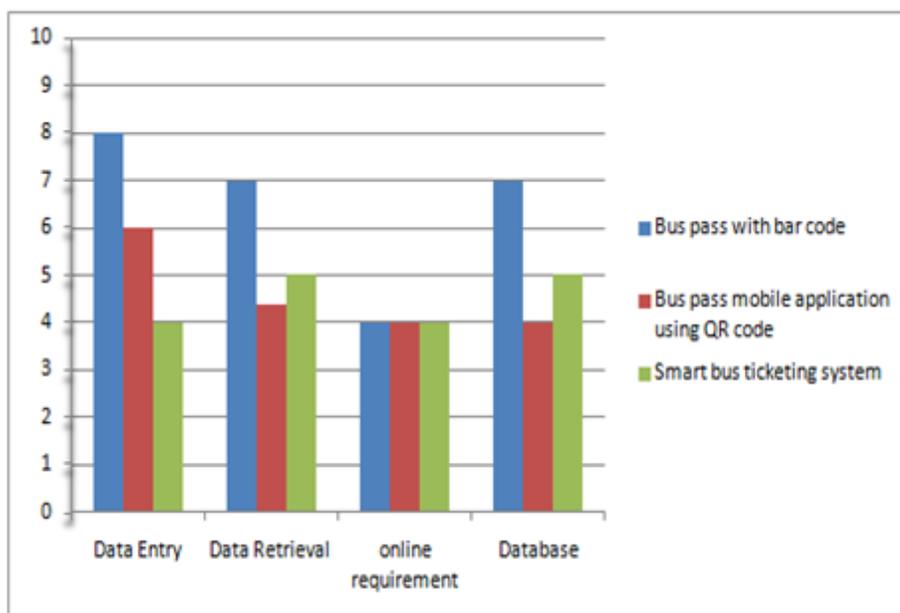


Fig. 5.1 – Comparative chart

6. CONCLUSION

For college students, the new scheme includes a bus pass system. This system allows students to register and track their bus passes remotely. The amount of documentation that must be completed will be minimized. There is no need to wait in long lines to get a bus ticket. The time-consuming method of granting and renewing passes can be simplified. The bus pass is issued on physical slips of paper that are difficult to keep track of.

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