

QR Code Recognition System For College Students

Minor Project Synopsis

BACHELOR OF TECHNOLOGY

(INFORMATION TECHNOLOGY)



SUBMITTED BY:

Himanshu Mahajan (2104587)

Lakshmi Singh (2004949)

Neelam Sharma (2004962)

DEPARTMENT OF INFORMATION TECHNOLOGY

**GURU NANAK DEV ENGINEERING COLLEGE
LUDHIANA**

(An Autonomous College Under UGC ACT)

Contents

1 Introduction	1
2 Objectives	2
3 Feasibility Study	3
4 Methodology/ Planning of work	4
5 Facilities required for proposed work	5
6 References	6

1. Introduction

The project is related to the student entry system in our college, our main focus for this project is to build a website which contains the data set of the current students in the college. Any student can visit the site and can login through his/her credentials and then he /she can download their id card which contains a unique qr code through which the entry of the students can be possible in the college premises. The main goal of this project is to create a safe environment and a proper disciplined place where student can learn more qualitatively.

This can help stopping the outsiders to enter in the college premises which is one of the major issues in our college. This can be achieved by providing students a unique qr codes for each student and qr code scanners are to be installed on the main gate of the college which checks for the authenticity of the qr code and it will then allow the student to pass through the gate.

For this project there will be a website from which a student can download their id cards which contain the unique QR codes. And there will be a admin panel which is for the college authorities which can check for the authenticity of the student and then can permit his/her inside the college.

Technology to be used in the project:-

1. Python
2. React Js
3. Backend Technology
4. HTML
5. CSS
6. JavaScript
7. Qr Code Scanner

Rationale :-

Now a days it can be seen that any outsider can easily enter into our college as there is no proper security management in our college. And this thing disturbs the environment of the college and also many students gets disturbs from their studies. Also the outsiders are not good for the college environment so this can help the college in maintaining a proper decorum of the college. This technology restricts the outsiders to enter in the college and hence the discipline is maintained in the college. Also the outsiders cannot perform any kind of malicious things in our college premises.

2. Objectives

The main objectives of the project is :-

➤ **To purpose a QR Code recognition System to the College : -**

The main objective behind making this project is to build a proper system that can restrict the entry of outsiders in our college also it can be used to recognise the college students easily and can be helpful in maintaining the proper disciplined environment in the college. It can also contribute in the student management system if it will be implemented as per college data set of students. This system can also be converted into a proper library management system for maintaining the student data.

And this objective can be fulfilled by this project as this will only allow the authorized students to pass through the main gate of the campus which will in turn stops the outsiders from entering the college

3. Feasibility Study

During the system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the purposed system is not a burden. For feasibility anlysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are –

Economical feasibility :- This project is economical feasible because this project is almost completely build using the free tools and software, also the website will be hosted on the free platform and after the proper implementation it will be hosted on the college server. The only thing which is to be purchased is a qr code scanner.

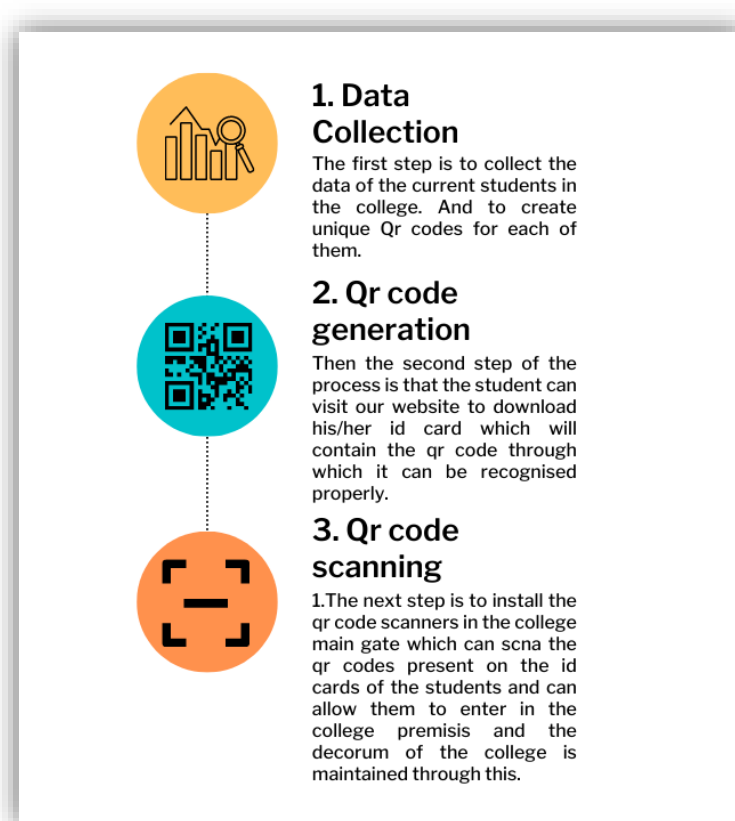
Technical feasibility :- The study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This project is built on small scale so it does not have any high demand on resources, hence it technical feasible.

Operational feasibility :- This project is expected to solve the problem of the outsiders entry in the college premises which is now a days a very major problem of the college. It is also very good thing to maintain a proper decorum of the college.

4. Methodology/ Planning of work

The methodology of this project involves a combination of python with web development which contains the Qr code generation through the python and then the platform using the web development. Both the platforms are built on the web development technology and the backend is maintained through the MySQL and PHP. The methodology would typically involve the following steps :

1. **Data collection** :- The first step is to collect the data of the current students in the college. And to create unique qr codes for each of them.
2. **Qr code generation**:- Then the second step of the process is that the student can visit our website to download his/her id card which will contain the qr code through which it can be recognised properly.
3. **Qr code scanning** :- The next step is to install the qr code scanners in the college main gate which can scan the qr codes present on the id cards of the students and can allow them to enter in the college premises and the decorum of the college is maintained through this.



5. Facilities required for proposed work

Software requirements :-

- **VS Code :-** This is a code editor which is used to write the code in any language and we will use this to write our code for the whole project. It can be used to write the code in the python and also in web development languages.
- **Apache Server :-** The Apache HTTP Server Project is an effort to develop and maintain an open-source HTTP server for modern operating systems including UNIX and Windows. The goal of this project is to provide a secure, efficient and extensible server that provides HTTP services in sync with the current HTTP standards.

Hardware requirements :-

- **CPU** – i3 5th generation or above
- **RAM** – 4 Gb or more
- **Disk Space** – 20Gb or more
- **Operating System** – Any

6. References

- Mahajan, H. (2022) *Generate QR code using qrcode in Python*, *GeeksforGeeks*. GeeksforGeeks. Available at: <https://www.geeksforgeeks.org/generate-qr-code-using-qrcode-in-python/> (Accessed: March 20, 2023).
- Hingu, P. (2020) *Build your own barcode and QRcode scanner using Python*, *Medium*. Towards Data Science. Available at: <https://towardsdatascience.com/build-your-own-barcode-and-qrcode-scanner-using-python-8b46971e719e> (Accessed: March 20, 2023).
- *Qrcode* (2022) *PyPI*. Available at: <https://pypi.org/project/qrcode/> (Accessed: March 20, 2023).
- *Getting started with react - learn web development: MDN* (no date) *Learn web development / MDN*. Available at: https://developer.mozilla.org/en-US/docs/Learn/Tools_and_testing/Client-side_JavaScript_frameworks/React_getting_started (Accessed: March 20, 2023).
- *How to develop a progressive web app using reactjs ?* (2021) *GeeksforGeeks*. GeeksforGeeks. Available at: <https://www.geeksforgeeks.org/how-to-develop-a-progressive-web-app-using-reactjs/> (Accessed: March 20, 2023).