



# STUDENT INFORMATION SYSTEM USING QR CODE

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## Abstract :

The Student Tracking System is an integrated, secure, user-friendly, and fully functional program. With cutting-edge capabilities like posting homework or assignments, reporting test results, checking the posted results, and seeing class schedules, the Student Tracking System was developed to help administrators, faculty, and students. The centralization of data administration and accessibility is the most crucial step. Instructors will find it easier to enter, update, and retrieve student data. Parents and guardians are more aware of their children's academic performance. We use image processing because we can obtain information by scanning QR codes. Using image processing techniques, the data contained in QR codes is normalized, making recording simpler.

**Keywords:** QR, Institute Data Management, Student, Attendance, Marks, Account, Faculty

## I. INTRODUCTION

Masahiro Hara of Denso Wave, a division of the Toyota automobile corporation, created the quick response code, or QR code, in 1994. The International Organization for Standardization (ISO) designated the QR code as a global standard in 2000. The automobile industry was the first to employ 2D codes to track inventory, or car parts, during the delivery process. From that point on, the industries began to acknowledge it gradually. The primary purpose of the QR code was to get around some of the drawbacks of the conventional barcode. When compared to barcodes, two-dimensional barcodes operate far more quickly.

Each and every family member, regardless of age, uses a smart phone. Everybody owns a cell phone in areas like India, from wealthy businessmen to impoverished hut dwellers. Not only do employed individuals use Android phones, but students in universities and colleges do as well. Anything can be the goal. It might be utilized for communication, amusement, or any other objective. In light of this, the QR code began to proliferate in the educational sector.

A Student Information System (SIS) is a vital tool for educational institutions to efficiently manage and organize student data. Utilizing QR codes in an SIS can enhance its functionality and accessibility. QR codes, quick response codes, are two-dimensional barcodes that can store a wealth of information, such as student details, schedules, and more. In this era of digital innovation, incorporating QR codes into your SIS streamlines data retrieval, ensures data accuracy, and offers convenience for students, teachers, and administrators alike. This introduction will explore the benefits of a QR code integrated SIS, its impact on education management, and the myriad possibilities it unlocks for modern educational institutions

QR codes are two-dimensional barcodes that store various types of data, such as text, URLs, and contact information. They can be used in a Student Information System (SIS) for efficient data retrieval and attendance tracking. To implement QR codes, create student IDs, integrate them with SIS, issue student ID cards with QR codes, and use them for attendance tracking and event management. Security and privacy considerations include ensuring access to sensitive information, implementing data encryption, providing user training, and continuously gathering feedback to improve the SIS and QR code integration.

## BACKGROUND

### 1. What are QR Codes?

QR codes (Quick Response codes) are two-dimensional barcodes that can store various types of data, such as text, URLs, contact information, and more. They are easily scannable with smart phones and other QR code readers.

### 2. ADVANTAGES OF USING QR CODES IN A STUDENT INFORMATION SYSTEM:

- **Efficient Data Retrieval:** QR codes can be used to quickly access student information.
- **Attendance Tracking:** QR codes can be used to track student attendance in classes or events. Scanning qr codes can automate attendance recording.

### 3. IMPLEMENTATION STEPS:

- **Generate QR Codes:** Create QR codes for various purposes, such as student IDs, course materials, event registrations, or resource links.
- **Integration with SIS:** Integrate QR code functionality into your SIS. This can be done through software development or by using existing SIS solutions that offer QR code integration.
- **Student ID Cards:** Issue student ID cards with QR codes, which can be scanned for quick access to student profiles and attendance tracking.
- **Attendance Tracking:** Implement a system where instructors can scan QR codes to record student attendance for each class.
- **Event Management:** Use QR codes for event registration and attendance tracking for extracurricular activities and workshops.

### 4. Security and Privacy Considerations:

- Ensure that access to sensitive student information via QR codes is properly secured with appropriate authentication and authorization mechanisms.
- Implement data encryption and other security measures to protect student data when using QR codes for access.

- 5. **User Training:** Educate students, teachers, and parent on how to use QR codes within the SIS and provide clear instructions on the purposes and benefits of QR code usage.

- 6. **Feedback and Improvement:** Continuously gather feedback from users to improve the SIS and the QR code integration. Adapt to changing needs and technologies.

### 7. Objectives:

The purpose of the internet-based student information system is to computerize the traditional way of storing attendance and all data of students and to provide an easier and smarter way to track institutions attendance and information nowadays, based on a unique code for each student known as QR code.

#### The main objectives are:

- To analyze the academic details of the student
- To provide the Placement details of the student
- By implementing this system the process of login becomes effortless for the student.
- To design and develop an app based on android to fulfill the requirements of student.
- The online feedback form is secure to use only the authorized student can access his/her profile.

## 8. Scope

The scope and limitations of student information typically refer to the boundaries and constraints associated with collecting, storing, and using data about students in an educational institution. These considerations are important to ensure that student data is handled responsibly, ethically, and in compliance with relevant laws and regulations. Here's an overview of the scope and limitations of student information:

**Academic Records:** Student information encompasses academic records, including grades, transcripts, attendance, and coursework details.

**Personal Information:** This includes basic personal details such as name, address contact information, date of birth, and emergency contacts.

**Enrollment Information:** Data on a student's enrollment status, program of study, enrollment history are part of student information.

**Financial Information:** Information related to tuition payments, financial scholarships, and billing records may be included.

**Assessment and Testing Data:** Information on standardized test scores, and evaluations may be included.

### Limitations :-

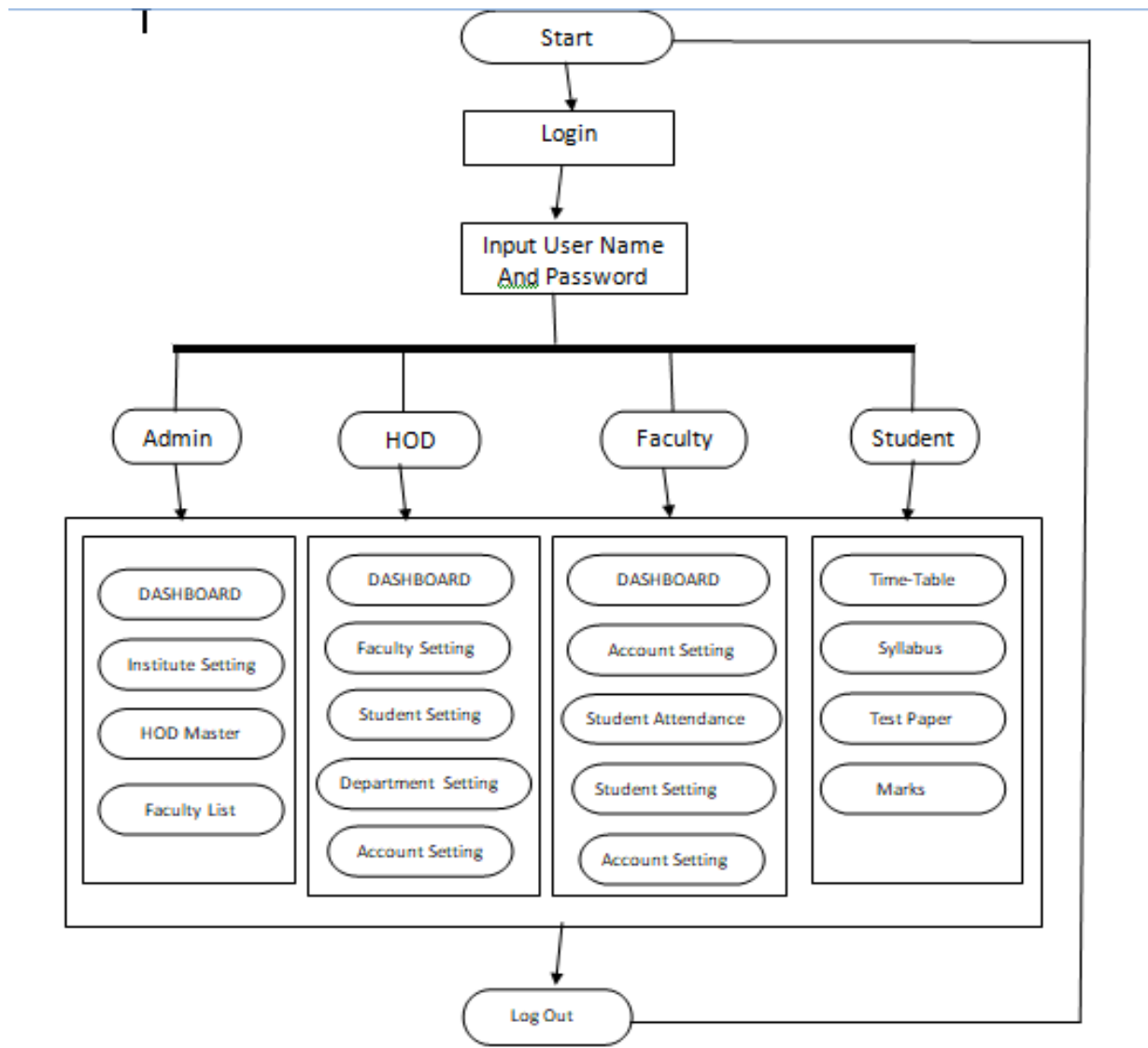
A Student Information System (SIS) that uses QR codes can offer many advantages, but it also has limitations. Here are some limitations of such a system:

- **Dependence on QR Code Scanners:** Users need QR code scanning devices or apps, which may not be readily available to all students, faculty, or staff.
- **Data Security:** QR codes are vulnerable to unauthorized scanning, potentially exposing sensitive student information. Adequate security measures are essential.
- **QR Code Generation:** Managing the creation and distribution of QR codes for each student can be a logistical challenge.
- **Network Connectivity:** Real-time data retrieval and updates might be challenging in areas with poor network connectivity.
- **Device Compatibility:** QR code scanners and apps may not work on all devices and operating systems. Costs: Implementing a QR code-based SIS may require investments in equipment and training.
- **Accessibility:** QR codes can be challenging for individuals with disabilities. It's essential to provide alternative access methods.
- **User Adoption:** Faculty, staff, and students may need time to adapt to a new system, leading to resistance and initial inefficiencies.
- **Updates and Maintenance:** Frequent updates and maintenance are required to ensure the system's smooth

## 9. Research Gap

The literature review articles for this project were studied, and it was discovered that many of them even used hardware, such as technology, sensors, and barcode readers. Few have also deployed application- and web-based systems. MySQL and php myadmin databases. For this, we utilized the same application that is simple to maintain for the staff and student panels, and for the database, we used Google Firebase, which is also simple to construct and alter. In this project, we've done everything we can to prevent impersonation by incorporating authentication, dynamic QR codes that change at particular times

## System Architecture :



**Institute Data Management:** Student Management System (SMS) or Student Information System (SIS) is a software designed to track and manage all the data created by the college such as a teacher's designation, subject, role etc., as well as other school-related data.

**Faculty Login Management:** Faculty login designed to streamline and automate various tasks related to managing faculty members, including scheduling, performance evaluation, communication, and resource allocation.

Faculty Module A web-based program called the Teacher's Module for QR Code-Based Student Management system enables teachers to create QR codes for each of their student to simplify the process of taking student details. The module may be accessed from any device with an internet connection and is made to be simple to use.

**Syllabus management:** In syllabus management there are all notes and study material are available

**Exam Management:** In exam there are all time table of lecture and exam are available.

## Research Methodology

### Agile Methodology

Agile approach favors adaptability and customer involvement and has become quite popular in the last decade, with customers wishing to be involved in their development process. The Agile process involves ‘bursts’ of development with individual deliverables. These bursts are officially referred to as sprints, and each typically lasts just a few weeks. Once each sprint is complete, the Agile process uses feedback from that phase to plan the very next phase. As the name states, this method creates agility in the project and allows for adaptation to new discoveries.



**While Agile development is very flexible, it contains a few core principles to follow :**

**Adaptability:** Agile development highlights the importance of being able to change nearly all aspect of the project, even the goals.

**Involvement:** Design and deliverable units are expected to have changes throughout the project. Agile software development requires close collaboration between the customer and the development team to implement changes and adaptations.

**Lean Development:** The end result of the project should be as simplified as possible. If the same end result can be achieved with just three steps instead of nine, agile development will allow for software to be designed according to the goal of end-user simplicity.

**Teamwork:** Agile values teamwork above all else. Teams will continually assess how they can become more effective and adjust the agile project as they work on sprints. **Time:** Agile development takes a blocked approach to time management during projects, breaking projects into very small units. These are the “sprints” as previously described.

**Sustainability:** Agile development places value on setting a sustainable pace for software development as opposed to a strict deadline.

**Testing:** Agile testing happens continuously throughout the project, and customer input is continually accounted for.

**Modules :****1. Admin:-**

In Admin Login to manage the all type of data such as,

- 1.1 Institute Data Management
- 1.2 Faculty Data Management
- 1.3 Faculty Login Management
- 1.4 Syllabus Management
- 1.5 Test Management
- 1.6 Exam Management
- 1.7 Attendance Management
- 1.8 Finance And Fees Management
- 1.9 Reports
- 1.10 Sports and Other activity Management
- 1.11 Dashboards

**2. Faculty:-**

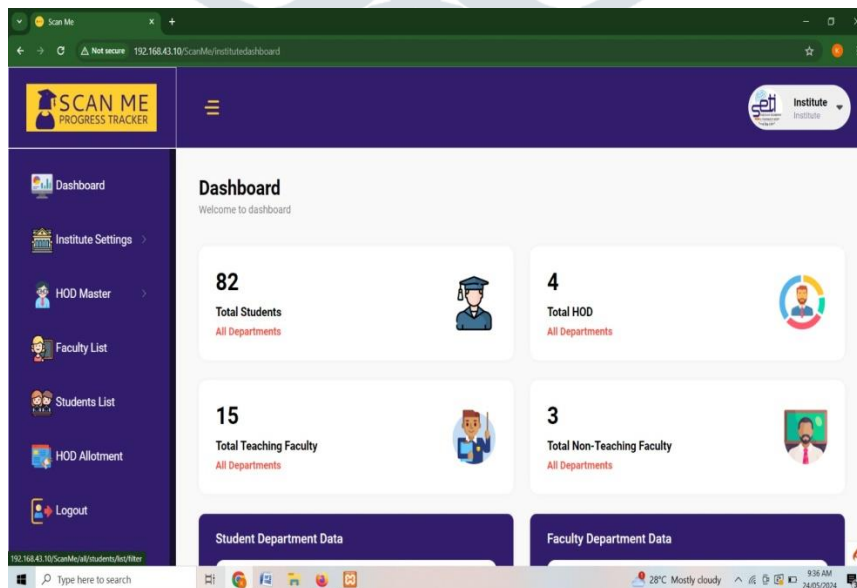
Every department faculties are manage the data like,

- 2.1 Faculty Login Management
- 2.2 Syllabus Management
- 2.3 Test Management
- 2.4 Exam Management
- 2.5 Attendance Management
- 2.6 Finance And Fees Management
- 2.7 Reports
- 2.8 Sports and Other activity Management
- 2.9 Dashboards

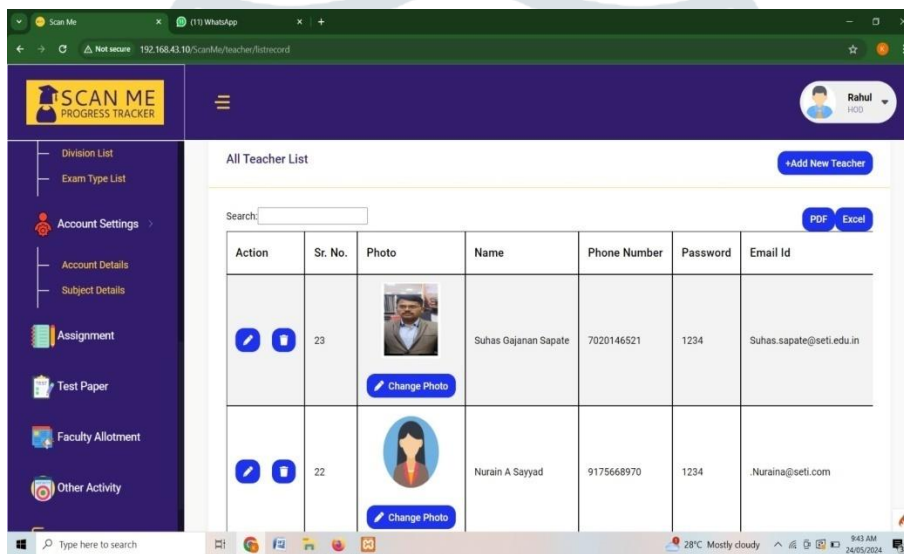
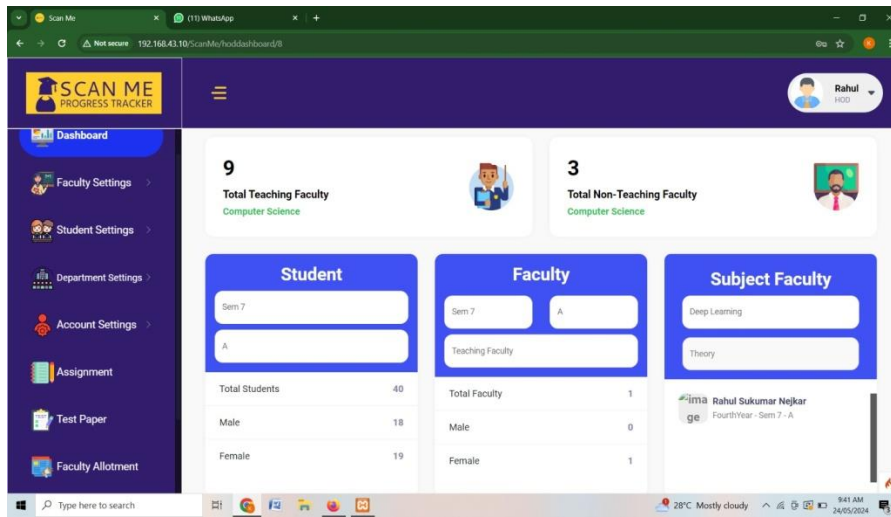
**3. Student:-**

To view the all details as follows,

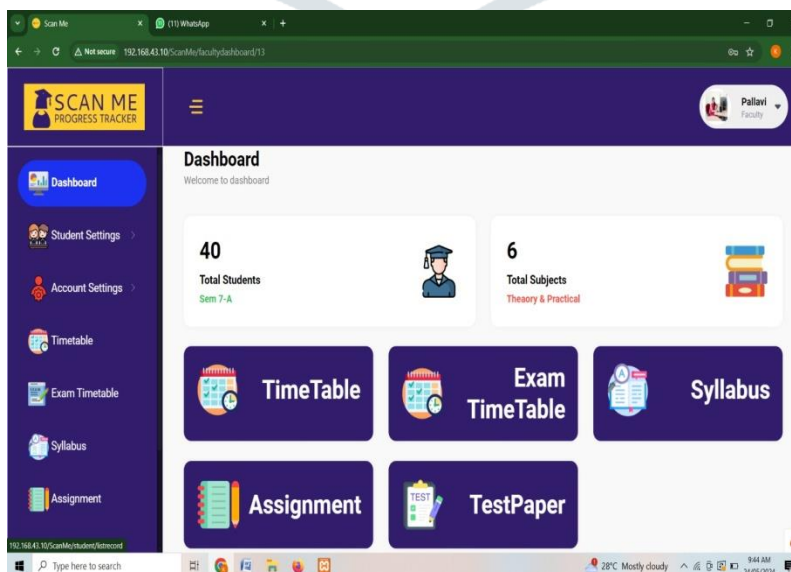
- 3.1 Student Data Management
- 3.2 Test Review Management
- 3.3 Exam Review Management
- 3.4 Attendance Review Management
- 3.5 Finance And Fees Review Management
- 3.6 Reports Review
- 3.7 Sports and Other activity Review Management
- 3.8 Dashboards

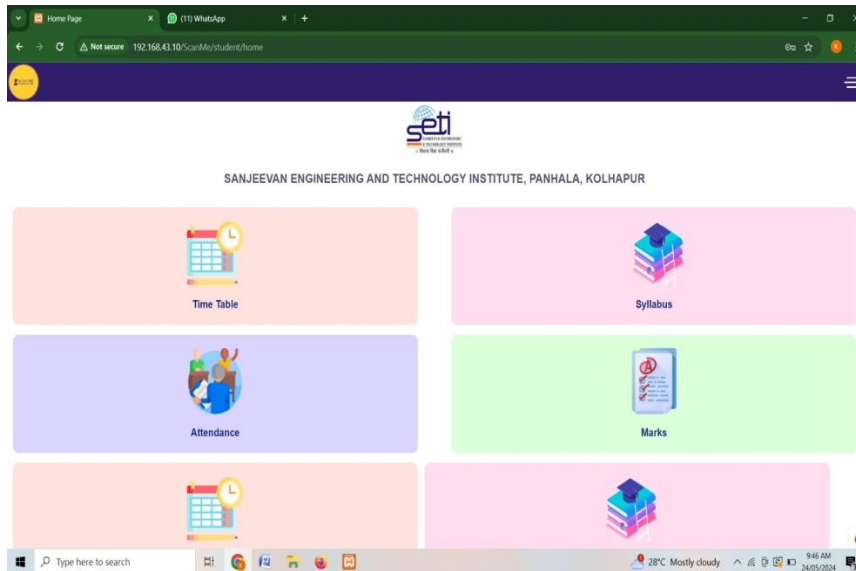
**10. RESULTS AND DISCUSSION****INSTITUTE LOGIN:**

**HOD LOGIN:**



**FACULTY LOGIN:**



**STUDENT LOGIN:****11. ACKNOWLEDGMENT**

It gives us an immense pleasure to present a report on the successful completion of our Project, on “Student Information System Using QR Code”. We express our deep sense of gratitude to our guide **Prof. P. D. Patil** for his valuable guidance rendered in all implemented phases of project. We are thankful for his wholehearted assistance, advice and expert guidance towards making our project success.

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