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UNIVERSITY OF MUMBAI

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A Project Report on
Title of your project
Submitted in partial fulfillment of the degree of
Bachelor of Engineering(Sem-7)
in

Computer Engineering

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Smart Attendance Management System

1. Project Conception and Initiation

1.1 Abstract

- Time is a valuable asset especially for students and some amount of this time is spent in taking attendance especially via the traditional way.
- Traditional way of taking roll call and ensuring that no student other than the present are marked as present.
- This old way needs to be changed and made digital as we are going digital in almost every aspect.
- ‘Smart Attendance Management System’ focuses on the problem of how the process of taking attendance could be simplified.
- The project proposes a system which is based on using a QR code. QR stands for ‘Quick Response’ they can be read quickly by cell phone.

1.2 Objectives

- The Smart Attendance Management System uses a QR code, which will be displayed by the teacher in the lecture
- The system uses location tracking to confirm that the students are present in the vicinity where the QR is displayed i.e., classroom and that students away from the classroom will not be considered for marking the attendance.
- For this attendance system we have created an android application and a website. Students are required to login to the application and go through the authentication procedure and scan the QR which will be displayed by the professor using the website.
- Teachers can also review their attendance report using the website.

1.3 Literature Review

- The first paper we have studied, named as “Smart Attendance System using QR Code” (Asri Nuhi, Florinda Imeri, Agon Memeti and Betim Cico, 2020).
- The lecture is registered once the processor reads the QR code and the students are required to scan the code using their mobile displayed on the device at the end of the lecture.
- The second paper named as “Enhancement of QR code Student’s Attendance Management System using GPS” (Hussam Elbehier, 2019)
- It makes use of two applications: One application is a Desktop application which is used for storing attendance of students and the other application is a mobile application.
- This paper also makes use of GPS (Global Positioning System) to avoid false registrations. The desktop application is used by the teacher to generate and display the QR code

1.4 Problem Definition

- Time taken by the instructors to take attendance may sometimes be viewed as a waste of the lecture time, especially when classes are big.
- We have proposed a way to automate this process using the students' devices rather than the instructor's device. In other words, the instructor need not do anything extra during the class beyond presenting the slides of the subject to be taught to the students.
- Even though similar platforms are already developed, we believe that the proposed platform will be more attractive for several reasons:
 - It has a great
 - advantage, among all types of code scanning technology; the QR Code
 - attendance system is the most accurate and efficient method of maintaining the attendance in a database and controlling it from any intelligent device
 - rather than wasting paper.
 - Since it is online, there is no need to keep a track of attendance sheets which may get misplaced.

1.5 Scope

- The Smart Attendance Management System will be use in Schools and Colleges.
- Currently, manual track of attendance of the students has to be kept. However, with the help of the proposed system, the time and paperwork will be reduced.
- This saved time will instead be used for teaching the students.

1.6 Technology stack

Frontend

- HTML
- CSS
- Bootstrap
- JavaScript

Backend

- MySQL
- PHP
- Java

1.7 Benefits for environment & Society

- As, humans are prone to errors, automated attendance management systems ensure accurate time records and minimize the errors with manual data entry
- With all reports and tools available in digital form, there is no need to print the attendance registers and make copies of the reports to be stored at different offices. This saves paper wastage and requires less storage space
- An integrated attendance management system can provide good visibility of all data, wherein the chances of attendance records getting misplaced is almost negligible.
- Because of the digital nature of the data being stored and retrieved the attendance reports can be generated instantly by the administrators of the system

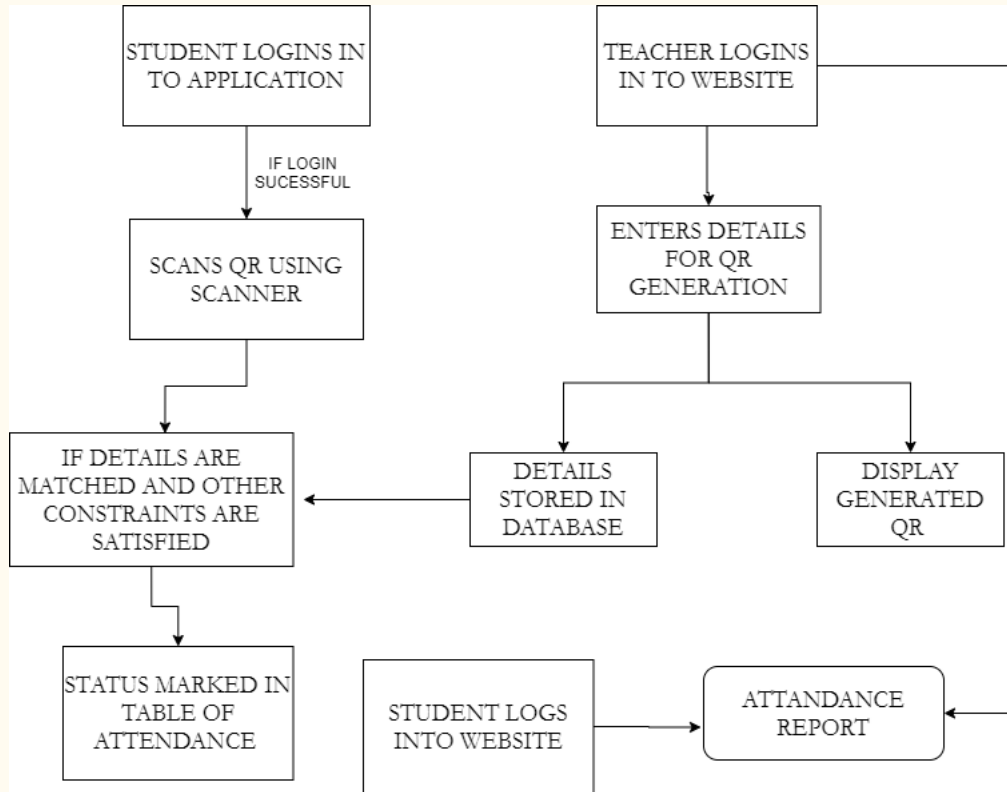
2. Project Design

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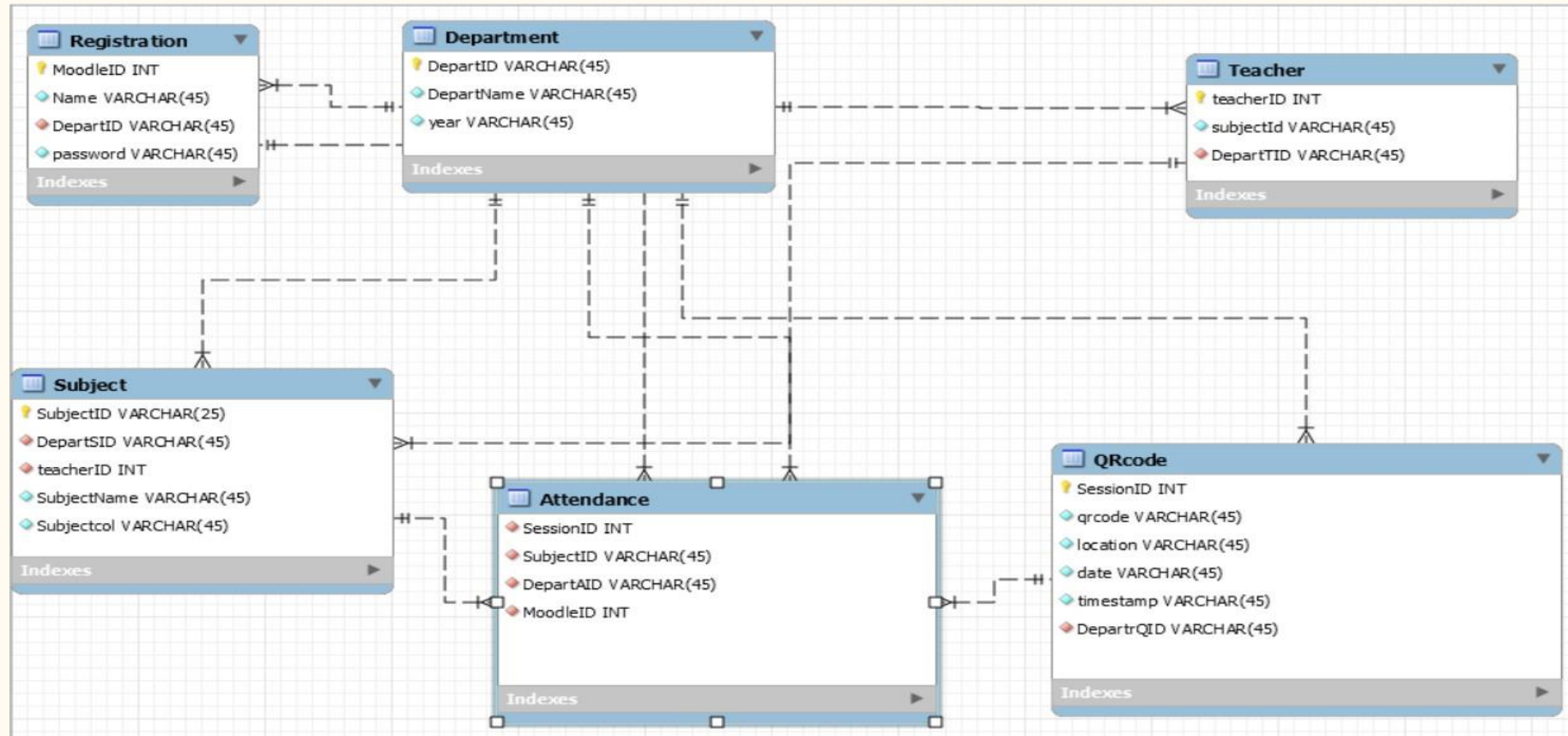
2.1 Proposed System

- The proposed solution offers a QR code and fingerprint verification for the students to scan it via a specific smartphone application.
- The code along with the student identity taken by the application will confirm the students' attendance.
- The proposed system also takes care of preventing unauthorized attendance registration using multi-factor authentication
- Since the system uses online applications, the use of external devices like QR scanner or biometric scanner is eliminated. Hence the maintenance and expenses for these devices is eliminated

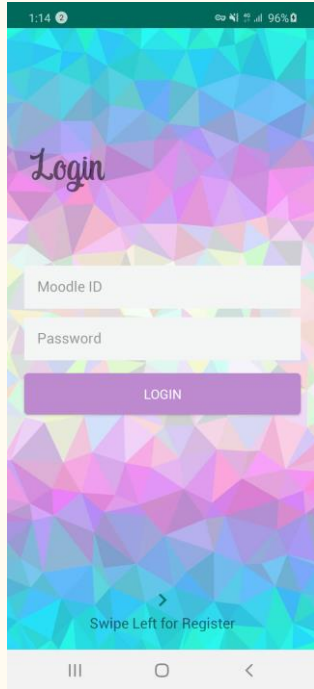
2.2 Design(Flow Of Modules)



2.3 Class Diagram

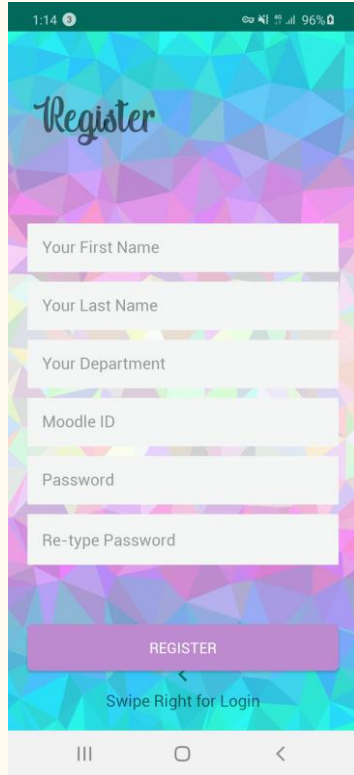


2.4 Module-1 APPLICATION LOGIN



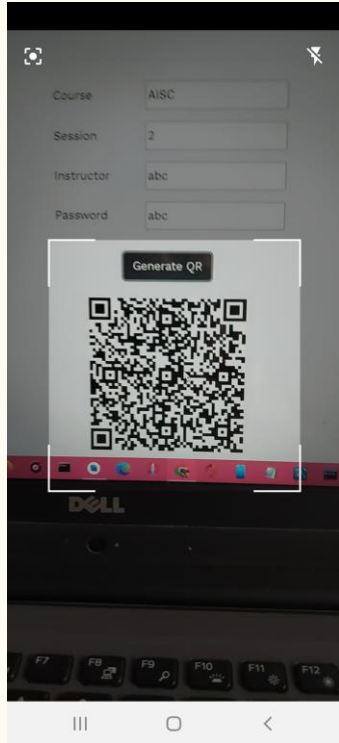
Students need to login to the android application in order to give attendance.

Module-2 APPLICATION REGISTRATION

A screenshot of a mobile application's registration screen. The background features a colorful, abstract geometric pattern in shades of blue, green, and yellow. At the top left, the word "Register" is written in a stylized, cursive font. Below it, there are six white input fields with gray placeholder text: "Your First Name", "Your Last Name", "Your Department", "Moodle ID", "Password", and "Re-type Password". A prominent red button with the word "REGISTER" in white capital letters is positioned below the input fields. At the bottom of the screen, there is a small left-pointing arrow and the text "Swipe Right for Login". The top status bar shows the time as 1:14 and a battery level of 96%. The bottom navigation bar contains three icons: a hamburger menu, a home icon, and a back arrow.

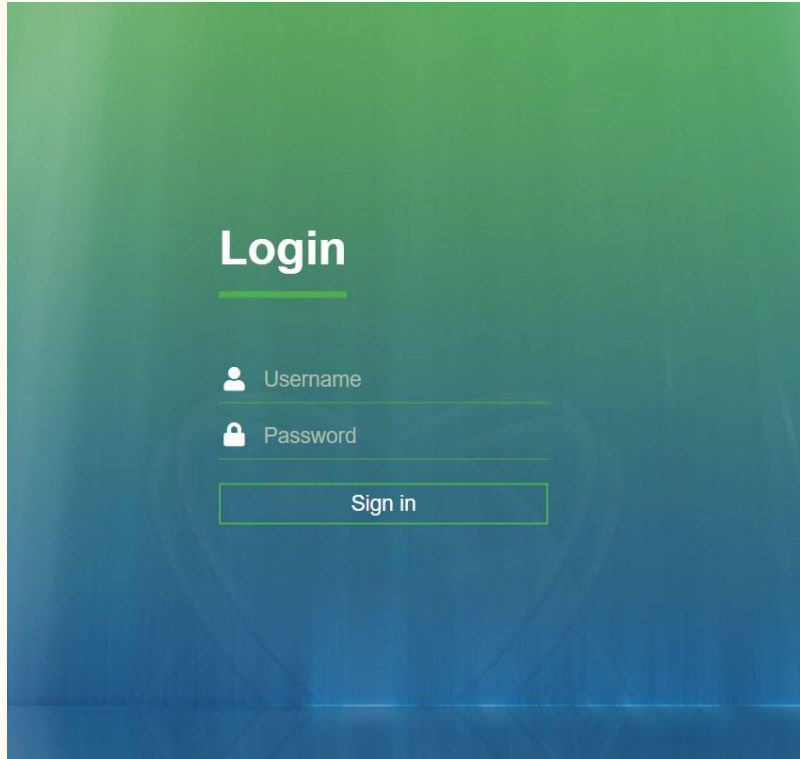
If student is not registered then they can register.

Module-3 Scanner



Using the scanner scan the QR displayed by the professor.

Module-4 WEBSITE



The image shows a login interface on a website. The background is a gradient of green at the top and blue at the bottom, with a faint geometric pattern. The word "Login" is displayed in white, underlined. Below it are two input fields: one for "Username" with a person icon and one for "Password" with a lock icon. A "Sign in" button is positioned below the password field.

Login

Username

Password

Sign in

Students and professors can login to the website.

Module-5 WEBSITE DASHBOARD+QR GENERATION

The screenshot shows a web browser with two tabs: 'BE-Qr-Code/qr-code-generator' and 'Attendance'. The address bar shows the file path 'C:/Users/Komal_Vedu/Documents/ScreenS/main-website/index.html#'. The page title is 'ATTENDANCE'. On the left is a dark blue sidebar menu with the following items: 'MENU', 'Dashboard', 'Generate QR Code' (highlighted), 'Mark Attendance', 'Profile', and 'Attendance'. The main content area has a light blue header 'QR CODE' and a form with four input fields: 'Course', 'Session', 'Instructor', and 'Password'. Below the form is a dark blue button labeled 'Generate QR'.

BE-Qr-Code/qr-code-generator x Attendance x +

File | C:/Users/Komal_Vedu/Documents/ScreenS/main-website/index.html#

ATTENDANCE

MENU

- Dashboard
- Generate QR Code**
- Mark Attendance
- Profile
- Attendance

QR CODE

Course

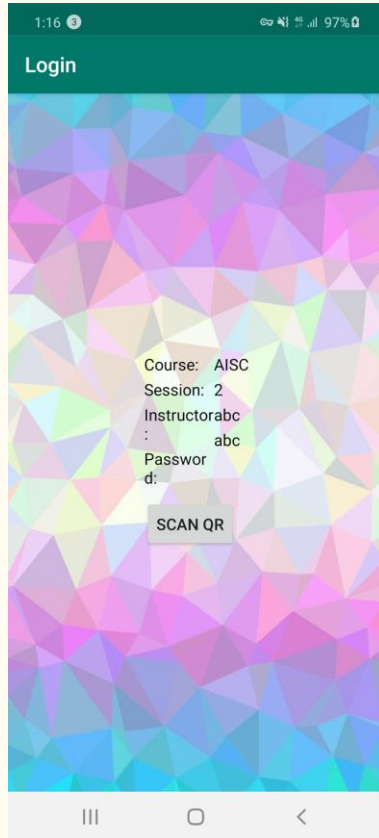
Session

Instructor

Password

Generate QR

Module-6 APPLICATION



After scanning the QR student can view the lecture details.

2.5 References

- <https://ieeexplore.ieee.org/document/9134225>
- <http://iosrjournals.org/iosr-jce/papers/Vol21-issue4/Series-1/C2104011830.pdf>
- <https://github.com/yuriy-budiyev/code-scanner>

3.Planning for next semester

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Planning

- Adding the functionality to track the geolocation of the students.
- Adding Fingerprint authorization.
- Displaying the attendance of the students on the website

Thank You

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