KMC Hackathon Project Report 1.0

Project Title: Smart QR-Based Attendance System for Schools

Team Name: Tech Innovators

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Mentor: _____

1. Abstract

Taking attendance manually in classrooms wastes time and may lead to mistakes. Our project presents a QR Code–based Attendance System where students scan a QR code to mark their presence. Attendance is automatically stored in a digital database, making the process faster, more accurate, and paperless.

2. Problem Statement

Many schools still use manual attendance registers which take valuable teaching time, can lead to human error, and make report generation difficult. Schools need a quick and reliable digital attendance system.

3. Existing System

Teachers call student names and mark attendance in registers, then calculate attendance manually later. This process is time-consuming, error-prone, and does not provide real-time tracking.

4. Proposed Solution

We developed a Smart Attendance System where a unique QR code is generated for each class. Students scan the QR code using a mobile device, and attendance is automatically saved in a database. Teachers can view and download attendance reports instantly.

5. Objectives

• Reduce time taken for attendance

• Minimize human errors

• Maintain digital attendance records

• Provide easy access to attendance data

6. Technology Used

Frontend: HTML, CSS, JavaScript

Backend: Python (Flask) / Node.js
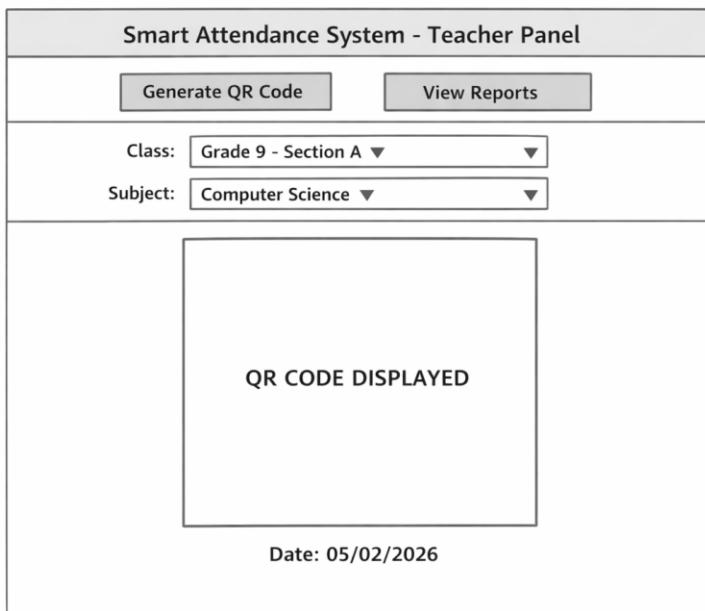
Database: MySQL / Firebase

QR Code Tool: QR Code Generator Library

Devices: Smartphone / Laptop

7. System Wireframe

The following wireframes show the basic layout of the system interfaces.

Figure 1: Teacher Dashboard Wireframe

A. Teacher Dashboard Wireframe

Smart Attendance System - Teacher Panel
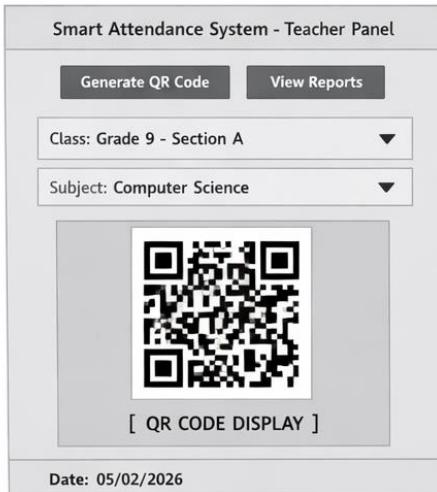
Generate QR Code   View Reports

Class: Grade 9 - Section A ▼

Subject: Computer Science ▼

[QR CODE DISPLAY]

Date: 05/02/2026
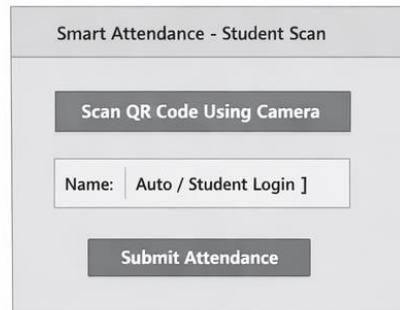
B. Student Scan Page Wireframe

Smart Attendance - Student Scan

Scan QR Code Using Camera

Name: Auto / Student Login]

Submit Attendance

C. Attendance Report Wireframe

Attendance Report - Grade 9 Section A

Roll No.	Name	Date	Status
01	Aayush Sharma	05/02	Present
02	Sneha Gurung	05/02	Present
03	Ritesh Thapa	05/02	Absent

⬇ Download Report as PDF

Teacher Login

↓

Generate Class QR

↓

QR Code Displayed

↓

Students Scan QR Code

↓

Attendance Sent to Server

↓

Stored in Attendance DB

↓

Teacher Views Reports
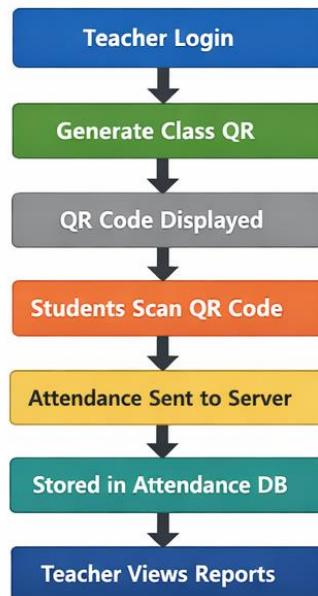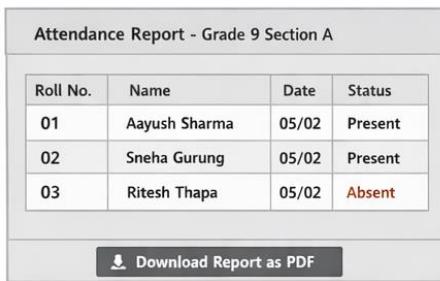
Figure 2: Student Page, Report Page, and Workflow Diagram

8. Results

After testing, attendance time was reduced from around 7 minutes to less than 1 minute. Records became fully digital and organized, and teachers could easily generate attendance reports.

9. Advantages

• Saves classroom time

• Reduces manual effort

• Accurate digital records

• Easy to manage large classes

10. Limitations

• Requires internet connection

• Students need access to a smartphone

• Initial technical setup required

11. Future Improvements

• Face recognition attendance

• SMS alerts to parents for absentees

• Dedicated mobile app

• Offline attendance sync

12. Conclusion

The Smart QR-Based Attendance System modernizes the traditional attendance process using simple technology. It saves time, reduces errors, and helps schools shift toward digital management. This project demonstrates how real-world educational problems can be solved using practical technology solutions.

How To Open create Git Repository

✅ Step 1: Open Your Repository

1. Go to **github.com**
2. Log in
3. Click your **repository name** from your profile or dashboard

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✅ Step 2: Click "Add file"

On the main repo page:

➡️ Click the **"Add file"** button
➡️ Choose **"Upload files"**

✅ Step 3: Upload Your Files

You will see an upload page.

You can either:

- **Drag and drop** your project files/folders
  OR
- Click **"choose your files"** and select from your computer

📁 You can upload multiple files at once.

✅ Step 4: Add a Commit Message

Scroll down and you'll see **Commit changes**

In the message box write something like:

```
Added KMC Hackathon project files
```

Leave the option as **"Commit directly to the main branch"**

✅ Step 5: Click "Commit changes"

Click the green **Commit changes** button.   🎉 Done!

HOW TO SUBMIT YOUR REPORT

Deadline--- 25th Magh

✔ **How to Share Your GitHub Repository Link**

1. Go to **github.com** and log in
2. Open the **repository** you want to share
3. Look at the **address bar** of your browser
4. Copy the full URL

It will look like this:

`https://github.com/your-username/repository-name`

5. Fill out google form using link below:

https://tinyurl.com/kmchack01

-Upload your report file using above google form.

-paste your repository link in the google form.

Repository must contain:

*Report File

*Repo Name as "kmc-hackathon-1.0"

For Resources & Reference visit:

https://tinyurl.com/kmchackresource01