



QR Attendance System

Complete User Manual

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Seamless Classroom Attendance Tracking
Using QR Codes & Firebase Integration

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Technology Stack: HTML5, CSS3, JavaScript, Firebase, QRCode.js, XLSX.js



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1. Introduction

1.1 Welcome

Welcome to the **QR Attendance System** - a modern, digital solution designed to revolutionize classroom attendance management. This system eliminates the need for traditional paper-based attendance methods by leveraging QR code technology and real-time cloud database synchronization.

About This Manual:

This comprehensive guide will walk you through every feature of the QR Attendance System, from initial registration to advanced features like subject management and data export. Whether you're a Class Representative (CR) managing attendance or a student marking your presence, this manual has all the information you need.

1.2 Who This System Is For



Class Representatives (CRs)

Manage class attendance efficiently, generate QR codes, track real-time attendance, and download comprehensive reports.



Students

Mark attendance quickly by scanning QR codes or clicking shared links - no manual entry required!



Educational Institutions

Streamline attendance tracking across multiple classes, subjects, and sections with minimal administrative overhead.



Administrators

Access detailed attendance data, generate reports, and monitor attendance trends across the institution.

1.3 Key Benefits

- **Paperless System:** Completely eliminates paper-based attendance registers
- **Real-Time Tracking:** Instant attendance updates synchronized across all devices
- **Secure & Reliable:** Firebase-powered cloud storage ensures data safety and availability
- **Time-Efficient:** Reduces attendance marking time from minutes to seconds
- **Easy Data Export:** Download attendance reports as Excel files anytime
- **Mobile-Friendly:** Works seamlessly on smartphones, tablets, and computers
- **No Installation Required:** Web-based system accessible from any modern browser
- **Auto-Expiring QR Codes:** Enhanced security with 10-minute session validity

2. System Overview

2.1 How It Works

The QR Attendance System operates on a simple yet powerful three-step process:

Step 1: CR Generates QR Code

The Class Representative logs into the system, selects a subject, and generates a unique QR code for that attendance session. This code is valid for 10 minutes.

Step 2: Students Scan & Submit

Students scan the displayed QR code using their smartphones or click the shared link. They enter their roll number and submit their attendance.

Step 3: Real-Time Synchronization

Attendance data is instantly stored in Firebase Realtime Database. The CR can view live attendance updates and download reports anytime.

2.2 System Architecture

Component	Technology	Purpose
Frontend	HTML5, CSS3, JavaScript	User interface and interactions
Backend Database	Firebase Realtime Database	Cloud storage for all data
QR Generation	QRCode.js Library	Creates scannable QR codes
Data Export	XLSX.js Library	Excel file generation
Authentication	Custom Password System	Secure login with OTP recovery

2.3 User Roles & Permissions

Class Representative (CR) - Full Access

- Register new class with students and subjects
- Generate QR codes for attendance sessions
- View real-time attendance data
- Add, edit, and delete students
- Add, edit, and delete subjects
- Download attendance reports (daily and full)
- View attendance history by subject and date
- Delete incorrect attendance entries
- Reset password using OTP verification
- Delete entire account and all data

Students - Limited Access

- Scan QR codes to mark attendance
- Submit roll number for attendance confirmation
- View attendance confirmation message
- One-time attendance per session (duplicate prevention)

3. Getting Started - For Class Representatives

3.1 System Requirements

For Class Representatives:

- **Device:** Computer, laptop, tablet, or smartphone
- **Browser:** Chrome, Firefox, Safari, or Edge (latest versions)
- **Internet:** Stable internet connection (minimum 2 Mbps)
- **Mobile Number:** 10-digit Indian mobile number for OTP verification

For Students:

- **Device:** Any smartphone with camera or computer with internet
- **Browser:** Any modern web browser
- **Internet:** Active internet connection

Pro Tip:

For the best experience, use the system on a device with a stable internet connection. The CR should use a laptop or tablet for easier management, while students can use their smartphones for quick attendance marking.

3.2 Accessing the System

1. Open your web browser (Chrome recommended)
2. Navigate to your QR Attendance System URL
3. The login/registration page will appear automatically
4. Choose whether to login (existing users) or register (new classes)

First Time Users:

If this is your first time using the system, you'll need to complete the registration process detailed in Chapter 4. If your class is already registered, proceed directly to the login section.

4. Registration Process

4.1 Before You Begin

Before starting the registration process, make sure you have the following information ready:

Required Information	Example	Format
Passout Year (last 2 digits)	29 (for 2029)	2 digits
College/Institution Code	DTU	Uppercase letters
Branch/Department Code	CSE	Uppercase letters
Section Number	5	Number or letter
CR Mobile Number	9876543210	10 digits
Password	YourSecurePass123	Minimum 6 characters
List of Subjects	MATHEMATICS-1 PHYSICS	One per line
List of Students	JOHN DOE - 25/B09/001	NAME - ROLLNO format

4.2 Step-by-Step Registration Guide

Step 1: Access Registration Tab

Click on the "Register" tab on the login page to switch to the registration form.

Step 2: Enter Class Details

Fill in the following fields:

- **Passout Year:** Enter last 2 digits (e.g., "29" for 2029)
- **College:** Enter your college code (e.g., "DTU")
- **Branch:** Enter your branch code (e.g., "CSE")
- **Section:** Enter your section (e.g., "5")

Step 3: Username Generation

Your username is automatically created by combining:

Year + College + Branch + Section

Example: 29 + DTU + CSE + 5 = **29DTUCSE5**

Step 4: Enter Contact Details

- **Mobile Number:** Enter your 10-digit mobile number
- This will be used for OTP verification and password recovery
- **Password:** Create a strong, memorable password

Step 5: Add Subjects

In the "Subjects" textarea, enter your subjects one per line:

MATHEMATICS-1

PHYSICS


BASIC CIVIL ENGINEERING

CHEMISTRY

PROGRAMMING IN C

Step 6: Add Students (Using ChatGPT Helper)

Option A - Using ChatGPT Prompt (Recommended):

1. Click the "  Copy ChatGPT Prompt" button
2. Open ChatGPT in a new tab
3. Paste the copied prompt
4. Add your raw student list after the prompt
5. ChatGPT will format it correctly
6. Copy the formatted result
7. Paste it in the Students field

Option B - Manual Entry:

Format: NAME - ROLLNO (one student per line)

Example:

JOHN DOE - 25/B09/001

JANE SMITH - 25/B09/002

AMIT KUMAR - 25/B09/003

ChatGPT Formatting Tip:

The ChatGPT prompt button automatically copies instructions that ensure perfect formatting. Simply paste your student list (in any format) after the prompt, and ChatGPT will convert it to the required NAME - ROLLNO format with proper spacing and capitalization.

Step 7: Complete Registration

Click the "Register Class" button. If all information is correct, you'll see:

- Success message with your username
- Number of students added
- Automatic redirect to login page after 2 seconds

Important Notes:

- Each class can only be registered once (unique username)
- Make sure student roll numbers are accurate

- Save your username and password securely
- Mobile number must be valid for OTP recovery

4.3 Post-Registration

After successful registration:

1. Note down your generated username (e.g., 29DTUCSE5)
2. You'll be automatically redirected to the login page
3. Your username will be pre-filled in the login field
4. Enter your password and click "Login"
5. You'll be taken to the CR Dashboard



5. Taking Attendance (CR Dashboard)

5.1 Logging In

1. Open the QR Attendance System URL
2. Enter your username (e.g., 29DTUCSE5)
3. Enter your password
4. Click "Login" button
5. You'll be redirected to the CR Dashboard

Connection Status:

At the top of your dashboard, you'll see a connection status indicator:

-  **Connected:** System is online and syncing
-  **Offline:** No internet connection - reconnect to continue

5.2 Dashboard Overview

The CR Dashboard has three main tabs:



CR Tab

- Generate QR codes for attendance
- View real-time attendance count
- See today's attendance list
- Download attendance reports



Students Tab

- View complete student list
- Add new students
- Edit student information
- Delete students



History Tab


- View past attendance records
- Organized by subject and date
- Download full attendance data

5.3 Generating QR Code for Attendance

Step 1: Select Subject

Click on the "Select Subject" dropdown and choose the subject for which you want to take attendance.

Step 2: Manage Subjects (Optional)


If you need to add, edit, or delete subjects before taking attendance, click the " Manage Subjects" button. This will take you to the Subject Management page where you can make changes.

Step 3: Generate QR Code

Click the " Generate QR Code" button. A unique QR code will appear on your screen.

Step 4: Share with Students

You have two options:

- **Display QR Code:** Show the QR code on your screen for students to scan
- **Copy Link:** Click " Copy Link" and share via WhatsApp/email

QR Code Validity:

Each QR code is valid for exactly 10 minutes. After expiration:

- The QR code automatically disappears
- A timer shows remaining time
- You must generate a new code to continue

Step 5: Monitor Real-Time Attendance

As students mark attendance, you'll see:

- Live count of present students
- Total students in class
- List of students who marked attendance with timestamp
- Updates happen instantly without page refresh

Step 6: Managing Attendance Records

For each attendance entry, you can:

- View student name, roll number, and time
- Delete incorrect entries using the "Delete" button
- Verify attendance accuracy

Step 7: Clear QR Code

When attendance is complete, click "× Clear QR" to remove the QR code from display.