QR Code-Based Attendance System

A Modern Approach to Student Attendance Management

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Introduction

> **→ Information**
>
> This chapter introduces the concept of QR code-based attendance systems and their significance in modern educational environments.

1.1

Background

In recent years, the digitalization of educational processes has become increasingly important, particularly in attendance management systems. Traditional paper-based attendance tracking methods are time-consuming, prone to errors, and lack real-time accessibility. This research presents an innovative approach using QR code technology to modernize attendance tracking in educational institutions.

1.1.1 Problem Statement

Current attendance tracking systems face several challenges:

- Time consumption during manual attendance recording
- Possibility of proxy attendance
- Lack of real-time data accessibility

- Inefficient data management and analysis
- Resource wastage in paper-based systems

1.2

Research Objectives

> **→ Information**
>
> The primary objectives of this research focus on developing and implementing an efficient QR code-based attendance system.

1.2.1 Primary Objectives

1. → Develop a secure and efficient QR code-based attendance system
2. → Implement real-time attendance tracking and reporting
3. → Reduce administrative workload in attendance management
4. → Prevent proxy attendance through secure authentication
5. → Enable data-driven decision making through analytics

1.2.2 Scope and Limitations

> **• Note**
>
> This research focuses on:
>
> - ○ Implementation within university environment
> - ○ Mobile-based QR code scanning
> - ○ Web-based administrative interface
> - ○ Data security and privacy considerations
> - ○ System scalability and performance analysis

> **• Note**
>
> → The primary goal is to develop an efficient and secure attendance tracking system.

> △ **Warning**
>
> ○ Important considerations for implementation and security will be discussed in later chapters.