



KEMENTERIAN PENDIDIKAN MALAYSIA



REAL TIME MONITORING SYSTEM: FINGERPRINT-BASED SMART ATTENDANCE SOLUTION



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DESCRIPTIONS

A real-time attendance system that integrates a fingerprint device with a web-based system. Students scan their fingerprint, and attendance data is automatically recorded and displayed on a website for lecturers to monitor instantly.

PROBLEM AND CAUSES

- Attendance fraud using RFID cards (students can scan for others)
- Inaccurate attendance records
- No real-time monitoring system

Causes:

- RFID cards can be shared between students
- No biometric verification
- System not integrated with online platform

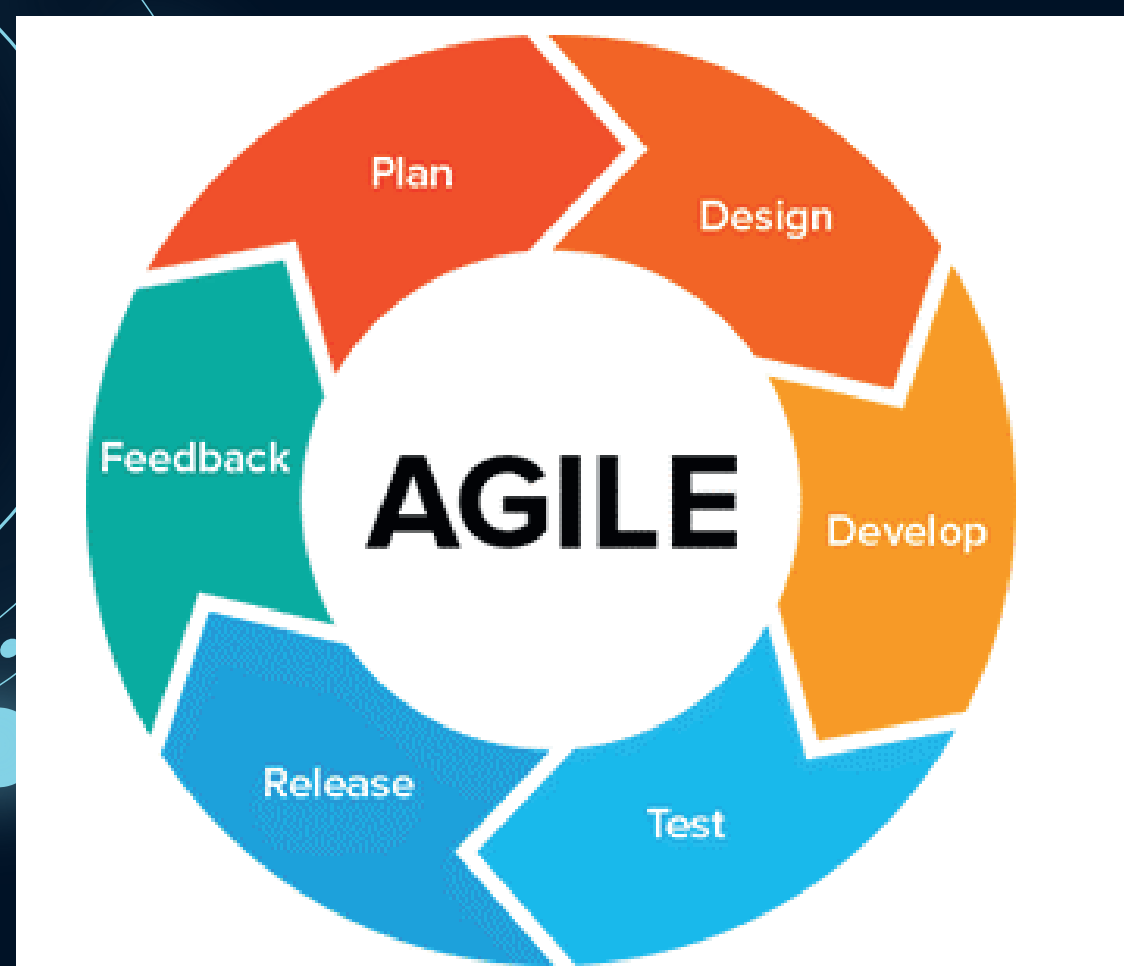
SIGNIFICANT AND BENEFITS

- Eliminates fraud using fingerprint authentication
- Real-time data synchronization to website
- Easy monitoring for lecturers
- Improves accuracy & system efficiency

OBJECTIVES

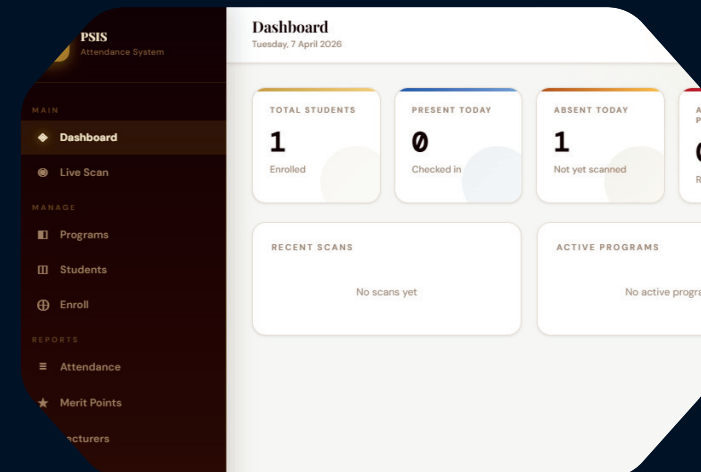
- Develop fingerprint-based attendance system
- Integrate hardware with web-based monitoring system
- Replace RFID-based attendance method
- Improve data accuracy and security

METHODOLOGY

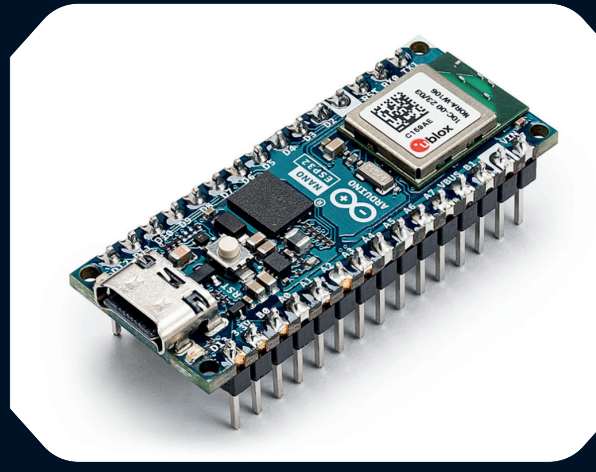


The project adopts the Agile methodology, beginning with planning to identify issues in the RFID-based attendance system and define requirements. The design phase outlines the system architecture, including hardware and a web-based dashboard. During development, a fingerprint-based attendance system is built and integrated with a web application. The system is then tested to ensure accuracy and functionality before being deployed for real-time use. Finally, feedback from users is collected to continuously improve the system.

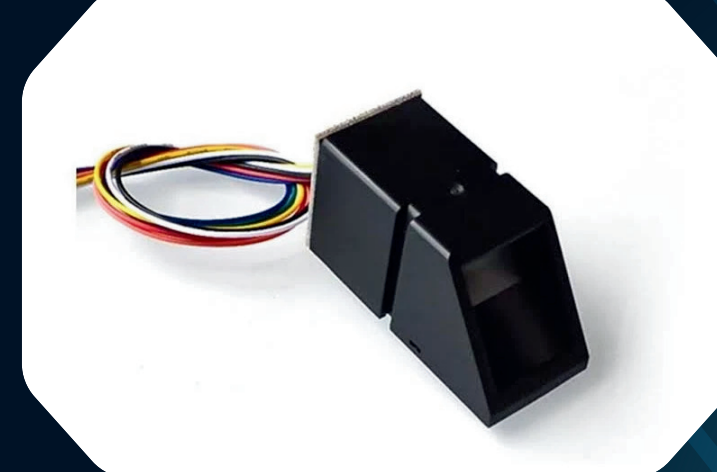
MATERIAL



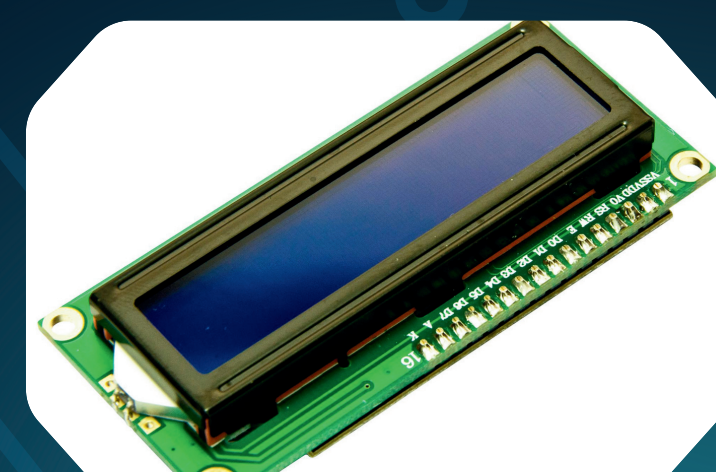
Web-Based System (Dashboard)



Microcontroller (ESP32)



Fingerprint Sensor Module



LCD I2C 16x2 Display

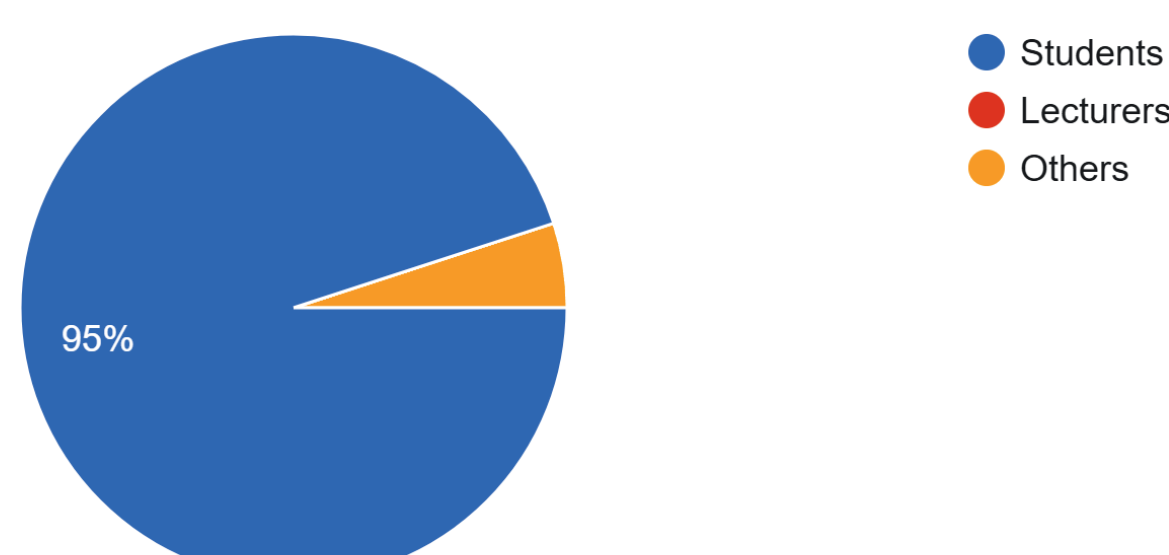
COMMERCIALIZATION POTENTIAL

- Suitable for schools, universities, and companies
- Can replace RFID attendance systems
- Scalable to smart campus & workplace solutions
- Potential for cloud-based attendance service

SURVEY

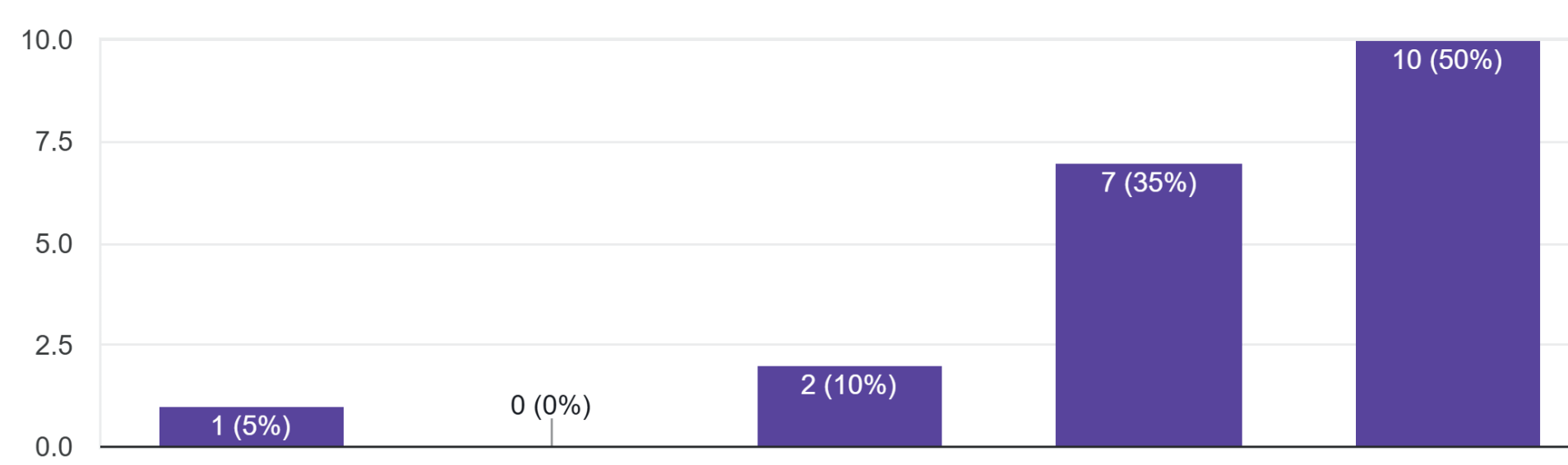
1. Role

20 responses



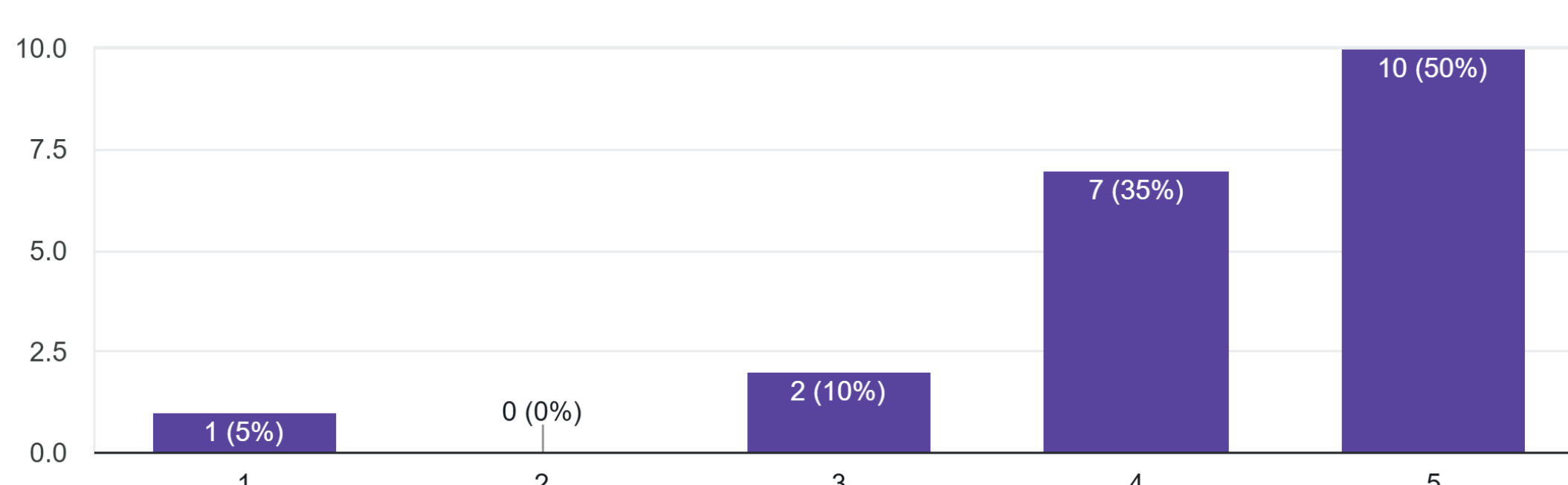
6. The system can reduce attendance fraud

20 responses



8. Real-time monitoring is useful for lecturers

20 responses



11. Which features do you find most useful?

20 responses

