FACULTY
OF
INFORMATION
AND
COMMUNICATION TECHNOLOGY

NATIONAL DIPLOMA: COMPUTER SYSTEMS ENGINEERING

PROJECT DESIGN III: PJD 301B

PROJECT PROPOSAL

PROJECT TITLE:.....Student Attendance Management System……

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INTRODUCTION

The Student Attendance Management System (SAMS) project gives guidelines on providing convenience and efficiency in the process of recording and managing students' attendance by educational institutions. In today's dynamic world, effective and accurate attendance tracking is important in ensuring a student's academic success and administrative productivity. This paper-based manual system suffers from all the problems of time consumption, errors, and a lack of real-time accessibility from existing gaps and potential challenges related to old ways of taking attendance. A lot of facts show that the previous ways used to attend an event, like manual roll calling systems, are error-prone, time-consuming and do not have real-time monitoring. These sometimes fail to give an accurate report on attendance records, at the end making it hard for institutions of learning to manage the information accurately. Additionally, these records can be changed with by dodgy individuals, ending up compromising the integrity of the attendance records.

This project has come to fix these problems by utilizing modern technology to achieve automation of attending tracking. The proposed Student Attendance Management System will have a web-based user-interface, making it usable from different locations by authorized users. The use of ESP32 technology and RFID will be effective in further enhancement of accuracy and efficiency with which the monitoring of the attendance is carried out. RFID tags on the student will ensure automatic identification for those accessing the premises without necessary intervention by anyone. This system should minimize errors and ensure more precise records in the presentation of a reliable foundation for administrative decisions through the automation of tracking attendance.

The main goal for developing Student Attendance Management System is to provide a more sophisticated, user-friendly platform to help educational institutions to automate the processes involved in the recording and monitoring of the attendance of students. This will help towards an experience in which both students and administrators would feel comfortable without the problems or loopholes of the other traditional methods of attending-taking systems. The system would have real-time monitoring, enabling instant tracking of attendance by the administrators in a way that would need human intervention when necessary in good time. This approach will save student and staff time in manually recording attendance, making the system more organized in its functions, adding to accountability and bringing out transparency.

PROJECT OBJECTIVES

1. Develop a user-friendly web-based application for automated student attendance management.
2. Ensure real-time attendance tracking and reporting for students.
3. Reduce administrative efforts and errors related with manual attendance recording.
4. Enhance communication between students, instructors and administrative staff.
5. Improve overall attendance analysis and reporting for better decision-making.

PROJECT DESCRIPTION

The proposed Student Attendance Management System is designed to help educational institutions, including schools and universities. The system will provide a platform for instructors to mark attendance digitally, students to view their attendance records and administrators to generate reports. The system will cover all areas of attendance management, including recording, tracking, reporting and notifications.

The scope of the project includes the development of a user-friendly web interface, integration with a MySQL database to store attendance records and user authentication mechanisms. The system will not only automate attendance tracking but also ensure data security and privacy, addressing the past failures of traditional systems of manually doing things.

PROJECT TECHNOLOGY

1. Front-end: HTML5, CSS3, JavaScript
2. Back-end: Java with Spring Boot framework
3. Server: Apache Tomcat for hosting the application
4. Database: MySQL for data storage and management
5. Connectivity: Wi-Fi for real-time data transmission
6. Hardware: ESP32, RFID readers, RFID tags, jumper wires, LCD display, buzzer, LED indicators, and power supply

TIMETABLE

Activity	Description of work	Start and end dates
Requirements Gathering and Planning	Define project scope, objectives, and requirements. Plan project schedule, resources and budget.	24/07/2024 – 19/08/2024
System Design and Database Setup	Design the user interface and system architecture. Set up the MySQL database for storing attendance records.	20/08/2024 – 24/08/2024
Development and Integration	Develop the front-end and back-end components of the system. Integrate RFID readers with the system for real-time attendance tracking.	25/08/2024 – 10/09/2024
Testing and Quality Assurance	Test the system for functionality, security and performance. Address any identified issues or bugs.	11/09/2024 - 17/09/2024
Deployment and Training	Deploy the system to a web server. Provide training to instructors and administrators on system usage.	18/09/2024 - 21/09/2024
Project Documentation	Prepare user manuals, design templates and final documentation for submission.	22/09/2024 - 12/10/2024

BUDGET

Items	Supplier	Quantity	Unit price	Total
ESP32 Microcontroller	Micro-robotics	1	R250	R250
RFID Reader	Micro-robotics	1	R108	R108
RFID Cards	Micro-robotics	10	R30	R30
Database Setup & Hosting	Localhost	1	R300	R300
Web Hosting	Heroku / Render / Repl.It	1	R300	R300
			Total budget	R988

CONCLUSION

The Student Attendance Management System aims to change the way educational institutions manage and track student attendance. By implementing this system, institutions can expect improved accuracy, reduced administrative burden, better communication and better attendance analysis. This project holds the potential to significantly contribute to the overall efficiency and effectiveness of educational institutions' operations.

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