

"Attendance System for Sun-Transit"

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ABSTRACT

Today's tough problems call for equally tough and intelligent technology solutions, and we research some hardware and tracking modules in market. Administrator can track the activity of the university bus by sitting at any location using internet. Administrator can modify the bus schedule that is stored in the database. Provides the list of the schedule of the bus stops with its time on the user's phone.

Automatically store the attendance of student when the person enter in bus using sensors. whenever any attendance system is used for college, for those who handle management, In their mind, only one thing comes to mind we have to do any manual work like going to each and every candidate and updating their attendance. to avoid this manual and hard work we propose iot one system. That system will help you to reduce total manual work and make a smart attendance system. By using our system, no need to go to each and every student, the attendance will automatically get updated. this is the key feature of our system. this will help all kinds of management system. In the end, we come to know that, how does this procedure optimize by just implementing this system. Users just need to turn on their Bluetooth and by using their Bluetooth name the attendance will get updates. this system is just a step towards the revolution of reducing manual work.

INTRODUCTION

The College Bus Attendance Monitoring System is a project that aims to improve the efficiency and security of the college bus transportation system. The system utilizes IoT technology to monitor the attendance of students in college buses. It consists of hardware and software components that work together to track the location of the bus and determine the attendance of students. The system is designed to use sensors such as RFID tags, GPS modules, and microcontrollers to collect data from the students and the bus, which is processed using software running on an IoT platform. The system can be accessed through a web-based application or a mobile app, allowing the college administration to track the attendance of students in real-time. The College Bus Attendance Monitoring System using IoT technology is a project aimed at enhancing the efficiency and security of the college bus transportation system. One of the primary challenges faced by college administration is monitoring the attendance of students in college buses. Traditional attendance monitoring methods such as manual headcounts or roll calls are time-consuming and can be prone to errors. To address these challenges, the proposed system utilizes IoT technology to monitor the attendance of students in real-time. The system comprises hardware and software components that work together to track the location of the bus and determine the attendance of students. The hardware includes sensors such as RFID tags, GPS modules, and microcontrollers. The software runs on an IoT platform such as Arduino or Raspberry Pi and processes the data collected by the sensors. By implementing the College Bus Attendance Monitoring System using IoT technology, college administration can improve the efficiency of the transportation system, reduce costs associated with manual attendance monitoring, and ensure the safety of students. In addition, the system can provide valuable insights into the utilization of the college bus transportation system, enabling the administration to optimize the system for maximum efficiency.

SYSTEM DESIGN

The system design for the "College Bus Attendance Monitoring System using IoT" project involves several components and their interactions. Here is an overview of the system design:

Hardware Components:

Arduino Board: Acts as the main controller, responsible for processing data and controlling other hardware components.

Bluetooth Module: Scans nearby devices (student mobile devices) to detect their presence on the bus.

Wi-Fi Module: Enables communication between the Arduino board and the college's backend system for attendance data updates.

RFID Reader: Reads RFID tags or cards assigned to students for identification.

Motion Sensor: Detects the presence of students as they board the bus.

Environmental Sensor: Monitors the bus environment (optional).

Student Mobile Devices:

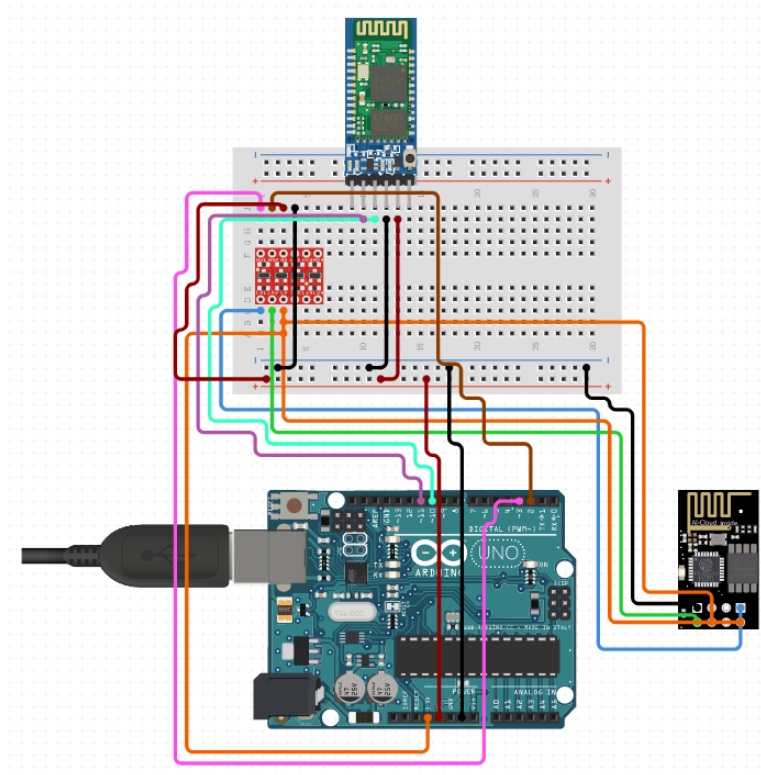


Figure 1: system design

Students carry their mobile devices with unique device names (PRN numbers) for identification.

Mobile devices should support Bluetooth connectivity for communication with the Arduino board.

Backend System: The college's backend system manages student records and attendance data.

It provides APIs for communication with the Arduino board to update attendance records.

System Workflow:

Student Registration: College administration registers students in the backend system, assigning unique PRN numbers to their mobile devices.

The PRN numbers are associated with the students' personal information and attendance records.

Attendance Tracking: When a student boards the bus, the motion sensor detects their presence and triggers the attendance tracking process.

The Bluetooth module scans nearby devices (student mobile devices) to identify the students based on their PRN numbers.



The Arduino board receives the PRN numbers from the Bluetooth module and validates them.

API Communication: The Arduino board communicates with the backend system using the Wi-Fi module and appropriate APIs.

It sends the validated PRN numbers to the backend system to update the attendance records.

Attendance Updates: The backend system receives the PRN numbers from the Arduino board and updates the attendance records in real-time.

The system maintains a log of attendance with timestamps and associated bus routes.

Attendance Reports: College administration can generate attendance reports from the backend system, providing insights into student attendance patterns.

METHODOLOGY

METHODOLOGY/ PLANNING OF WORK

Methodology this study proposed a methodology to improve the attendance system in Bus / Transport. The conventional method allowing access to Student inside a Campus is by showing a bus pass to guard is very time consuming and insecure hence inefficient radio smart attendance system is Solution to address this problem. By using a sensor Scan and the Real In time and out-time of the students and the attendance can be updated automatically when the student enters in the bus. Each the available methodology frameworks are best suited to specific kinds of project Based on various technical, organizational, project and team considerations.

CONCLUSION

The project "College Bus Attendance Monitoring System using IoT" has successfully developed a robust and efficient solution for automating the attendance tracking process in college buses. By leveraging IoT technologies such as Arduino, Bluetooth, WiFi, and an Android application, the project offers a comprehensive system that simplifies attendance management and improves overall efficiency

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