RELATED LITERATURE

A lot of children need to be travel to and from school each day. Ensuring the safety and security of students during their arrival and departure from school is a critical concern for every educational institution. With the rising number of security threats in the modern world, schools must take every possible measure to protect their students from potential harm. However, parents usually has a long working hours, which mean they do not have enough time to care and look after their children. In this case, it is the duty of school to deal with parents. It is so difficult and time consuming to try and do this manually. The school administration cannot check their students one by one and or even notify their parents too. Technology can provide a comprehensive solution to this vexing problem. RFID technology is superior to other identification technologies, because in reading or rewriting data on the RFID tag it does not require direct contact between the RFID tag and the reader, has the ability to send clean and reliable data needed as input for software on the system, data can be read accurately in the reading range, and the design costs are low.

Foreign

In (2014) Lim expressed low cost RFID Based Attendance System prototype, the system provides several advantages over conventional method of taking attendance in class. The prototype developed in this project is compact and light weight. Besides, it can run using power adapter or battery power. Therefore, it is very portable and can be carried to the class for taking the attendance[1].

From the book of (Man) entitled "TITO" (2013)
published by Academic Publishing Corporation, Inc., in 2013, he expounded that the designed of a time management and access monitoring system using microprocessor card to monitor students" or staffs" movement with the records that are kept in the database for administrator reference in campus, office or certain area. All data captured by this system could be accessed by teachers; headmaster and parents[2].

In (2018) Raja introduced a system with the use of RFIDs to track children, but the information from RFID cannot provide information on the dangerous situation inside and outside of the campus. The platform devised a method to identify the student by using a RFID technology to track the student locations and alert parents with sent notifications via SMS. System notifications are set to be sent automatically which may be a challenge due to the many notifications received nowadays[5].

According to Potharaju (2017) It will be positioned where it will only detect the students when they are Entering in the school. Based on the received information, other related students' information can be retrieved from the database for further processing (e.g. texting the parent)[7].

With the popularization of the RFID technology, the implementation cost is being lowered. More benefits of applying RFID in operations are being realized. Roberti

RFID as a system that transmits the identity of an object using radio waves is actually (Chaturvedula, 2012). The problems that were encountered by the industrial and educational sectors regarding the manual system of monitoring attendance led to the innovation of different automated systems such as biometric recognition systems, RFID technology, and barcodes. The said systems also have drawbacks in which implementing biometric systems are complex, costly, and inaccurate if there are physical deformation and distortion of the body; RFID technology is prone to impersonation or spoofing; the barcode can easily be duplicated. The systems do not completely eliminate integrity and contingency problems. The RFID reader will be located inside the school bus by the entrance. It will be positioned where it will only detect the children when they are inside the bus. But if the child was outside near the bus, the reader will not detect him. Each child will wear a card with an RFID tag attached to it. The bus unit is responsible for sending relevant tag information to the school unit where it will be stored and processed. Based on the received information, other related child's information can be retrieved from the database for further processing.

According to Bharamagoudar (2013) It also contains query message option for parents so that parents can interact with the college faculty through this application. It also facilitate parents to gain all the notifications about the activities held in the college. Also SMS based mechanism is implemented to send notifications for those parents who don't have an android mobile[10].

Kelvin and Agwu (2019) postulated this RFID results obtained show that when a student who enters a classroom swipes the RFID tag near the reader that is connected externally to microcontroller based embedded system, the system grants access to a registered student and stores the attendance information on a PC database. An SMS containing the same details is sent to mobile phone for data backup through GSM. The design was successfully tested and implemented.

According to MD (2022) the main objective of RFID based Attendance System project is to take the attendance of every students. Notification sends to parents or authority. To demolish the flaws associated with the manual attendance system. Radio-frequency identification (RFID) is a technology that uses radio waves to transfer data from an electronic tag, called RFID tag or label, attached to an object, through a reader for the purpose of identifying and tracking the object. RFID chips contain a radio transmitter that emits a coded identification number when queried by a reader device.

Soumil (2019) Introduced a new paradigm of monitoring student attendance using Radio Frequency Identification (RFID). Educational institutes are concerned about student irregular attendance. Truancy can affect a student's overall academic performance. The traditional

method of taking attendance by calling names or signing on paper is very time consuming and inefficient. RFID based attendance system is one of the solutions to handle the problem.

According to Koppikar (2019) An efficient attendance monitoring system needs to be enforced at such places. Radio Frequency Identification (RFID) based attendance system provides us with a solution that caters to issues like proxy attendance. This paper describes the design of an RFID based attendance monitoring system which uniquely identifies each employee/student based on their RFID tag which is attached to their ID card. This makes the mechanism of recording the attendance effortless, quicker and protected as compared to conventional method.

In (2014) Tiwari said that RFID (Radio Frequency Identification) is a much convenient method to take the attendance. Student is provided with the RFID tags. When student comes near to the reader, it will sense the respective student and update attendance. The whole process is controlled using the microcontroller. The main advantage of this system is that it reduced the complexity comparison to student attendance system using RF technology. This system requires only one microcontroller for the operation, it is real time process. This paper reviews some of these monitoring systems and proposes a GPRS based student attendance system. The system can be easily accessed by the lecturers via the web and most importantly, the reports can be generated in real-time processing, thus, provides valuable information about the students' commitments in attending the classes.

According to Aravindhan (2021) RFID is a wireless equipment that uses data move from an electronic tag, identify as RFID tag, or label for sending data to RFID reader, for the rationale of classify and pathway objects via radio waves. In addition to the programmable logic circuit, such as Arduino, the current study aims at recommending an RFID based Attendance Management System (AMS), as well as a system of information services on academic domains. The system proposed is aimed at managing the attendance system of employees with RFID tags/stickers to communicate with an Arduino UNO connecting RFID Reader/Writer module.

According to Shanfin (2015) Radio Frequency Identification (RFID) technology utilizes the electromagnetic fields for data transfer in order to perform automatic detection and tracking of tags or tags of objects. It can provide ways to design and implement relatively inexpensive systems particularly for security aspects.

Local

In (2019) Barredo made a comparable thesis on the automation of time attendance that records the time in and time out of every student using school ID. It tends to eliminate the manual recording system of time and attendance for every student. The marked attendance would be saved on through databases with parent notification sent via SMS[3].

According to Danao (2015), The School is now utilizing a computerized system that will enable quicker and easier checking of students' attendance throughout the implementation of departmental and/or institutional initiatives. The objectives in developing the system are the following: to make the checking of attendance easier and faster; to keep accurate records of student's attendance: to eradicate or at least minimize complaints of students on erroneous data on attendance: and to inspire IT students to develop computerize systems that will make processes easier. The system enables several workstations to operate simultaneously and conduct the attendance checking.

The system can display details such as students name, gender, age, sex, course and year for access and validation. The system uses the ID number as its primary key used to input student's attendance[4].

According to Raja (2018) Every day millions of children need to travel from home to school and vice versa. For parents to obtain safer transport for their children is sometimes a critical issue. Crime against children is increasing every day, especially in developed countries. Developed a school bus monitoring system capable of tracking students in a school bus using a combination of RFID/GPS/GSM and GPRS technologies. In addition to the tracking, a prediction algorithm is implemented for the computation of the arrival time of the school bus. Through an Android application, parents can monitor the bus route and forecast arrival time for the bus. This system did not consider the safety of students between the bus and home.

In the study of Bonagua, Dulay & Evangelista (2016) entitled "Web-based Faculty Attendance Monitoring System with SMS Notification for City College of Calamba", the researchers of the said study concluded that submission of reports on monitoring can be easier with the help of the system they have created. The faculty can also monitor their performance when the system notify them about their tardiness, early dismissal, and absences. With the use of the system, the faculty attendance is now more manageable. They can easily search and view records of every faculty member[11].

According to Joseph (2018) RFID utilization in education is student attendance monitoring system, it will produce a real time attendance monitoring system that can be accessed by various parties, such as lecturer, campus administration and parents. With this monitoring system if there are students who are not present can be immediately discovered and can be taken immediate action and the learning process can run smoothly.

According to Palencia (2015) When a passive RFID tag is placed in the reading range of the RFID shield, the microcontroller queries the database to verify if it is an authorized tag and is read at the registered time. A PHP script processes the MYSQL queries to send and get data to and from the database. The current time is displayed and a text is shown on the LCD to notify the tag's validity. A GUI is accessible to the users for viewing of the records and management of the database. The system is capable of determining and storing the login and logout time of those who accessed the room as well as automatically turning on the loads connected to the system.

In (2014) Larchikov propose to use RFID technology to combine functions of physical access control, computer's access control and management, and digital signature systems. This combination allows to drastically increase systems' security. Even low-end RFID tags can add one security level into the system, but high-end RFID tags with cryptographic possibilities and slight modification of digital signature calculation procedure make it possible to prevent obtaining digital signatures for fraudulent documents. The further evolution of the proposed scheme is permanent monitoring by means of periodical controlling user's RFID tag, whether authenticated user is present at the computer with restricted access.

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