

RFID BASED STUDENT ATTENDANCE SYSTEM WITH MESSAGE ALERT

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Abstract: Information development has progressed to where it is as of now extensively used to make work more profitable, faster, and more streamlined. The sort of precession that is at this point used is manual precession using paper media, which is inefficient with respect to time, a rehashing of data on the presence, precision, or validity of the data presented. Leaving a signature as affirmation of a delegate's presence is at this point a run of the mill practice. The goal of this assessment is to encourage one more model for coordinating presence, to be explicit a RFID based presence structure.

RFID will utilize sensors to figure out data. RFID is being used to make it more direct for instructors and students to screen class interest. On the RFID card, there is a radio repeat mounted got to the figuring out machine; the contraption will bestow student data to the informational collection normally. Accordingly, students could complete it speedy, and data can be settled upon rapidly and in fact. Students and educators are moreover encouraged to appear before the normal time considering the way that the development can directly store and show data.

Introduction

Today, fast mechanical movements are used to simplify work. A modified cooperation structure at an everyday schedule is a representation of work that ought to be conceivable by a system that is normally wrapped up by individuals. The support cycle in this system isn't done genuinely or with student marks, yet rather with recognizing development. RFID (radio repeat unmistakable confirmation) is a sort of distinctive development. A peruser (peruser) and names, which might be normalized tag or smartcard, make up this development. RFID development is superior to other ID headways since it doesn't require direct contact between the RFID tag and the peruser while scrutinizing or altering data on the tag, it can send great and strong data expected as commitment for programming on the investment system, data can be examined exactly inside the grasping reach, and arrangement costs are low.

The grounds today requires development, and its responsibility is supposed to forgo manual human work in developments of each and every sort close by. Instructor and student cooperation practices are one of the activities close by that require the usage of development. RFID (Radio Frequency Identification) development is one such advancement that can perceive unequivocal articles. RFID advancement, with these components, is a development competitor for utilize close by to overhaul address cooperation in homerooms and labs. The close by support system is at this point worked truly at this point. The speaker enters the homeroom or exploration focus to show students who are presently pursued the class preceding beginning the training developing experience. The speaker then, at that point, keeps student support as chronicles that are embraced by all students in the room during the teaching learning works out. The academic association part will summarize the information accumulated from the investment record.

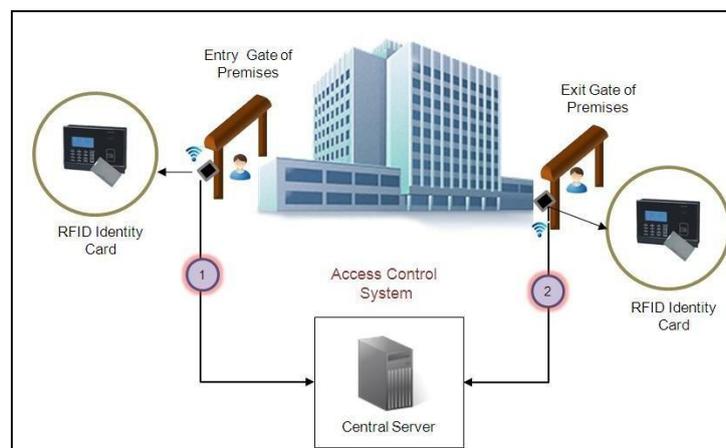


Fig 1. RFID attendance system

At this point, different schools are robotizing their interest systems by using finger impression development. Regardless, using remarkable imprint advancement, the client plays out the missing system one by one. If there are a satisfactory number of clients in close region, using the extraordinary imprint procedure will achieve an overabundance and a lack of time viability. A normalized tag, which has an excellent code, is another development utilized in cooperation structures. For each card, regardless, the card distinguishing proof takes longer considering the way that the scanner tag peruser ought to be pointed in a comparable heading as the normalized label card. Lines will outline accordingly, as will a shortfall of time efficiency. In like manner, the model made in this adventure will be a customized support system that uses RFID to smooth out and speed up cooperation tasks

during addresses. This study will achieve a model of a motorized support system. The robotization being alluded to is the brought together informational collection social event of student nonappearance data in a survey room and in unambiguous disciplines.

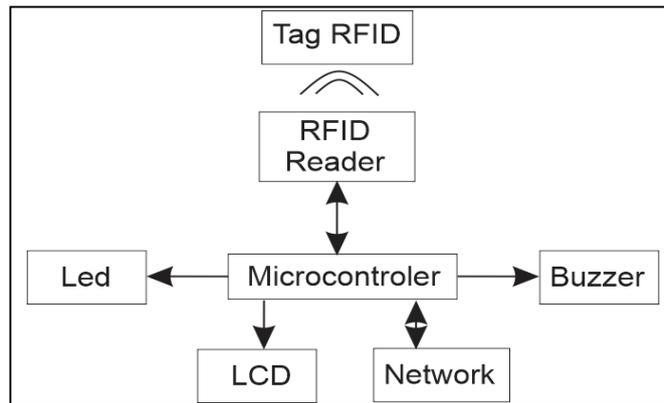


Fig 2. Block chart of the entire framework

Coming up next is the job of each block in the block graph above:

- Block reader; The RFID peruser is the data block, and the mark data card that peruser recognizes is passed on to the microcontroller.
- Block microcontroller, the system's data processor and central controller
- The LCD, LED, and ringer that make up the sign block.
- Block Ethernet module, web show correspondence understanding.

Literature Review

RFID (Radio Frequency Identification)

RFID addresses Radio Frequency Identification, and it insinuates data imparted by radio waves. A RFID system is continually involved two segments:

- Transponder/ marker, (transponder = transmitter + responder), which is a tag/marker on the item to be recognized for the RFID framework's personality.
- reader, a gadget that scrutinizes or gets data signals from stamps. Dependent upon the development utilized, this instrument can work in either scrutinizing or forming mode.

On the transponder, a peruser has a radio repeat module (transmitter and beneficiary), a control unit, and a coupling part. Various perusers have extra places of connection (RS 232, RS 485, and so on) that license them to send data to various structures like PCs, robot control systems, and so forth.

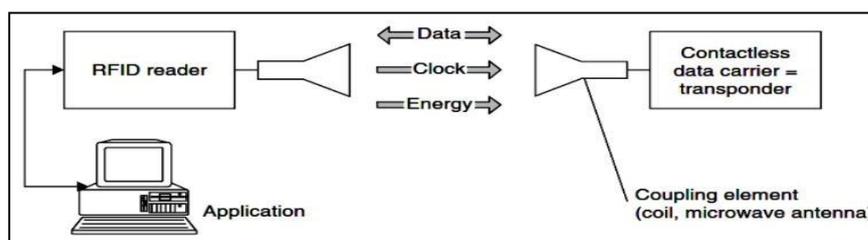


Fig 3. RFID Reader Diagram

Cooperation control structures use RFID as a foundation. Every theater has a lot of Personal Computers, all of which is related with a lone association. Each discussion room is equipped with a RFID peruser and a webcam that is related with a PC. Students are shot with the camera. Exactly when a student goes into the room, the RFID peruser examines his ID and the webcam snaps an image of him while he enlists and sends data to a PC. The strategy for Automatic Identification and Data Capture (AIDC) is depicted in the accompanying part. A quick preface to AIDC development, which is utilized in library the chiefs and cooperation systems.

Tag and Reader RFID

A very rare example of Auto-ID (Automatic Identification) developments is RFID (Radio Frequency Identification). Scanner label structures, optical characters, MM biometrics, insightful cards, voice unmistakable evidence, finger point frameworks, and NFC are cases of auto-ID applications (Near-Field Communication). During World War II, the British included RFID unprecedented for 1940. By putting transponders on board military airplane and tanks, the "Unmistakable evidence Friend or Foe" IFF structure was used as a buddy or foe ID system.

Frequency Type	Range of Frequency	Regulations	Range	Data Speed	Cost of the Tags	
RFID is	Low frequency	120-150 KHz	Unregulated	10 cm	Low	\$1
	High frequency	3-30 MHz	ISM band worldwide	10 cm - 1 m	Moderate	\$3-\$5
	Ultra-high frequency	300 MHz – GHz	Short range devices	1 m – 100 m	Moderate to high	\$5 - \$10

uncommon standard wherein an association talks with a name put on a thing like individuals, animals, or things using radio waves. RFID is a far off development that uses radio waves to perceive a thing. Data may be placed away and gotten somewhat by virtue of RFID. Using RFID names or transponder marks, as well as perusers that work as data scanners without hoping to make direct touch with the tag or convey from a distance.

- RFID Tag: A tag, otherwise called a transponder, is comprised of a radio wire that helps the decoder and encoder processes, as well as a memory chip that stores a chronic number and different information that mirrors the ideal information. The tag is joined to the identified article and stores data about it.
- RFID Reader: A RFID peruser is a looking at contraption that examines information from a tag and conveys it to an informational collection. The peruser is the association point between the application programming and the recieving wire that sends radio waves to the RFID mark to get the card's id number and different data. To examine RFID names, a peruser ought to be suitable with the cards being used.

Table 1 shows the repeat extents of a couple of sorts of frequencies, as well as the distances they would travel, rules, and data speed. Low repeat, for example, is a sort of repeat that compasses from 120 to 150 KHz and has an extent of 10 cm. For such frequencies, the data speed is a large part of the time slow.

Table 1. Frequency Type and Specifications

RFID in libraries was first framed and proposed to the globe in the last piece of the 1990s, as per P. Grover and A. Ahuja. The everything out work process was coordinated by RFID movement, which made enrollment/look at changed, decreasing how much off-kilter work for clients and staff. Singapore was the major country to execute RFID in an incredibly broadened timeframe, and the Rockefeller University Library in New York was the exceptionally edifying library in the United States to in this way do. The RFID movement was at first utilized by the Farmington Community Library, which was the crucially open relationship to likewise do. In 1999, both Rockefeller University and Farmington started utilizing RFID. In Europe, the Hoogezand-Sappemeer in the Netherlands was the significant open library to utilize RFID in 2001, when borrowers were given choices. As shown by the report, 70% of individuals quickly changed in accordance with RFID improvement. Then again, with the United Kingdom and Japan, the audit saw that RFID is the more normally utilized in the United States overall.

Methodology

- Coming up next is the assessment approach that was used.
- Evaluating and studying past assessment associating with the structure.
- Research the solicitation using the strategies recorded underneath.
 - Composing review, which includes figuring out articles, journals, books, and papers about the system.
- The solicitation will be inspected with managers.
- Encouraging a system design considering the objectives and speculative foundation.
- Investigate various roads with respect to the program intend to get the best outcomes.

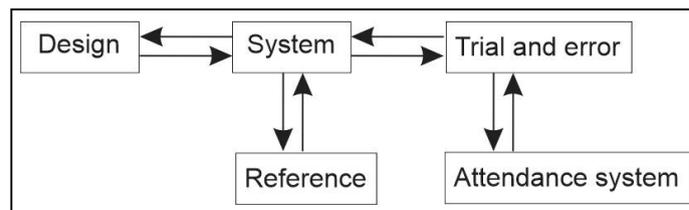


Fig 4. Research Work Procedure Block Diagram

Proposed System Implementation

Each scene has a Personal Computer related with a solitary relationship in this RFID structure. Right when an understudy strolls around the room, the RFID scanner surveys his ID and sends information to the PC. This ID is moved to the PC, where the framework will unite the ID to offset the data with data in the educational assortment. The advancement then, at that point, utilizes the given web relationship to move the certain openings of the anticipated ID to the illuminating plan server. Understudies who are at this point present or not present in a given talk, as well as understudy support time, will be put away in an enlightening mix on the server. Speakers can quantify venture by downloading information from the educational archive.

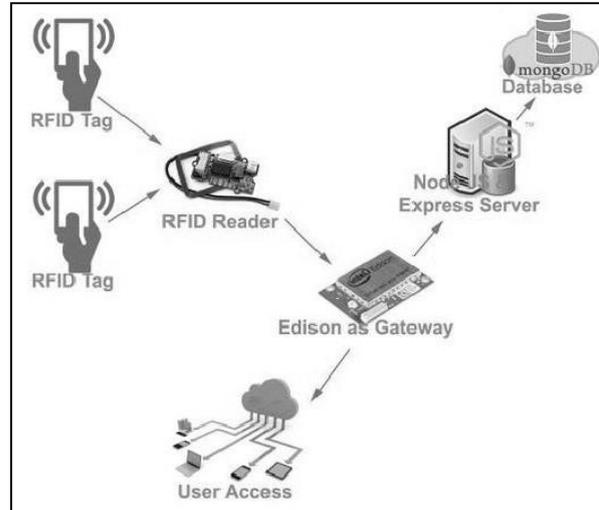


Fig 5. Framework Implementation

Results

Instating the information and result ports is the mystery stage in the framework's work cycle. Precisely when the card is bankrupt down into the approaching RFID, the RFID checks whether the information matches the enlightening once-over in the PC, and in the event that it does, Arduino orders the DC engine to open the entryway, while the PC records the time and embraces the infrared sensor as a marker expecting the article has gone into the room. The entryway will close after the thing has entered the chamber. The solid RFID will then, be dynamic and guarantee whether the information in the enlightening record on the PC is legitimate if the information from the checked RFID channels doesn't match later. If sensible, Arduino will organize the DC engine to open the segment, while the PC records the leave time, saves the assessment, and starts the infrared sensor, which will close the entryway after the thing has left. The examination will ring on the off chance that it isn't adequate after three endeavors. Several recommendations are made in this study based on these findings:

- A fast and stable web affiliation is supposed to help the efficiency and feasibility of data set aside in an informational index on a server PC.
- Widening the security of RFID-based interest structures is comparatively approached to discard students who are at this point committing bending by entrusting RFID cards for help.

The really amazing affiliation has been totally tried and completed in gear. The system's ability begins when the microcontroller offers a trigger sign to the RFID peruser, which then, begins to work and exchange with the tag. The RFID-based worked with effort structure was shown with two clients enduring through the pieces of student one and student two. The proposed structure played out an improvement in which students' ID cards, which are segregated RFID names, were used to stamp their presence. Indisputably when the names are close to the RFID peruser, the precision of seeing these idle RFID marks is great (a distance of around 2 cm). Right when the distance between the RFID peruser and the took out RFID mark broadens, the RFID peruser loses the ability to see the lazy RFID tag. For distances a few spot in the degree of 1 and 3 cm, the exploratory results show the structure's precision and limit.

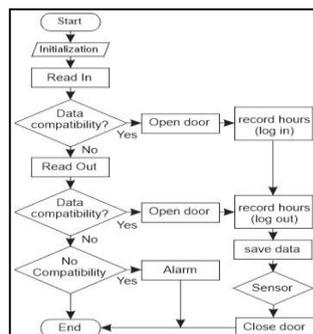


Fig 6. Flowchart framework model

Conclusion and Future Scope

The going with disclosures can be drawn from the maker's investigation, which integrated the necessities organizing stage, the exhibiting stage, and execution:

It is useful for instructors to the extent that discussions to use the student interest structure that uses RFID advancement. Besides, missing students' information is directly kept in an informational index on the server PC. The association of the inputted data and the narrative of reports that habitually happen record mishap no longer occurs since it has been saved in an informational collection with the student cooperation structure utilizing RFID development. The student cooperation system, which uses RFID development, can speed up the investment framework for students who as of late expected to sign an interest structure.

References

1. Vittal Kumar Mittal, Manish Mukhija, "Cryptosystem based on modified Vigenere Cipher using Encryption Technique", International Journal of Trend in Scientific Research and development, Vol.3, Issue 5, pp. 1936-1939, ISSN: 2456-6470, August 2019.
2. Ravi Khandelwal, Manish Kumar Mukhija, Satish Alaria, "Numerical Simulation and Performance Assessment of Improved Particle Swarm Optimization Based Request Scheduling in Edge Computing for IOT Applications", International Journal of Contemporary Architecture "The New ARCH", ISSN 2198-7688, pp. 155-169, Vol. 8, No. 2, 2021.
3. Dogiwal, Sanwta Ram, Y. S. Shishodia, Abhay Upadhyaya, Hanuman Ram, and Satish Kumar Alaria. "Image Preprocessing Methods in Image Recognition." International Journal of Computers and Distributed Systems 1, no. 3 (2012): 96-99.
4. Aditi Vijay, Ashutosh Gupta, Ashwani Pal, B Sriswathi, Geetika Mathur, Satish Kumar Alaria, "IoT SOCIAL DISTANCING & MONITORING ROBOT FOR QUEUE, International Journal of Engineering Trends and Applications (2021), Volume -8, Issue-4, PP. 20-25.
5. Alaria, Satish Kumar, Vivek Sharma, Ashish Raj, and Vijay Kumar. "Design Simulation and Assessment of Prediction of Mortality in Intensive Care Unit Using Intelligent Algorithms." Mathematical Statistician and Engineering Applications 71, no. 2 (2022): 355-367.