

RFID Technology based Student Record Management System

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ABSTRACT

The RFID system is also called as Automatic Identification System. Because of the low range conceivable outcomes and ease, Radio Frequency Identification (RFID) frameworks are utilized as a part of an assortment of space territory to interestingly recognize physical articles. This paper proposes RFID Based College Institute Student Identification all relevant Management System that would permit quick exchange stream and advantages by including properties of traceability and security. This framework depends on RFID readers and passive RFID tags that can electronically store data that can be perused with the assistance of the RFID reader. This framework would have the capacity to issue by means of RFID tags.

The focal point of consideration of this paper is to examine about a created framework that would stamp the participation of understudy by utilizing RFID tag.

Keywords – Radio Frequency Identification (RFID), student, attendance, management.

I.INTRODUCTION

Web applications are generally utilized because of the accomplishment of versatile innovation, remote systems administration, and area based compact gadgets. Inside the new age of inescapable and pervasive registering gadgets, two research subjects are testing: continuous confinement and portability arrangements [1]. The confinement issue has characterized to know where objects are, and thusly location based service (LBS) are being started. Thus, organize arranging, for example, versatility administration, stack adjusting and arrange usefulness are extremely helpful in area based administrations.

India has numerous quantities of universities and instructing is one of the real exercises giving work to number of individuals who get a kick out of the chance to offer learning to the general population. Today numerous schools of country territory are confronting basic issue like bunking the school addresses additionally meet with the mishaps. Indian bureau of instruction emerges question to the division for their untrustworthiness. Training office additionally looks for records of the considerable number of understudies which are exceptionally hard to keep up. This portrays a model advancement of keep up the record of the considerable number of understudies titled RFID based Tracking and Attendance with GSM Module only providing food the need of Indian educators [2].

Contrast with Radio Frequency Identification (RFID) Technology customary standardized tag innovation give straightforward answer for Automatic Identification Data Collection (AIDC) innovation in different ventures

applications. In any case, this innovation has few issues that is, each barcoded thing required individual examining along these lines restricting the filtering speed. When it is use by physical work or robotizing the checking procedure, the additional cost are brought about. That is the motivation to overcome this issues today the RFID innovation has been making advances in different mechanical applications. RFID system has great precision and security make it a perfect information accumulation and participation checking stage for an assortment of business sectors and applications including medicinal services, producing, warehousing, transportation and retail and so forth. Here we utilize RFID innovation for gathering the data naturally by radio frequency change between RFID tag and Reader and denoting the participation of understudy [3].

It is more imperative for instructive parts to expand the speed of information gathering and increment the addresses proficiency. To address these issues, any organization/school must utilize the RFID-based framework that denotes the participation of the understudy. The imperative part of this paper is to demonstrate how RFID can possibly change the way we deal with our lives and giving complete answer for a completely robotized framework [4].

Radio Frequency Identification (RFID)

There are many different types of RFID systems out in the market. They are categorized according to their frequency ranges. Some of the most commonly used RFID kits are as follows [5]:

- 1) Low-frequency (30 KHz to 500 KHz)
- 2) Mid-Frequency (900KHz to 1500MHz)
- 3) (High Frequency 2.4GHz to 2.5GHz)

These frequency goes for the most part tell the RF scopes of the tags from low frequency tag extending from 3m to 5m, mid-frequency running from 5m to 17m and high frequency going from 1m to 30m.

A fundamental RFID system comprises of three parts:

- a) An antenna or coil
- b) A transceiver (with decoder)

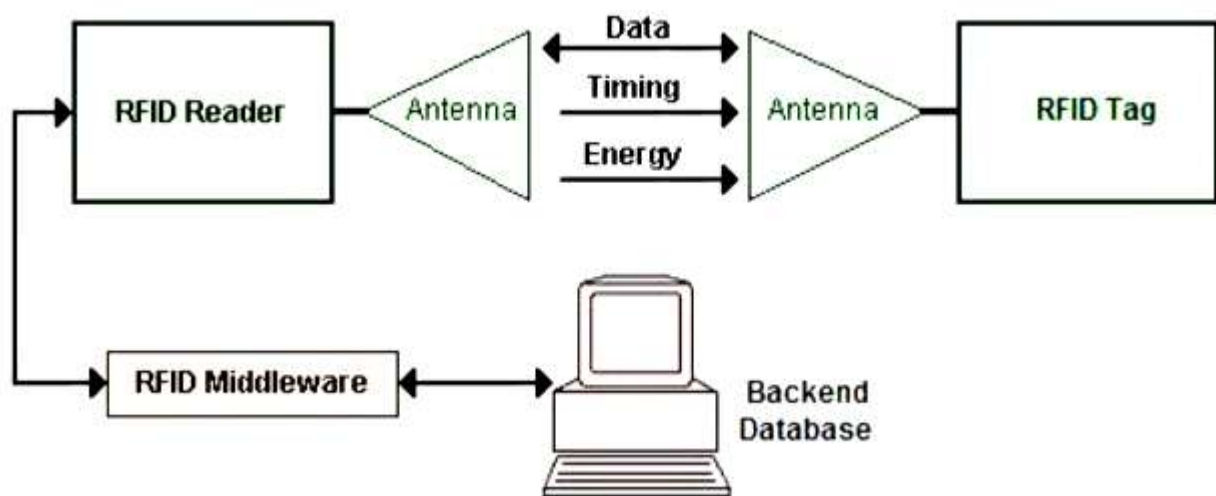


Fig 1: RFID System components and Architecture [6]

Why RFID ?

Presently, associations want to have biometrics based validation. In any case, utilizing biometrics applications is expensive and tedious for the classrooms and association. We ought to infer a period and financially savvy answer for this issue utilizing RFID (Radio Frequency Identification). Utilizing highlight gave by RFID to identify numerous people with short measure of time and give security picture design coordinating calculation [7].

RFID: WORKING SEQUENCE AND COMPONENTS

A. Overview

As mentioned above, RFID innovation can recognize singular element in the brief timeframe, the framework will turn out to be convenient in circumstances where security is essential. This framework will give quicker and secured confirmation to the association classes and premises and limited zone with more exactness than prior RFID based framework [8].

B. Working Sequence:

- 1] User will place tag in a scope of reader.
- 2] Reader will distinguish tag and send id to the administrator application.
- 3] Operator application will send id to the server by remote system.
- 4] Server will process the information and spare it in Database.

5] User will get the affirmation by message.

RFID SYSTEM COMPONENTS

RFID System comprises of two segments [9]:

A) Hardware Components

B) Computer Software

A) Hardware Components:

Hardware components include RFID Tag and Reader [10].

i) RFID Tag:

There are three types of RFID tags; passive, active and semi-passive. The passive RFID tag requires no interior power source as it picks up control from the flag transmitted by the reader. The active and semi-passive tag requires a power source. Regularly the power source is a little battery. These tags impart utilizing backscattering or stack adjustment strategy.

ii) RFID Reader:

“IDR-232” RFID reader is generally used.

Description and specifications:

- 9600 baud RS232 serial interface (output only) to PC.
- Fully operation with 5VDC power supply from USB port.
- Red and green color LED for visual indication of activity.
- Standard RS232 serial cable (female) ready to plug to desktop PC.
- 14 bytes of data received include start of text, RFID ID, carriage return, new line, and end of text.
- Frequency band used : 125 kHz (Low Frequency)

Other than above primary segments, there are other sub-segments moreover:

iii) RFID Frequency Band:

We can characterize Frequency as the extent of the radio waves used to impart between the RFID system's

segments [10]. One might say that higher frequency coming about quicker information exchange rate and longer perusing separation. However as frequency builds, the affectability to natural factor likewise increments. RFID system as of now works at three frequencies, for example, Low Frequency (LF), High Frequency (HF) and Ultra High Frequency (UHF).

iv) RS-232 Interface :

RS-232 Interface is a standard characterized by Electronic Industries Association (EIA) for serial information transmission. This standard uses offbeat information transmission where a word comprises of a begin bit, seven or eight information bits, discretionary one equality bit and maybe a couple stop bits. The transmission can be executed negligibly utilizing three wires: send information, get information and flag ground. The base perceived voltage of this standard is 3V [11].

v) USB to Serial Converter:

Characterizing RS232 interchanges and ports are regularly specifically gotten to in the application program. Settings like baud rate, information bits, and equipment programming stream control can regularly be changed inside the application. Conversely, the USB interface does not give this adaptability. Be that as it may, when a RS232 port is utilized by means of a USB to RS232 converter, this adaptability ought to be available somehow. In this manner to utilize a RS232 port by means of a USB port, a moment gadget driver is vital which imitates a RS232 UART, however conveys through USB [12].

B) Software Components:

I) JAVA:

Java is an arrangement of a few PC programming items and details from Sun Microsystems (which has since converged with Oracle Corporation), that together give a framework to creating application programming and conveying it in a cross-stage registering condition. Java is utilized as a part of a wide assortment of registering stages from inserted gadgets and cell phones on the low end, to big business servers and supercomputers on the top of the line. Writing in the Java programming dialect is the essential method to create code that will be conveyed as java bytecode [13].

ii) MySQL Database:

MySQL is a mainstream decision of database for use in web applications, and is a focal segment of the broadly utilized. The My SQL is the open source database.

C) Implementation

In the proposed framework consider a class in which RFID reader is set at entrance. Every understudy will wear the tag as an I-card. At entryway individual needs to get through an obstruction which will moderate an individual and enable a man to enter at any given moment so the reader put after the entryway will have adequate time to distinguish a person. The participation of understudy will be set apart for specific timeframe after that the participation won't be stamped. So the understudies who come late won't get participation. [14]

The reader is associated with the framework in the classroom. So when reader recognizes the understudy it will send that one of a kind tag id to the framework in the classroom and camera will catch the photograph. At that point that framework will send that id and photograph to the server for validation.

Server will check the tag id of Student. At that point the caught picture will be contrasted and the picture put away in database. Server will send the understudy data to the framework in the classroom. consequently educator in the classroom can validate an understudy by that data [15].

Understudy can likewise see his participation on the site as that participation will be transferred on the site. Understudy participation report and notice will be transferred on site. In this framework there will be an application which will be for checking day by day participation. Consequently the higher specialist like standard can check the quality of the different classes. This application will work by interfacing with server utilizing Wi-Fi.

This framework is exceptionally powerful as the understudies it ascertains participation of all understudies. This framework is extremely valuable where class quality is high. It will spare time of instructor for both taking participation and keep up the record [16].

RFID TECHNOLOGY ADVANTAGES

- 1] RFID system is quick and completely mechanized.
- 2] This System is solid, exact and does to required physical site of contact.
- 3] Reducing paper based work.
- 4] sparing the season of participation call.
- 5] genuine participation, no intermediary participation.
- 6] Easy approach to fill guardians in as to whether a youngster is truant

7] students don't need to convey Multiple cards

II.CONCLUSION

Therefore we have contemplated, RFID system and found that there are numerous favorable circumstances in it over the current frameworks. We ought to supplant existing framework with enhanced quality framework. This will work speedier and less demanding than existing framework. This framework will ease is school/arrangement to screen the understudy. The framework can decreases labor. In spite of the fact that there are diverse techniques for following understudy however our framework is anything but difficult to deal with and extremely advantageous for school/college level. This framework gives efficient, simple control and unwavering quality.

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