Secured Administrative Information Management System Using Radio Frequency Identification

Rajas Hegiste, Aditya Sawant, Mangesh Kshirsagar, Devendra Kahane

Abstract—Secured Administrative Information Management System using RFID is a system through which we aspire to make a computerized campus of our college. The system will help the students solve all possible problems they face. Also it will help the teaching faculty as well as the administrative staff to understand the student's problems and queries. Student's work of going to office and searching every notice board for the particular notices will be reduced. The system uses Radio Frequency Identification for handling all information. Applications based on RFID are rising as there can be many new technologies that can be bound to it and can be used to develop further complex systems. This paper proposes a system that will handle information of students for an institute using the RFID and contains another feature of One Time Password as well as making all the possible work online and effortless.

Keywords— RFID, Tags, Information Management System.

I. INTRODUCTION

The Secured Information Management System helps administration to reduce the human errors which might occur at an possible situation like misplacement of a important documents, problem regarding accurate attendance and it also saves the time. It also assists the administration for better management of the students vital information. Enhancing existing manual system to check certain information like student's, administration's, employee's metadata. It can be used in a university, school, colleges or an institute for maintaining students' details or any possible data.

The key feature of the System is the use of RFID. All the things mentioned above can be implemented using RFID. RFID tags, or simply "tags", are small transponders that respond to queries from a reader by wirelessly transmitting a serial number or similar identifier. They are heavily used to track items in production environments and to label items in supermarkets. They are usually thought of as an advanced barcode. However, their possible area of use is much larger. This paper presents a new application that is possible using RFID technology such as real time use of data, identification and various other purposes. RFID tags are expected to proliferate into the billions over the next few years and yet, they are simply treated the same way as barcodes without considering the impact that this advanced technology has on privacy.

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There are 3 types of RFID tags:-

- Passive
- Semi-passive
- Active

The System uses passive tags. Any of the above tags can be used. There are very small differences between these three types of tags. Passive tags do not have an internal power source, and they therefore rely on the power induced by the reader. This means that the reader has to keep up its field until the transaction is completed. Because of the lack of a battery, these tags are the smallest and cheapest tags available; however it also restricts its reading range to a range between 2mm and a few meters. As an added benefit those tags are also suitable to be produced by printing. Furthermore their lifespan is unlimited since they do not depend on an internal power source.

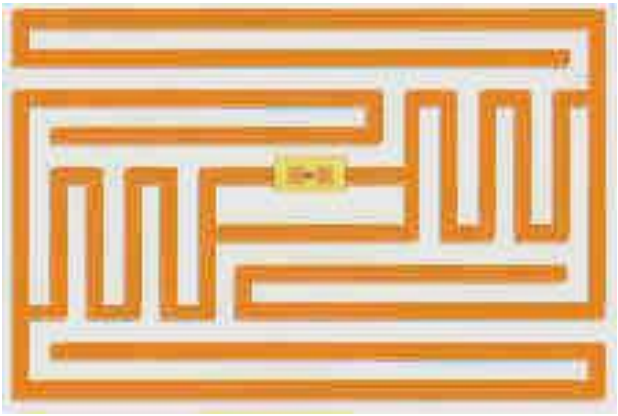

Figure 1: A passive RFID tag

II. LITERATURE SURVEY

Now a days, large no of organizations are providing information via different means example. Internet, messages on mobile, providing help desks etc. such things are widely used in all the possible fields. All these means mainly require human assistance or human expertise to respond to it. In many cases, whenever a problem occurs similar queries are asked again and again by different users. Such problems cause nothing but waste of money and resources. Use of such technologies all in a different way or different methods makes it very complex. This project demonstrates the use of emerging automation technologies to potentially permit better and simpler utilization of human resources.

Based on the analysis of available technologies, a Web-based 'intelligent' help desk and information management system is a viable alternative to current help desks. Case-based reasoning technology combined with the concepts of recognition-primed decision making can be useful in such a system. Experiences encoded as cases allow users to identify solutions to their own problems, reducing the burden on help desk staff. Auto Help could provide a

means to solve the problem of increasing user demand for assistance while reducing associated costs.

III. FLOW OF SYSTEM

A RFID reader and a few tags are in general of little use. The retrieval of a serial number does not provide much information to the user nor does it help to keeping track of all the information. The real power of RFID comes in combination with a backend that stores additional information such as information of all the students and where and when a certain tag was scanned. In general a RFID system has a structure as depicted in figure 2. RFID readers scan tags, and then forward the information to the backend. The backend in general consists of a database and a well defined application interface. When the backend receives new information, it adds it to the database and if needed performs some computation on related fields. The application retrieves data from the backend. In many cases, the application is collocated with the reader itself.

An example is the checkout point in a supermarket (Note that the given example uses barcodes instead of RFID tags since they are more common; however, the system would behave in exactly the same way if tags were used). When the reader scans the barcode, the application uses the derived identifier to lookup the current price. In addition, the backend also provides discount information for qualifying products. The backend also decreases the number of available products of that kind and notifies the manager if the amount falls below a certain threshold.

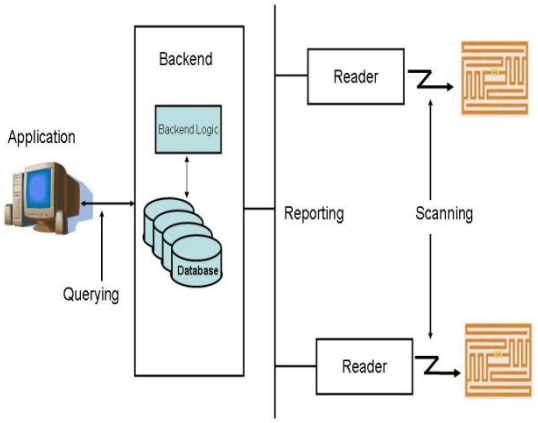

Figure 2: A simplified RFID system

This section describes how RFID tags work in general, what types of tags exist and how they differ. The three frequency ranges that RFID tags typically use are LF, HF, and UHF.

IV. IMPLEMENTATION

A. Allocating Tags:

Each tag has its own special data stored in it. This data helps in recognizing the identity of the person using the tag.

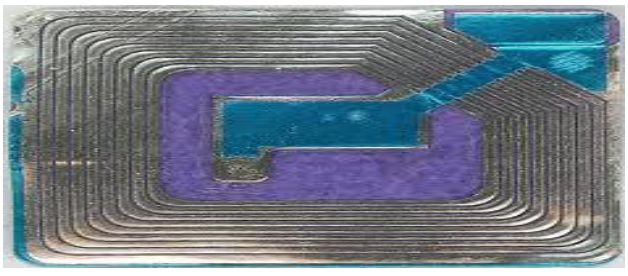

Fig 3.RFID tag

B. Reading Tags:

These tags are brought near the reading device. They have to be brought close up to certain range. The reading device retrieves the required data from the tag.

Fig 4. RFID Tags being used

C. Sending Information:

This Information that is stored in the reader is sent to the RFID writer which receives all the data.This transaction of data is done in real-time. The backend is used to store this data. No harm can be done to the information from outside.

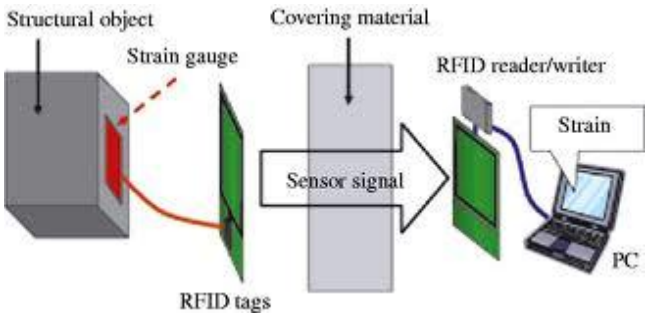

Fig 5.block diagram of transaction of information

V. FUTURE SCOPE

Security using RFID can be breached at some levels to take precautions for such situations we can use Digitized Authentications, Retinal Recognition etc. In Digitized Authentication, there are two main types of authentication digital signature and digital certificate. Digital Signature is an electronic 'signature' that can be used to authenticate the sender and to ensure data integrity and Digital Certificate is a piece of electronic information used to prove someone's or a server's identity in a digital communication. Retinal Recognition is scan based on personal identification that exploits the uniqueness of the vascular pattern of the retina in defining it's biometric.

VI. CONCLUSION

The system which will be developed will prove very fruitful for the administrative work. The work of going to the administrative office will be reduced a lot. All the notices issued by the institute will go directly on the student's dash board. Particular notices issued by the department for the department students will also be seen on the student's profile. This will reduce the faculty's as well as the office's paper work immensely. As well as the main feature is RFID.RFID would help to keep the software and database of the student and staff secured. RFID would help in keeping track of all the things happening. Information would be updated on daily basis as it would help be the Administration to be up to date. Such additional features help in getting closer to a computerized world.

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