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Role of RFID in Attendance system

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Abstract: In recent period the use of **RFID, Radio Frequency Identification,** is increasing in almost every sector. RFID technology facilitates automatic wireless identification by using electronic passive and active tags with suitable readers . In this paper an attempt has been made to have a centralized attendance system for Government employees so that the Government may have centralized information and attendance of each and every employee from different cities and different branch locations and all these information can be used by government for decision making and maintaining records.

Key Words: RFID, Attendance, Passive tag, Reader

INTRODUCTION:

Presently the attendance system of governmet employees is manual and also using some other means of attendance which is time consuming or sometimes some employees can take advantage of these manual attendance system by giving attendance on the day they were not present or coming late. There arises a need for a more efficient and effective method of solving this problem. A technology that can solve this problem and even do more is the RFID technology. RFID is an automated identification and data collection technology, that ensures more accurate and timely data entry. RFID is not actually a new technology; it only quickly gained more attention recently because of its current low cost and advances in other computing fields that open up more application areas. RFID combines radio frequency and microchip technologies to create a smart system that can be used to identify, monitor, secure and do object inventory. At their simplest, RFID systems use tiny chips called ―tags that contain and transmit some piece of identifying information to an RFID reader, a device that in turn can interface with computers. The ability of RFID systems to deliver precise and accurate data about tagged items will improve efficiency and bring other benefits to government.

RFID TAGS:- Tags also sometimes are called "transponders". RFID tags can come in many forms and sizes. Some can be as small as a grain of rice. Data is stored in the IC and transmitted through the antenna to a reader. The two commonly used RFID Transponders are Active (that do contain an internal battery power source that powers the tags chip) and Passive (that do not have an internal power source, but are externally powered typical from the reader) RFID Transponders.

RFID READER:- A reader (now more typically referred to as an RFID interrogator) is basically a radio frequency (RF) transmitter and receiver, controlled by a microprocessor or digital signal processor. The reader, using an attached antenna, captures data from tags, then passes the data to a computer for processing. The reader decodes the data encoded in the tag(s) integrated circuit and the data is passed to the host computer for processing.

WORKING OF RFID:- Information is sent to and read from RFID tags by a reader using radio waves. In passive systems, which are the most common, an RFID reader transmits an energy field that "wakes up" the tag and provides the power for the tag to respond to the reader. Data collected from tags is then passed through communication interfaces (cable or wireless) to host computer systems in the same

manner that data scanned from bar code labels is captured and passed to computer systems for interpretation, storage, and action.

Now a days cloud computing is vast growing in each area due to which we can minimize the required computing resources, minimize the cost and enhance the performance. We can use cloud computing technology under attendance system to enhance the attendance record . Many organizations run under one roof(Main branch) with same rules. So if we apply cloud computing technology in attendance system we can make it more transparent system that it minimizes the communication gap between main branch and sub branches.

TYPES OF CLOUD MODELS:- a) Public cloud:- As many branches run under one main office we can go for public cloud which will be less expensive than other cloud models. Public doesn't mean access to anyone without identification.
b) Private cloud:- It will be applicable for particular branch, hence will be more expensive.
c) Hybrid cloud:- It will be applicable for group of branches, whose requirements are same.

IMPLEMENTATION OF ATTENDANCE SYSTEM USING RFID

Every employee will be having unique RFID tag that will contain information about him. As soon as the reader reads the information of the tag the information of the employee will be passed to computer system and the computer system will be connected to cloud where all the attendance of all the employees are stored. Finally the attendance reports of all the employees from all the branches can be obtained from the cloud and also by using that salary can be given. The main advantage is that attendance can be stored centrally and can be accessed by authorized person from any where as shown in the following figure:

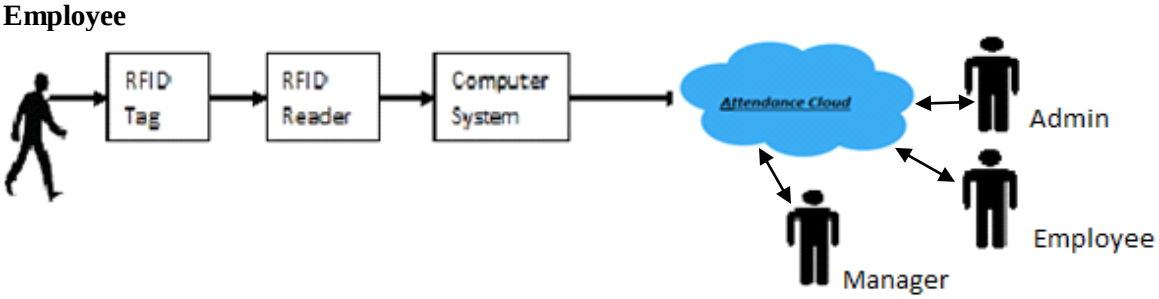

Fig. Employee Attendance System using RFID Tag and Cloud

As shown in the above figure, there will be central cloud server where all the computing (s/w and h/w) resources will be there where each end user can communicate through API and perform the appropriate operation.

Admin:- Super person i.e. administrator to all sub-administrators. There will be one admin assigned to each office to handle activities. Super admin will have all the authorities.
Employee:-Employee will be able to see his/her own attendance
Manager:-Manager can see the attendance list.
Employee details:-In which all employee details can be maintained.

FUTURE SCOPE: RFID has a tremendous scope in globalization era. Due to privatization and globalization there is a cut throat competetion in the business world. To exist in the market, there is a need to work more efficiently and save the cost as far as possible. For this, there is a need to use the human resource more efficiently. So each and every enterprise can use RFID system for more efficient use of human resource.

CONCLUSION

With the help of RFID time can be saved, also paper can be saved, conservation of nature becomes possible and ultimately money can be saved because of automation of attendance system for employees. Due to RFID manual attendance system will come to end, secured and reliable data transfer from RFID reader to cloud server and RFID can be used anywhere with moving objects. RFID facilitates the users in numerous ways like time saving in attendance procedure, security, employees attendance management and many more.

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