_____

Smart Attendance System

Pushpa S. Gagare., Priyanka A. Sathe, Vedant T. Pawaskar., Sagar S. Bhave

pushgagare@gmail.com, sathep92@gmail.com, vedantpawaskar@gmail.com, sagarsbhave@gmail.com
PVPPCOE SION (E.)

Abstract: N day-to-day lives there are different types of identification system are present For the detection of Animals, students, products and also for transportation. The system like Barcode system, Smart-card and Bio-metric technology are present. As compare to them RFID is faster than barcode and smart card system and cheaper than bio-metric system, Hence we preferred to the RFID for our Project. Our project is Smart Attendance System using RFID. RFID stands for Radio Frequency Identification and Detection. In this we are using RFID reader and passive RFID chips. Reader is located on fixed location sends signal to passive RFID chip detected in range of reader. Chip re-transmits the acknowledgement signal with its unique Identifier code, hence chip is identified. Also, a single reader can identify many no of chips in very short period of time. So, we are using these properties of RFID reader and tag to monitor the student.

Keywords: RFID passive tag, RFID Reader, online Registration, Bluetooth, RFID Antenna.
_____ ***** _____

1. INTRODUCTION

In earlier days supervision system was cumbersome to detect the location of student and it is very tedious task to take attendance manually. As technology has advanced, integrating the monitoring system with an automation technology will provides more convenient way in monitoring the student. The Radio Frequency Identification (RFID) technology is one of an automation technology that is beneficial in improving current traditional way of monitoring student. As every tag has its own unique ID, it is easy to differentiate every tag holder. In addition, a Graphical User Interface (GUI) provides more efficient way to review the attendance. Thus, the integration of RFID technology and the GUI in an

attendance system will produces an automatic system which give better performance and efficiency than the traditional method of monitoring student. Furthermore, RFID technology can help to identify and to monitor items (products, people, animals, etc) wirelessly within a specified distance (a few centimeters to hundreds of meters). In this paper, we describe the proposed RFID system for identifying and monitoring attendance. In this system, the RFID tags enable the school/university management people to supervise the student movement in and out of the campus. When the RFID tags pass through the RFID reader in read range zone, then system will record the data from the RFID tags to the database systems.

2. RELATED WORKS

Before the RFID system smart-card and barcode are more popular for all purpose like supervision, attendance or for monitoring student, employees etc.

- In this we are going to implement the RFID system in our project for improvement of old attendance system and monitoring system for better result and security of the student.
- An RFID tag is an object that can be applied to or inserted into a product, person, or animal for the purpose of identification and tracking using radio waves. Some tags can be read from several centimeters or meters away and beyond the line of sight of the reader.

A) Existing System

- Old fashioned student attendance system was a tedious task to perform and maintain and also time consuming.
- Barcodes are less secure because can be easily reproduced.
- Manual attendance system is very time consuming.

Fig1: Barcode

B) Proposed System

In our proposed system, we improve the student attendance system. The Radio Frequency Identification (RFID) technology is one of an automation technology that is beneficial in improving current traditional way of monitoring. As every tag has its own unique ID, it is easy to differentiate every tag holder. In addition, a Graphical User Interface (GUI) provides more efficient way to review the monitor. Thus, the integration of RFID technology and the GUI in an monitoring system will produces an automatic

124

_____

_____

system which give better performance and efficiency than the traditional method of student attendance.

• This system uses individual RFID tags for each user identification.
• This system uses Bluetooth for communication.

3. PROBLEM DEFINITION

The traditional method of monitoring has some drawbacks. This method obviously not efficient as it wastes the user's energy and quite slow in term of completion. For example, a class that uses attendance sheet method requires the students to pass the sheet to each other to sign up the monitor. If there is a large amount of students, it will take time in order to complete the monitoring. Besides that, there is possibility that some students might miss their turn to sign the attendance as they did not receive the attendance sheet. It is same goes to the "punch card" system. The Workers i.e. employees has to queue up for a long time as each employee need to punch the card and then put it in the slot provided according to their names. In summary, both system give drawback in term of performance.

A) GOAL

• To build an monitor system that consists of a GUI with the integration of the RFID technology.
• To enable the monitor system to be monitored remotely.
• RFID is very secure type of identification as compare to other system. Also the RFID require minimum cost as compare to other system.
• Tag placement is less constrained, because no line-of-sight is required.
• RFID tags have a longer read range than, e. g., barcodes.

4. RFID SYSTEM PARTS

RFID System consists of two components:
A) Hardware Components
B) Computer Software

A) Hardware Components:
Hardware components include RFID Tag and Reader.
i) RFID Tag:
There are three types of RFID tags; passive, active and semi-passive. The passive RFID tag requires no
Internal power source as it gains power from the signal transmitted by the reader. The active and semi-passive tag requires a power source. Commonly the power source is a small battery. These tags communicate using backscattering or load modulation technique.

Fig: II

ii) RFID Reader:
We are using "***IDR-232***" RFID reader.

Fig:III

I. 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.
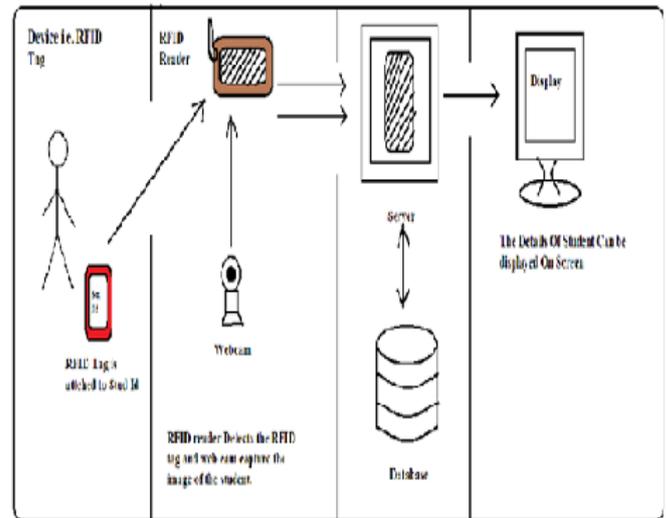• Frequency band used : 125 kHz (Low Frequency)

Besides above main components, there are other sub-components also:

iii) RFID Frequency Band:
We can define Frequency as the size of the radio waves used to communicate between the RFID system's components. It can be said that higher frequency resulting faster data transfer rate and longer reading distance. However as frequency increases, the sensitivity to environmental factor also increases. RFID system currently operates at three frequencies such as Low Frequency (LF), High Frequency (HF) and Ultra High Frequency (UHF).

Frequency table

_____

Frequency Band	Description	Operating Range	Application	Benefit	Drawback
125 kHz to 134 kHz	Low frequency	< .5 m or 1.5 ft.	☐ Access Control ☐ Student Tracking ☐ Vehicle Immobilizers	Works well around water and metal product	Short read range and slower read rate.

iv) RS-232 Interface :

RS-232 Interface is a standard defined by Electronic Industries Association (EIA) for serial data transmission. This standard uses asynchronous data transmission where a word consists of a start bit, seven or eight data bits, optional one parity bit and one or two stop bits. The transmission can be executed minimally using three wires: send data, receive data and signal ground. The minimum recognized voltage of this standard is 3V.

v) USB to Serial Convertor :

Defining RS232 communications and ports are often almost directly accessed in the application program.

Settings like baud rate, data bits, and hardware software flow control can often be changed within the application. In contrast, the USB interface does not give this flexibility. However, when an RS232 port is used via an USB to RS232 converter, this flexibility should be present in some way. Therefore to use an RS232 port via an USB port, a second device driver is necessary which emulates a RS232 UART, but communicates via USB.

B) Software Components :

i) VB.net

ii) MySQL 2008

V. SYSTEMARCHITECTURE

When student entered in classroom or in other place of the college campus along with Id i.e. RFID tag gets monitored by the RFID reder with the help of its frequency match. Readers are placed at different

places of campus such that their frequency cannot be mixed.

FigIV: System architecture
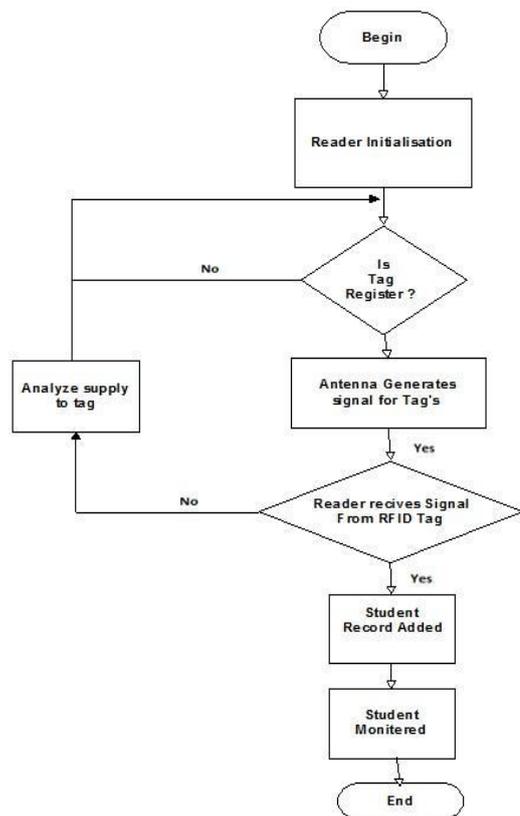
6. WORKFLOW OF SYSTEM

Fig. V: Flow chart

The above flowchart describes the flow of the system The actual works of our system starts after the login of admin and by initializing the rfidreader. When the rfid reader gets initiated they starts emitting the frequency with respective range of their own and they detect the RFID tag i.e .Identity card which we provide to the student. The rfid readers reads the tag information and fetch the information of student, as we know that every rfid tag has its own identity which acts as primary key which refers to the database details of

126

respective student. We also track the live position of the student with the help of our system and we can also analyze the all the map of student where he/she travels in college. With same account we can get the attendance of the class which reduces the manual efforts and errorless attendance system The usage of Java is very important and the main function to build the system is because Java functions as a link between hardware and software. Additionally, it functions to send information to the online networking system through intermediary database system.

7. SYSTEM DESCRIPTION

(Fig: A) Enroll Form

(Fig: B) Report Form

The above figures A and B are snapshots of our project module.

8. CONCLUSION

In this System, Smart Attendance System using RFID can replace the manual system that transformation of information can be delivered without a hitch. This system will ease is school/collage to monitor the student. The system can reduces manpower. Although there are different methods of tracking student but our system is very easy to handle and very convenient for college/university level. This system gives time saving, easy control and reliability.

REFERENCES

[1] Herdawatiebinti Abdul Kadir, Siti Nurul Aqmariahbinti Mohd Kanafiah, Mohd Helmy bin Abd. Wahab, Zarina Tukiran and Zulidabte Abdul Kadir,"Online students supervision (OSS) systems using passive RFID" 2008 IEEE paper.

[2] HerdawatieBt Abdul Kadir, Mohd HelmyAbd. Wahab and Siti Nurul Aqmariah Bt Mohd Kanafiah "Boarding School Students Monitoring Systems (EID) UsingRadio Frequency Identification" "Faculty of Electrical and Electronic Engineering,University Tun Hussein Onn Malaysia, 86400 Parit Raja, BatuPahat, Johor, Malaysia, Journal of Social Sciences 5(3):206-211 2009

[3] Abdul Kadir1, Mohd Helmy Abd Wah Ab2, Zarina Tukiran3, Ariffin AbdulMutalib4 "Tracking Student Movement using Active RFIDHERDAWATIE" 1,2,3Faculty of Electrical and Electronic Engineering Universiti Tun Hussein Onn Malaysia P.O. Box 101, Pt. Raja, Batu Pahat, Johor,ISSN: 1790-5117,ISBN: 978-960-474-166-3MALAYSIA

[4] Amin A. Al-Zarouni, Nassar H. Fakhro "Mobile RFID Tracking System" Computer Engineering Department American University of Sharjah, UAE

[5] Member), Z. Chalhoub, and S. EI Dahdaah, "An RFID Attendance and Monitoring System for University Applications "Department of Electrical and computer and communication Engineering Notre Dame University Louaize Zouk Mosbeh, 978-1-4244-8157-6/102010.