

RFID Based Automatic Student Attendance and Parent SMS Notification System

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ABSTRACT

Attendance plays very important role in many fields. Manual attendance system is used to monitor login and logout information of employees or students in various organizations. But that system is not accurate. This paper elaborates the implementation of RFID Based Automatic Student Attendance and Parent SMS Notification System. RFID based attendance system is designed using .Net and database. RFID Database is used to send alert to parents about absent student as well as to keep the attendance. This paper gives clear idea that how we have implemented RFID based automatic student attendance and parent sms notification system.

Keywords: RFID, Attendance System, RFID tags, Students, SMS

I. INTRODUCTION

The current attendance framework is manual and it expends parcel of time. In numerous businesses organisations attendance is utilized to note down the participation of their workers or employees. In manual system papers are used to maintain attendance record. In college or universities, attendance is taken by professors manually on the paper. One method is Professor roll call the roll number and the student gives attendance by responding to it. The second method is that students do sign on the paper and it is possible that one student can make the proxy for other students. This is the problem in the manual system. To eliminate this problem RFID based automatic student attendance system is proposed.

This new system will use RFID cards. Organisation can provide Identity card cum RFID card to students which small in size. Student has to show this card to card reader on entrance of the college. Organisation can place this reader on entrance so that student can show the card to reader while entering into the

college and while going to home. Advantage of RFID based attendance system is that card does not need to be inserted in machine like we do in other systems. We swap cards, while swapping card should be inserted in machine. But in RFID based system student can keep the card in wallet. Student can take wallet near to the reader and card will be accepted by reader.

II. History of RFID

On January 23, 1973 Mario W. Cardullo claims to have received the first patent for an active RFID tag with rewritable memory.

The team of the scientists who have developed RFID based detection system of US government in 1970 founded own company and developed automatic road toll pay system which became popular later.

In 1990 IBM developers developed RFID system with longer read range up to 20 feet.^[1]

III. Overview of RFID Technology

Basically RFID systems consists of 3 basic core components –

1. RFID tag
2. RFID Reader
3. Controller

RFID TAG: Tag is the transponder which consists of battery and semiconductor chip. Battery life is limited in tag. Active tag has on board battery whereas passive tag is smaller and cheaper because it has no battery. Tag contains three parts integrated circuit, antenna and DC power. [2]

READER: RFID Reader is read write device which contains antenna RF and control electronic module. Readers can be mounted anywhere to interrogate various objects.

CONTROLLER: Controller is the host software which controls database and working of RFID system. [3]

IV. Proposed System

The design and development of RFID Based Automatic Student Attendance and Parent SMS Notification System aims to provide an interface for the parent to monitor their child's attendance to college; specifically has the following functionalities:

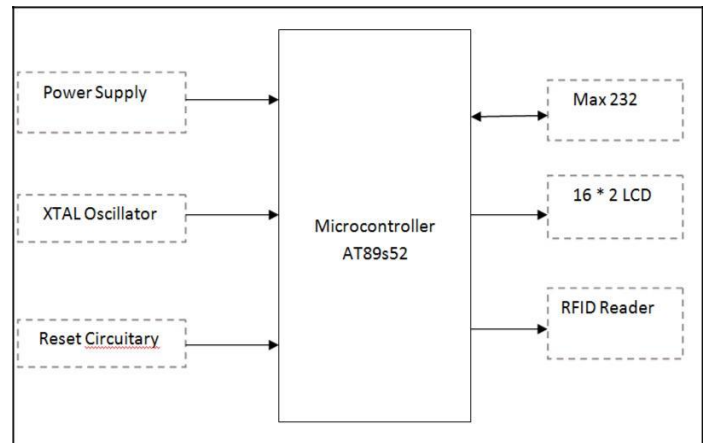
Window-based System

- ✓ A system that will record the student's attendance.
- ✓ Web based system can be used from remote location.
- ✓ A system that will create an account for parents to have an access to the parent portal

SMS Notification Sending System

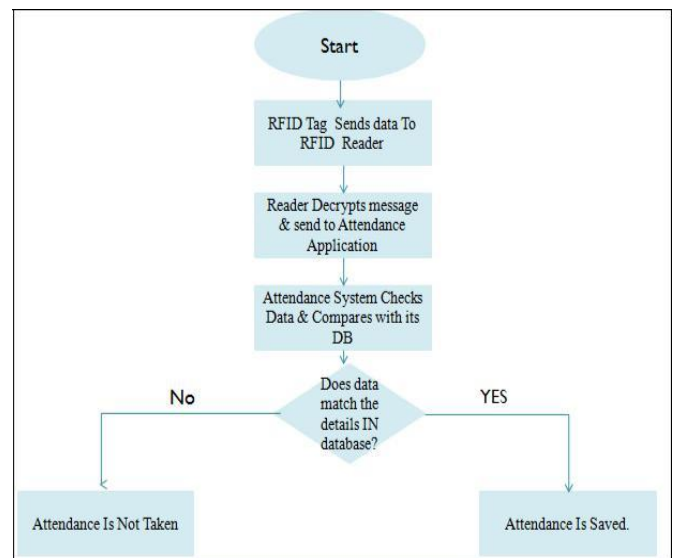
Send an SMS to the parents telling them if their son/daughter is absent.

Block Diagram



Block diagram shows block of components used in this system. Power supply, XTAL Oscillator, Reset circuitry, RFID reader and Microcontroller are the major components.

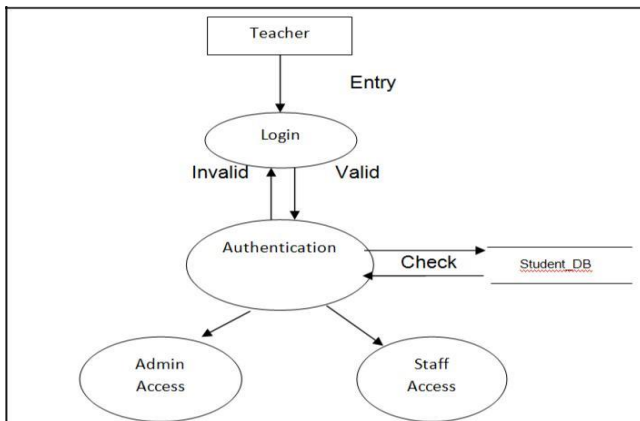
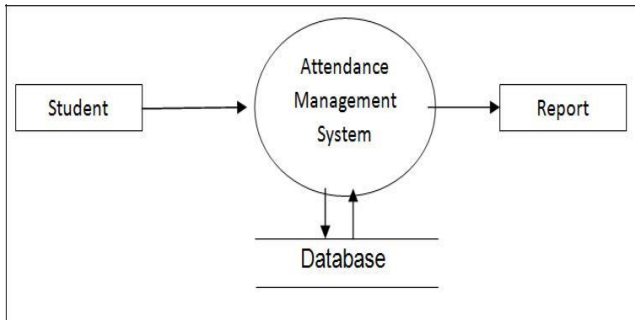
Flow Chart of the System



Flow chart diagram shows that RFID tag send data to RFID reader. Reader reads that data and decrypts message and sends attendance to application. RFID Based Automatic Student Attendance and Parent SMS Notification System checks data and compare with its database. If data is matched with details in database

then attendance is saved otherwise attendance will not be taken.

Data Flow Diagrams



V. Implementation

Column Name	Data Type	Allow Nulls
AttendanceLogId	int	<input type="checkbox"/>
AttendanceDate	datetime	<input checked="" type="checkbox"/>
StudentId	int	<input checked="" type="checkbox"/>
InTime	datetime	<input checked="" type="checkbox"/>
OutTime	datetime	<input checked="" type="checkbox"/>
Status1	nvarchar(50)	<input checked="" type="checkbox"/>
SMSIn	nvarchar(50)	<input checked="" type="checkbox"/>
RecordStatus	nvarchar(50)	<input checked="" type="checkbox"/>
IsUploaded	nvarchar(50)	<input checked="" type="checkbox"/>
MachineIp	nvarchar(150)	<input checked="" type="checkbox"/>
FingerId	nvarchar(50)	<input checked="" type="checkbox"/>

Column Name	Data Type	Allow Nulls
MachineNo	int	<input type="checkbox"/>
MachineName	nvarchar(100)	<input checked="" type="checkbox"/>
MachineIP	nvarchar(50)	<input checked="" type="checkbox"/>
INOUT	char(10)	<input checked="" type="checkbox"/>
SerialNo	varchar(50)	<input checked="" type="checkbox"/>

Column Name	Data Type	Allow Nulls
SRNO	int	<input type="checkbox"/>
fingerid	nvarchar(50)	<input type="checkbox"/>
chktime	datetime	<input checked="" type="checkbox"/>
SN	nvarchar(100)	<input checked="" type="checkbox"/>
Status	nvarchar(1)	<input checked="" type="checkbox"/>
PunchDate	datetime	<input checked="" type="checkbox"/>
AntennaNo	nvarchar(50)	<input checked="" type="checkbox"/>
IP	nvarchar(50)	<input checked="" type="checkbox"/>

Change Student Contact Form

The screenshot shows a web application interface for changing student contact information. It includes a table with columns: EDITCONTACT, StudentName, RollNo, Class, Contact, UHFNO, and MFNO. The table lists 15 students. On the right, there is a form with fields for 'Old Contact No' (8087977932), 'Enter New Contact' (8087977932), and 'RFID Card No' (1). There are 'Update' and 'Cancel' buttons at the bottom of the form.

Class wise Report

SANSKAR GURUKUL CBSE SCHOOL																																
ATTENDANCE REPORT OF CLASS I-A MONTH January																																
Sr No.	Student Name	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	KANAKA VINOD JADGE	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
2	SHIVA HARVEY SHINDE	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
3	SHARUL SATHISH CHAKRA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
4	SOOJA VENKATESH SUDHAKAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
5	KRISHNAKANT SATISH KUMAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
6	PARAGH SANSI PANDIT	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
7	ASHWIN MANISH DATTAL	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
8	ADARSH ANAND DOLAS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
9	KULSH SANDHYA DOLAS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
10	SHRIRAM NITIN KULKARNI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
11	MRUNAL RAHUL SHINDE	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
12	VEDIKA ALPESH ELIAS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
13	YASHRAJ ANAND PANDIT	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
14	NAVYA KISHORSHIRAPADSE	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
15	KRISHNA MANISH VEJDE	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
16	SATYAM CHANDRANATH	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
17	SACHIN YOGESH ANAND	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
18	SAVITRI SHASHI PATEL	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
19	PARAGH THAKUR DESAI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
20	KARTHIK ANAND SHINDE	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
21	ADARSH ANAND DOLAS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
22	KANAKA VINOD JADGE	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
23	SHARUL SATHISH CHAKRA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
24	SOOJA VENKATESH SUDHAKAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
25	PARAGH SANSI PANDIT	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
26	ASHWIN MANISH DATTAL	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
27	ADARSH ANAND DOLAS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
28	SHRIRAM NITIN KULKARNI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
29	MRUNAL RAHUL SHINDE	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
30	VEDIKA ALPESH ELIAS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
31	YASHRAJ ANAND PANDIT	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	

SMS Notification

The screenshot shows an SMS notification from Airtel at 3:17 PM. The message is from BP-FAMTCL and says: "Dear User SAISH AVINASH DOLAS your attendance is marked on 6/23/2018 at 3:15 PM ."

VI. CONCLUSION

As the RFID technology advances more sophisticated applications will be designed and implemented with capability of more accurate reading, writing of data, more range. In this paper we presented application designed by us which can be used to store attendance record of student and able to send sms notification to parents. This application is RFID based and student has to carry RFID card.

VII. REFERENCES

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