

# An Efficient and Smart Attendance Management System

MD Asdaq Hussain, Komirisetty Venkata Naga Krishna, Ramanulla Lakshmi Chandana, Velivela Krishna Chaitanya

**Abstract:** Integration of radio recurrence distinguishing proof innovation and GSM innovation had indicated wide applications in the robotization of electronic frameworks. In this paper the structure of microcontroller based participation framework utilizing RFID and GSM modem has been exhibited which will consequently refresh the participation of the understudies and send the SMS to the truant's parent for the nonstop checking of the participation of his/her ward.

**Index Terms:** RFID, GSM, Microcontroller.

## I. INTRODUCTION

The regular technique for taking the participation of understudies is through the physically kept up register and calling by their names or sequential numbers. A great deal of disadvantages are related with this technique like participation not set apart because of human mistake on the two sides for example understudies just as educators, intermediary participation, tedious and so on. The job of radio recurrence recognizable proof (RFID) innovation in following articles and its usage in programmed electronic types of gear has been generally utilized by architects and found in the writing [1]. A number of mechanized participation framework has been planned and announced utilizing the RFID. M. Kamaraju in year 2010 exhibited the plan of robotized participation framework utilizing RF innovation [2]. In the year 2013 participation framework utilizing RFID has been accounted for utilizing GSM and RFID [3-4]. In year 2014 another electronic participation framework utilizing RFID has been displayed [5].

In this paper model plan of microcontroller based participation framework utilizing RFID and GSM has been exhibited. The paper is sorted out as pursues: Section II depicts the plan and working of the framework, Section III clarifies the calculation and stream outline of the planned framework lastly area IV contains the finishing up comments.

## II. DESIGN OF MICROCONTROLLER BASED ATTENDANCE SYSTEM

Fig.1 demonstrates the square outline of microcontroller based Attendance System. The total framework is structured around three microcontrollers (atmega16).

**Revised Manuscript Received on May 06, 2019**

**Dr. MD Asdaq Hussain**, K L University, Institute Deemed to be University Located in the Vaddeswaram, Guntur (Andhra Pradesh), India

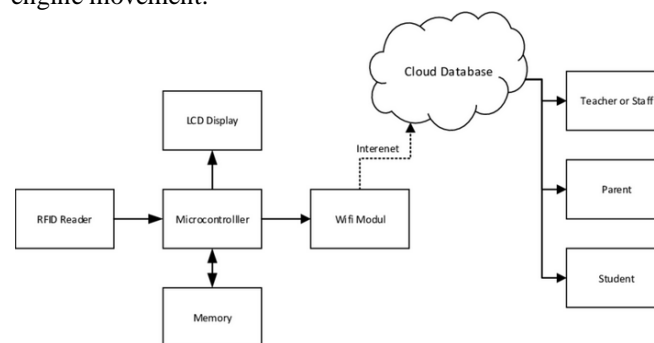
**Komirisetty Venkata Naga Krishna**, K L University, Institute Deemed to be University Located in the Vaddeswaram, Guntur (Andhra Pradesh), India

**Ramanulla Lakshmi Chandana**, K L University, Institute Deemed to be University Located in the Vaddeswaram, Guntur (Andhra Pradesh), India

**Velivela Krishna Chaitanya**, K L University, Institute Deemed to be University Located in the Vaddeswaram, Guntur (Andhra Pradesh), India

The engine movement gives the physical boundary to the understudy entering the class. It likewise holds the transitory data of the understudy's nearness inside the time window (the ideal opportunity for which understudy section and exit is permitted).

The first microcontroller is interfaced with the RFID and is in charge of the understudy entrance into the class just as the engine movement.



**Fig.1: Block Diagram of Microcontroller Based Attendance System**

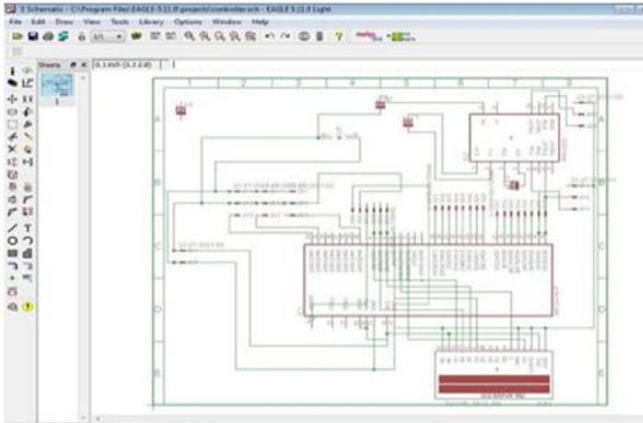
The second microcontroller is interfaced with the GSM modem and is in charge of sending the warning message to the guardians or concerned specialist for a specific understudy who is missing for the class. The third microcontroller is interfaced with the PC and is utilized to keep up the database that holds the understudies participation subtleties.

Every understudy is given his trademark RFID through which entrance is permitted in the class. The passage is made calm like the metro framework, for example when the understudy punches his card the entryway which for our situation is the physical obstruction opens or moves. This obstruction is constrained by the engine which is controlled utilizing the microcontroller atmega16 (the first microcontroller). When the understudy enters the class, he goes from before the IR sensor which thusly shuts the door. This nearness motion for the understudy in that class is briefly put away in the microcontroller. A predefined window of 5minutes is accessible for the understudies to enter the class. Amid this window that understudy section is allowed. Fig.2 demonstrates the schematic of the structure and Fig. 3 demonstrates the PCB format of the framework plan separately. The framework is started or began when an educator's RFID is perused. This denotes the start of the 5 minute window in which the understudies are required to achieve the class. As expressed before the understudy enters the class through their separate RFID label which sends a high flag against their name in this way stamping them as present.

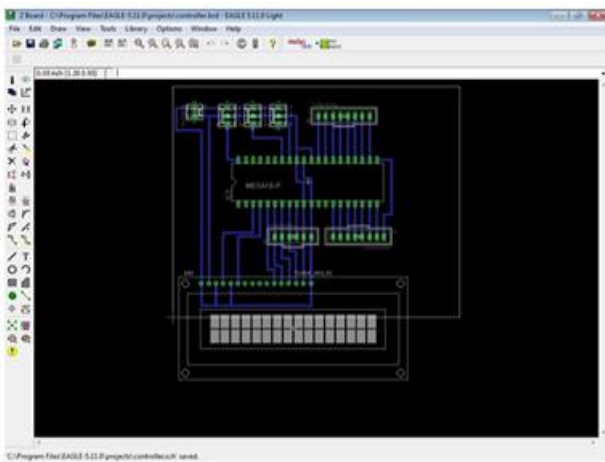


# An Efficient and Smart Attendance Management System

After the fruition of this window the understudy data is put away briefly in the microcontroller. On the off chance that an understudy has entered the class and, on the other hand left inside the window then likewise there is a low or missing sign against his name.



**Fig.2: Schematic of the Designed System**

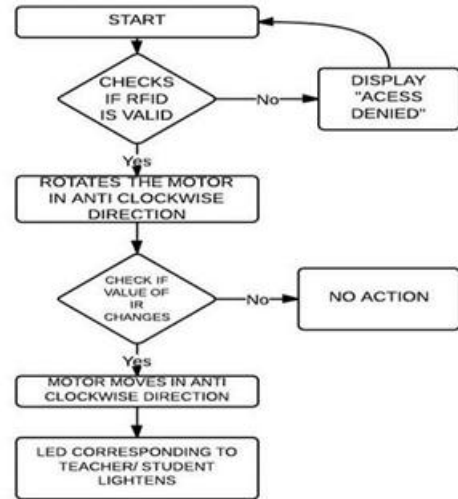


**Fig.3: PCB Layout of the Designed system**

Now once the period is over and the teacher punches his/her card to leave the class; it is now that the entire updating takes place. The signals are sent simultaneously to the other two microcontroller boards. These in turn send the notification message to the parents of the absent student (2nd microcontroller) as well as update the database regarding the student attendance (3rd microcontroller).

### III. FLOWCHART AND SOFTWARE DESIGN A. RFID PROGRAMMING

The RFID tag with understudies contains remarkable 12 digit number. At the point when understudy/educator swap their RFID label the exceptional code from tag is passed to the microcontroller by means of RFID peruser. The microcontroller contrasts the code and the put away code. On the off chance that there is coordinate, at that point the engine is pivoted anticlockwise and physical hindrance opens and henceforth educator/understudy enters .if the code doesn't coordinate "get to denied" is shown on the LCD. After that the estimation of IR sensor is checked in the event that there is any variety in the esteem, at that point the engine turns clockwise way and thus the physical boundary closes. After the total passage of the instructor/understudy the relating LEDS interfaced with the port of the microcontroller are help by sending a high flag/1. Fig.4 demonstrates the stream outline of the RFID programming.



**Fig.4: Flow chart of the RFID Programming B. GSM PROGRAMMING**

The model framework has been tried which will permit limit of two youngsters and one educator. So as to send the SMS to the guardians of the missing understudies we have utilized AT directions. Since the SMS is just to be sent to the guardians of missing understudies there will be four potential outcomes or conditions. So as to the check if the understudy is missing we need to screen the status of stick c.1 and pinc.2. This status will be passed from the microcontroller 1 to microcontroller2.

#### A. CONDITIONS

PINC.1	PINC.2	RESULT
0	0	Both students are absent
0	1	Stud1 absent & stud2 present
1	0	Stud1 present & stud2 absent
1	1	Both students are present

For the primary condition, when the two understudies are missing, right off the bat the status of the pins is checked. Status of the both the stick is 0 demonstrates that the two understudies are missing. Presently the SMS will be sent to the guardians of the two understudies. Their portable number will be put away relating to the pins. Pinc.1 speaks to stud1 though pinc.2 speaks to stud2. For this situation SMS will be sent to both the guardians. Fig.5-Fig.9 demonstrates the different stream diagrams for GSM programming.

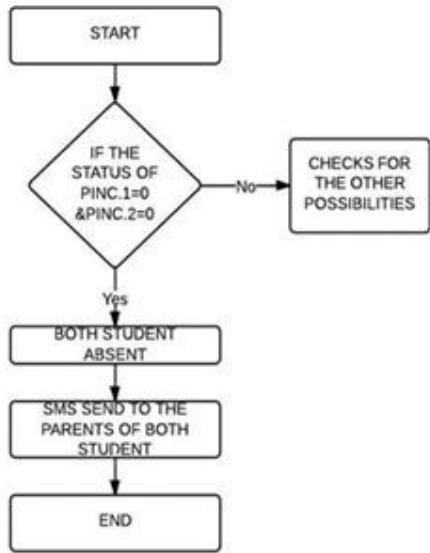


Fig.5: Flow Chart when both students are present

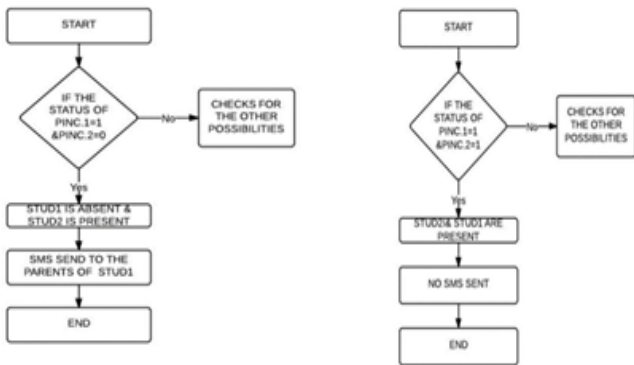


Fig.6: Flow Chart when student1 is present & student 2 is absent

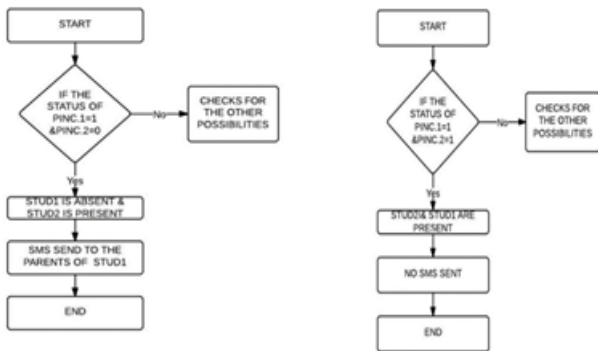


Fig.7: Flow chart when both students are absent

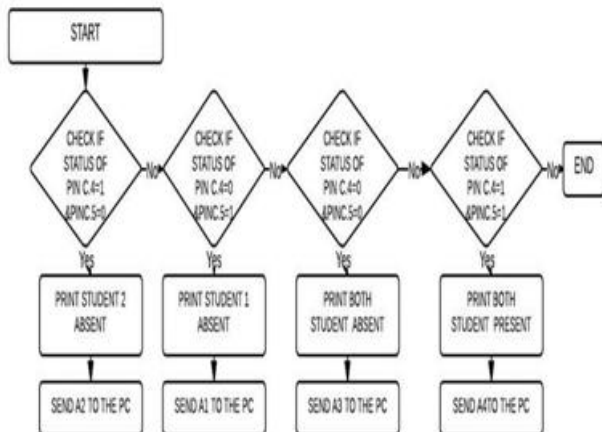


Fig.8: Flow chart for communicating with PC.

Pinc.4	Pinc.5	Interpretation	String to be send to the pc
1	0	Stud2 absent	A2
0	1	Stud1 is absent	A1
0	0	Both absent	A3
1	1	Both present	A4

**B. DATABASE PROGRAMMING**

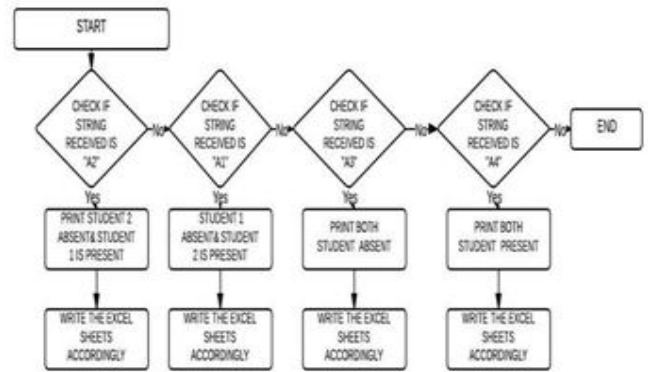
Fig.10 shows the flow chart for the database programming. Firstly the string received from the ATMEGA 16 is check and interpreted as following:

A1 represent that student 1 is absent and student 2 is present.

A2 represent that student 2 is absent and student 1 is present.

A3 represent that student 1 and student 2 is absent.

A4 represent that student 1 and student 2 is present.



**C. RESULTS:**

After this interpretation the excel sheet containing the record of the students attendance is updated.



Figure. 11. Attendance Management System

The present student can be identified by a symbol 'p' against their name and the absent student can be identified by symbol 'a' against their name.



## IV. CONCLUSION

In this paper model structure of microcontroller based participation framework utilizing RFID and GSM has been exhibited. The framework naturally update the participation in the database, sends SMS to the guardians of the understudy who are missing, doesn't give section to the newbies, take care if there should arise an occurrence of intermediary participation. The framework additionally has been given the security by giving the condition that it will be accessible for the understudies simply after the instructor have swapped his RFID and made his entrance.

## REFERENCES

1. Daniel M. Dobkin and Steven M. Weigand, "Environmental effects on RFID tag antennas", California: Bulis Press, 2010.
2. M. Kamaraju, "A Novel Design of Low Cost Integrate Intelligent Security System for Industrial Surveillance", International Journal of Engineering and Technology Vol.2 (6), 2010, 406-409
3. C.S.Karthikeyan&S.Murugeswar, "Anytime Anyplace-Remote Monitoring of Students Attendance Based on RFID and GSM Network", International Journal of Advanced Electrical, Electronics and Instrumentation Engineering, Vol 2, Issue 12, pp. 6154-6159.
4. V.Sivasankaran1, S. Muruganand2, Azha.Periasamy, "Advanced Embedded System Assisted GSM And RFID Based Smart School Management System", International Journal of Advanced Electrical, Electronics and Instrumentation Engineering, Vol 2, Issue 7, pp. 3124-3128.
5. AditiS.Tiwari, AniketS.Tiwari, Nikhil M.Ade, Sana.G.K.Sheikh, NileshR.Patel, and Athar Ravish Khan, "Optimized Design of Student Attendance System Using RFID", proceeding of International Conference on Machine Learning, Electrical and Mechanical Engineering (ICMLEME'2014) Jan. 8-9, 2014 Dubai (UAE), pp.134-139.
6. Arulogun O. T, and Olaniyi, O. M.(2013),"RFID-Based Students Attendance Management System ",International Journal of Scientific & Engineering Research Volume 4, Issue 2,pp 1-4.
7. <http://www.seattlerobotics.org/WorkshopRobot/level1/datasheets/ATmega16.pdf>