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# RFID- Based Intelligent Security System for School Children

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**ABSTRACT**

**The main objective of this project is to develop a security system for school children. At present, there is no effective security system available for school children. This can be used to protect children from being kidnapped by unknown persons with the help of RFID (Radio Frequency Identification) and GSM modules. It consists of a micro controller, an RFID reader, RFID tags, GSM module, LCD screen. Here a RFID tag will be issued to each school children with their ID card. An RFID reader will be fixed at the entrance of the school or a particular class room. The RFID reader will be interfaced with the micro controller. Whenever a student enters or exits the school, the RFID reader will read the tag of the particular student and send a signal to the micro controller. The micro controller after receiving the signal, will send a control signal to the GSM module where the mobile numbers of the parents are stored. The GSM module in turn, will send an SMS (Short Message Service) to the respective parent.**

***Keywords***-- RFID reader, GSM module, micro controller, arduino

## I. INTRODUCTION

Now a days, being in this world, there is no security for the school children.They are being kidnapped for money. so the parents are always living with the fear that whether their children will be safe to come back home. So for this problem, we can use the RFID modules to sense where their children and to send text messages to the parents so that they can be happy. Here the RFID reader will read the place where the children are there and send the text messages to their parents. Thus, this project enables the parents to know at which time their children are entering or exiting the school. This project can also be used by the parents as an attendance system for their children to know whether they are attending the school regularly. This project can be further enhanced in future with number of RFID readers and tags and also by using GPS system.

## II. METHODOLOGY

This open source Arduino environment makes it easy to write code and upload it to the I/O board. It runs on windows, Mac OS X, and Linux. The environment is written in java and based on processing, AVR-GCC, and other open source software.The Arduino integrated development environment (IDE) is a cross-platform application written in java, and is derived from the IDE for the processing programming language and the wiring projects. It is designed to introduce programming to artists and other newcomers unfamiliar with software development. It includes a code editor with features such as syntax highlighting, brace matching, and automatic indentation, and is also capable of compiling and uploading programs to the board with a single click. A program or code written for Arduino is called a “sketch”. Arduino programs are written in C or C++. The Arduino IDE comes with a software library called “wiring” from the original wiring project, which makes many common input/output operations much easier. Users only need define two functions to make a runnable cyclic executive program:

Setup (): a function run once at the start of a program that can initialize settings

Loop (): a function called repeatedly until the board powers off

The Arduino IDE uses the GNU tool chain and AVR Library to compile programs, and uses AVR to upload programs to the board. As the Arduino platform uses Atmel microcontrollers, Atmel’s development environment, AVR studio or the newer Atmel studio, may also be used to develop software for the Arduino.

## III. PRIOR APPROACH

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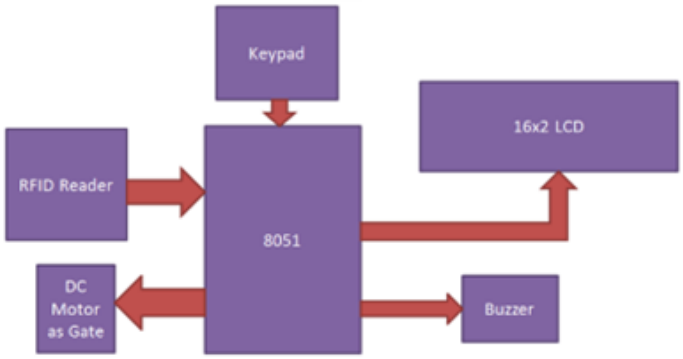
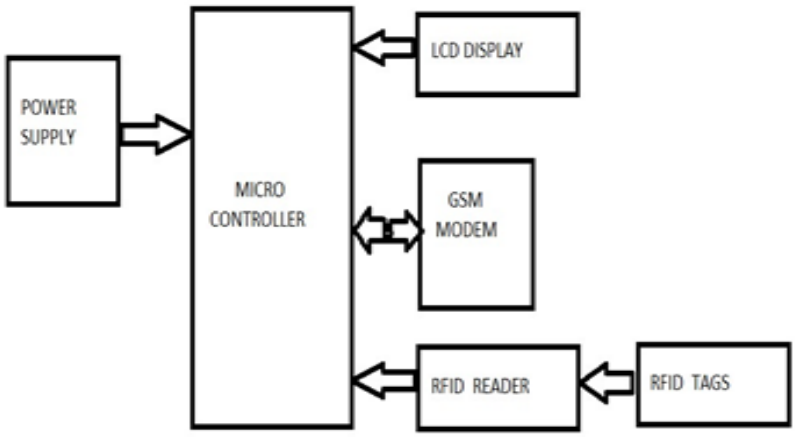
The existing paper for this type of security systems has developed an RFID and keypad based security system. This is implemented using 8051 micro controller. RFID (Radio Frequency Identification and Detection) is commonly used in schools, colleges , office and stations for various purposes to automatically authenticate people with valid RFID tags. Here the RFID tag along with a password associated with the tag, to secure the system. Dividing the complete security section into various sections such as reader section, keypad control system, driver section and display section, easily the total system can be developed.




**Existing mechanism for our approach**

The reader section consists of RFID which is an electronic device which has two parts one is RFID reader and the other one is RFID tag or card. The RFID tag read the RFID data serially. RFID tag used here has 12 digit character code or serial number. This RFID is working at a baud rate of 9600 bps. A 4*4 matrix keypad for entering the password to the system. 8051 controller is used for the total RFID based security systems.

## IV. OUR APPROACH




***MICROCONTROLLER***

The Microcontroller used in this project is Arduino UNO R3. Flexibility of Arduino UNO R3 makes the fabrication of the project easier. The components like LCD display, GSM modem, and RFID reader can be easily interfaced with the Arduino UNO R3.

***RFID MODULE***

The RFID module used in this project is EM-18 RFID module. This module works with a voltage supply of 5V and has a detection range of 10cm that makes it suitable for the purpose in this project.

***GSM MODEM SIM 900A***

SIM 900A GSM Modem is used in this project. Portable SIM feature makes the module more flexible.

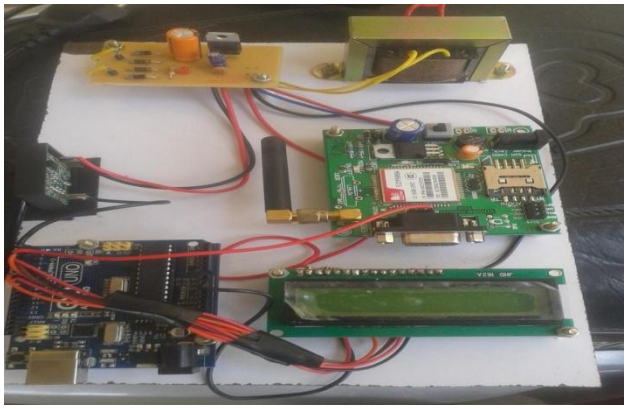
***LCD DISPLAY***

LCD display of 16*2 can display 16 characters per line and there are 2 such lines. And it is also used to display the characters clearly.

***POWER SUPPLY***

Power supply of 12V is used for GSM Modem and 5V is used for RFID Module and controller.

The RFID- based intelligent security system for school childrenis a project which will send the attendance of the students to their parents in the form of SMS (short message service) and when he enters and when he exits the college or school. In this project every student has been given with a Radio Frequency Identity card which will be made to get scanned by RFID reader which is present at the entrance. And when the ID card is scanned by the RFID card reader, the reader reads the information of student i.e., entering or exit. The controller gets information from RFID card reader and sends the SMS to pre-stored parent's mobile no. The controller gets communicates with GSM modem serially using MAX 232 serial driver. The SMS is sent with the help of GSM modem (Modulator/Demodulator).Here the time and date maintained by using a Real Time Clock circuitry. So finally the parent gets the information about their children's attendance.



All thecomponents that we are going to use are brought separately and tested whether each component is working correctly. Then the ARDUINO board is tested first by setting some inputs and output pins and doing programming for any other simple application. Then the GSM module is tested separately. First for any other simple application, it is checked and the three pins available in the module are connected to the supplies and to the output from the ARDUINO board. Based on the programming given , the circuit is tested and it worked properly. The RFID module is checked with the reader whether it is properly sensing the place where it is there and based on the place where it is, it sends the respective messages to the phone numbers given in the program. The complete program is checked and it is working correctly.

## V. CONCLUSION

In this project, we have implemented a concept of intelligent security system for school children with the help of RFID. Identification has become a necessary process in almost all fields. Now days, all works are done by automation. Automation invention all are concentrated on the main theme that is to reduce human effort and effective utilization of time. Our project is also implemented to reduce the man power in the identification. Due to this, accuracy of identification is maintained. Surely, this identification system will enhance the needs of identification in other fields in our developing modern world.

***ADVANTAGES***

- Firstly it will gives a protection for a children
- Easy to monitor their children for the parents
- It can also use by the schools to maintain the attendance of the student

***FUTURE DEVELOPMENT***

In Future this project can also developed using GPS technology. Which helps to track and identify the current position of the children.

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