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RFID BASED SECURITY GUARD SYSTEM USING GSM

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Abstract

FID Based Security System with GSM technology has application in many areas like Industries, Companies, Offices, and Shops and in our colleges also. We have provided a DC motor and Relay to show the demo of valid security access. And a buzzer is provided which is turned on when an invalid RFID card is shown to the reader. GSM modem is one of the main components of this project. SMS is sent for valid and invalid access to the system. In this project we are working on security guard system which has a RFID tag and RFID receiver with a GSM module .in that GSM module there is SIM 800. This SIM 800 is there in the GSM module and in this 800 is the frequency band of the module.

There will be RFID tags in the area which is to be covered .This tags will have a certain range by this it will sense the receiver. There will be a LCD at the last tag as he covers the hole area which is to covered .GSM (Global System for Mobile Communications) is world's most famous Mobile platform. Mobile phones with SIM cards use GSM technology to help you communicate with your family, friends and business associates. Interfacing of GSM unit is done through a serial communication link with microcontroller 89E516RD. Whatever data is to be sent to GSM unit is done through this RS 232 link. Level translator translates TTL voltage level to RS-232 compatible level. It is realized with MAX 232. GSM systems have following advantages over basic land line telephony systems: 1) Mobility 2) Easy availability and this is used in college for the security purpose also.

Keywords: RFID, GSM technology, RFID tags, LCD

I. INTRODUCTION

Most educational institutions' administrators are concerned about campus security. The conventional method allowing access to employee inside an educational campus is by showing photo I-cards to security guard is very time consuming and insecure, hence inefficient. Radio Frequency Identification (RFID) based security system is one of the solutions to address this problem. This system can be used to allow access for student in school, college, and university. It also can be used to take attendance for workers in working places. Its ability to uniquely identify each person based on .security access easier, faster and secure as compared to conventional method. Students or workers only need to place their ID card on the reader and they will be allowed to enter the campus. And if any invalid card is shown then the buzzer is turned on . This paper represents the RFID and GSM technology. The main objective of the system is to uniquely identify and to make security for a person. This requires a unique product, which has the capability of distinguishing different person. This is possible by the new emerging technology RFID (Radio Frequency Identification). The main parts of an RFID system are RFID tag (with unique ID number) and RFID reader (for reading the RFID tag). In this system, RFID tag and RFID reader used are operating at 125 KHz. Basically in this project there will a security guard and there will be RFID receiver with him and in the area there will 6-7 tags. As the security guards goes to the first tag then the receiver will receive the RFID tag as goes on another tag the same process will be done. And at the last tag there will be LCD and on that last tag a message will be given to the authorised number which is stored in the system. And there will a data base which can be used to store the data of the security guard. In that SMS there will the location as well as time will be given and the detail information will be stored in the data base which is easily seen by the college.

2. METHODOLOGY

It is Security based system, which provides security using at mega 16 microcontrollers and by RFID.

a. ATMEGA 16

This is a 40 pin microcontroller.Most of the instruction execute in one machine cycle.ATMEGA 16 can work on a maximum frequency of 16MHz.It has 16 KB programmable flash memory, static RAM of 1KB.

b. RFID READER

RFID tags contain an integrated circuit and an antenna, which are used to transmit data to the RFID reader (also called as an interrogator).Simply, it used to gather information from RFID tag which is used to track individual objects and here we are using for to read the RFID tag.

c. SIM 800

It is a complete Quad-band GSM/GPRS solution, which can be embedded in customer application and SIM 800 is stimulated identification module. Here 800 is the band at which it can be worked.

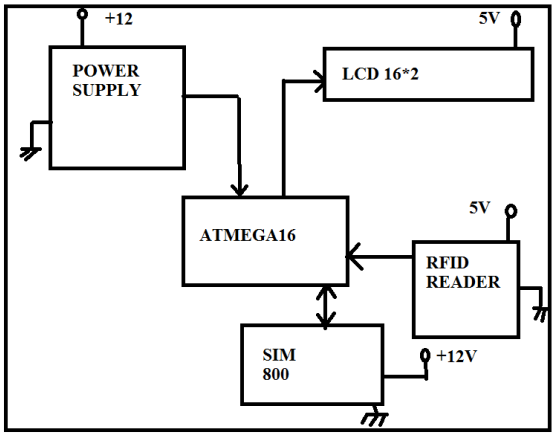

Fig. Block diagram of RFID based security guard system using GSM

3. CIRCUIT DIAGRAM

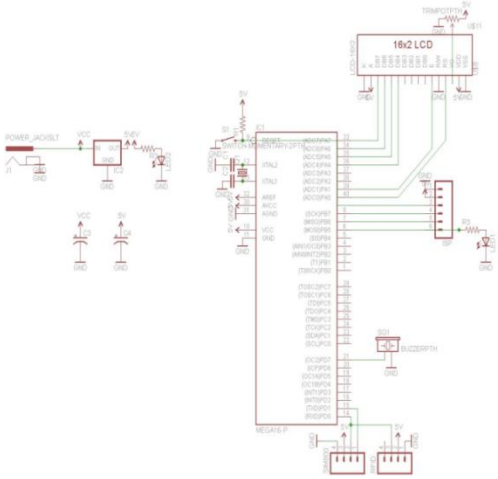

Fig. Circuit Diagram

4. WORKING

a. In this project we will be having power supply is given to ATMEGA16 and here ATMEGA 16 is a microcontroller.
b. This basically works on a power supply +12v.
c. SIM 800 is used for to give data and to receive the data.
d. SIM 800 is just used in a GSM module.
e. The GSM module is used for the location by GPS and giving information to the telephone system.
f. SIM 800 need a power supply also which is given.
g. Here there is an RFID reader this is just for to read the RFID tags placed on the different location.
h. If in case the security guards choose a short cut then his lap will not be completed.
i. As he completes his tags then one lap will be completed and through GSM module a SMS will besent to the phone number which is registered in the system.

5.COMPONENTS

RFID AND GSM TECHNOLOGY

a. RFID stands for radio frequency identification.
b. In this project we are using RFID tags and RFID readers.
c. Here it is used for the security purpose.
d. As the security guard is having an RFID reader as he goes to the first then the RFID tags will punch that first and as so on the work will be done.
e. An RFID tag is comprised of a microchip containing identifying information and an antenna that transmits
f. At its most basic, the chip will contain a serialized identifier, or license.
g. An RFID tag is comprised of a microchip containing identifying information and an antenna that transmits. At its most basic, the chip will contain a serialized identifier, or license
h. Plate number, that uniquely identifies that item,

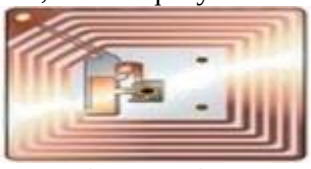

FIG. RFID CHIP

GSM Module

GSM (Global System for Mobile Communications) is world's most famous Mobile platform. Mobile phones with SIM cards use GSM technology to help you communicate with your family, friends and business associates.

GSM systems have following advantages over basic land line telephony systems:

1) Mobility 2)Easy 3)Availability

Uses GSM technology for following applications:

a. **Access control devices:** Access control devices can communicate with servers and security staffthrough SMS messaging. Complete log of transaction is available at the head-office Server instantly without any wiring involved and device can instantly alert security personnel on their mobile phone in case of any problem.
b. **Transaction terminals:** EDC (Electronic Data Capturing) machines can use SMS messaging to confirmtransactions from central servers. The main benefit is that central server can be anywhere in the world.
c. **Supply Chain Management:** With a central server in your head office with GSM capability, you canreceive instant transaction data from all your branch offices, warehouses and business associates with nil downtime and low cost.

6. FUTURE USES OF THIS PROJECT

a. It can be use for image processing through that we can easily track the security guard through GPS.
b. Through GPS and image processing we can reduce the risk of thefts.

7. APPLICATION

a. Easy to install anywhere needed, can be used for image processing and can find the appropriate location as well as time.

8. ADVANTAGES

a. The circuit is not complex.
b. It can be easily installed in the college.
c. It is more durable.
d. It can be easily made.
e. It is less cost effective.
f. We can easily find the location and time.
g. All the data can be easily stored in the data base.

9. RESULT AND CONCLUSION

a. By the study of this project we can say that it is highly safe and durable and very cost efficient and can be easily used.
b. Hence we can conclude that from this project we have we get 2T from here.

TIME TO FIND LOCATION

2T

THEFTS ARE REDUCED

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