

Design of women safety system using RFID, 8051 microcontroller and GSM based technology- a prototype

Shaik Mazhar Hussain¹, Shaik Jhani Bhasha²

Assistant Professor, ECE, MJCET, Hyderabad, India ¹

Assistant Professor, ECE, Gitam University, Hyderabad, India ²

Abstract: Security for women has become a major issue as the number of crimes over women and girls is increasing day-by-day. The implementation of women security system (wss) via RFID and GSM is to protect women and girls from sexual harassments and other forms of violence. In case of any harassment, the women wearing a watch or band is embed with active RFID tag with on/off switch [1] where by switching on, the information is passed to RFID reader which communicates with 8051 microcontroller and through GSM the "help" message is sent to 4 predefined contacts (parents, friends, media, women cell).

Keywords: AT89c51 microcontroller, gsmmodem, rfidmodule, help, parents, friends, media, policewomen cell

I. INTRODUCTION

In today's world, women safety has become a major issue as they can't step out of their house at any given time due to physical/sexual abuse and a fear of violence. Even in the 21st century where the technology is rapidly growing and new gadgets were developed but still women's and girls are facing problems.

Even today in India, women can't move at night in secluded places and even at day time crowded places hundreds and thousands of incidents of physical/sexual abuse happens to every day women in this country. Among other crimes, rape is the fastest growing crime in the country today. In this paper we have implemented women safety system on AT89C51 microcontroller via GSM modem and RFID module and the interfacing is done through MAX-RS 232. Small introduction of these four modules which were used in proposed work were discussed below

a) An AT89C51 microcontroller is one of the series of 8051, one of the oldest yet commonly used microcontrollers. It has the less complex features than other microcontrollers and it is also easily available and cheap in comparison of other microcontrollers. [2]

b) Radio frequency identification is the wireless non contact use of radio frequency electromagnetic fields to transfer data for the purpose of automatically identifying and tracking tags attached to objects. The tags contain electronically stored information. [3]

RFID tag is a small device which stores and sends data to RFID reader. They are divided into two types

- a) Active tag
- b) Passive tag

Active tag: These tags contain internal battery and don't require power from the reader. Typically active tags have a larger distance range than passive tags.

Passive tag: These tags are smaller and lighter in size and do not contain an internal battery and depends on RFDI reader for operating power and certainly have a low range limited upto few meters.

The microchip stores the unique ID and incorporates the necessary logic circuitry for functioning of the tag. It has an internal EEPROM to store the unique ID. [4]

c) *MAX-232:* The max232 IC is used to convert TTL/CMOS logic levels to RS232 logic levels during serial communication of microcontrollers with pc. The controller operates at TTL logic level (0-5v) where as the serial communication in PC works on RS232 standards (-25v to + 25v) this makes it difficult to establish a direct link between them to communicate with each other.

The intermediate link is provided through MAX232.

d) *GSM modem* (Global System for mobile communication): GSM is a digital mobile telephony system. It operates at either the 900MHz or 1800MHz frequency band.

II. PROPOSED WORK

The women wearing a watch or band when finds that someone is going to harass, she presses a switch that is located on the watch or band [1] which then activates the active RFID tag and then the signal gets transmitted to RFID reader which then decodes the received information (either some code or name) and then activates the AT89C51 microcontroller in which contacts of 4 people and message "HELP" is stored in memory is sent to the destination through GSM.

Figure 1 shows the transmitter part where interfacing of different blocks is shown. The MAX232 is used for logic level conversion.

FIGURE 1: WOMEN SAFETY SYSTEM TRANSMITTER SIDE

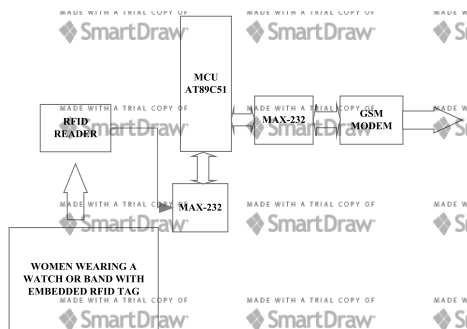
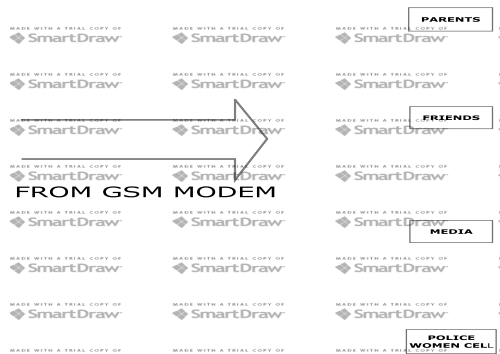


Figure 2 shows the receiver part where the information is transmitted to 4 or 5 persons there by taking immediate action.

FIGURE 2: WOMEN SAFETY SYSTEM RECEIVER SIDE



WOMEN SAFETY SYSTEM PIN CONNECTIONS

1. Pin 2(TXD) and pin 3(RXD) of RFID module is connected to pin 10(RXD) and pin 11(TXD) of AT89C51 microcontroller.
2. Pin 10(RXD) and pin 11(TXD) of AT89C51 microcontroller is connected to TXD and RXD pins of GSM modem.
3. RFID System with Switch On/Off: A U.K. firm has developed an ON/OFF switch for RFID cards that could protect cardholders from being hacked. This idea can be proposed for our system also.

Hardware requirements

- 1) AT89C51
- 2) RFID MODULE
- 3) IC MAX 232
- 4) GSM MODULE

Software requirements

- 1) Programming in 'c' or assembly language
- 2) KEIL Compiler
- 3) Burner
- 4) Proteus S/W.

The software program is written in 'C' or Assembly language and then compiled using keil compiler and generated HEX code is stored in computer and the hex

code is burn into the AT89C51 by using market available burners.

REFERENCES

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- [3] www.wikipedia.com
- [4] www.Engineers Garage.com

CONCLUSION

This paper has mainly focused on security issue for women in India and showed a prototype using different modules which are combined to develop an important application called women safety system.

BIOGRAPHIES



Shaik Mazhar Hussain is Assistant Professor in Electronics and Communication department at MuffakhamJah Engineering College since February 2014. He received his M.Tech from Jawaharlal Nehru Technological University (JNTU) in October 2012. He received his B.Tech from Jawaharlal Nehru University (JNTU) in June 2008. His research interest lies in RFID, Microelectronics, and Adhoc networks. He is a life member of ISTE.



Shaik Jhani Bhasha, presently working in the department of electronics and communication engineering in GITAM University. His areas of interests are Embedded System, Micro Electronics and Renewable energy Sources. He has 14 years of teaching experience. He is a life member of ISTE.