

Bank Security System Using GSM

Juhi Sinha, Himanshu Malik, Puneet Sangwam, Annie Mahajan

B.Tech Students

Department of ECE

SRM University NCR Campus

Modinagar

ABSTRACT

Security is the biggest concern of the nation today. A safe and secure environment is our birth right, whether we are at school, at office, at college, at home or at a bank we all expect a safe and secure place for our near and dear ones. Bank security system is one such device that guarantees the access of the place only by entering a four digit password. It uses an ATMEL 89S52 microcontroller that allows only the person who knows the password to enter the area and restricts any unwanted entry. This entire system is controlled by a 8 bit microcontroller that has a 2 kbytes of ROM for the memory. The password can be changed any time as it is stored in EPROM. The password can be entered through a keypad that is provided. The password entered is correctly matched with the stored password the relay gets activated and door is opened using a DC motor. If the password is incorrectly entered for more than thrice the alarm will get activated and a call will go on the last dialed number from a cell phone attached to the device. It also includes a heat and liquid sensor.

Keywords— microcontroller, ATMEL, EPROM, sensor

INTRODUCTION

Nowadays, security is a major concern for each one of us. We all want a safe and secure place to work, to live, to enjoy. A bank is a place where we keep our valuable items such as money, jewelry, etc. it is a high security place that needs to be monitored all the time. Every day we hear cases of robbery, theft. To solve this problem, most of the banks have started using the theft protection systems. A bank security system which implements global system for mobile is proposed. The most popular existing bank security system consists of only an alarm that has many disadvantages. Such as;

- A security guard always needs to be present at the bank site.
- Anyone can enter the bank without security check.
- Different systems needs to be installed for fire and liquid sensing
- Not 100% secure

So, this paper proposes a bank security system using GSM. This GSM based bank security system is an advanced security system. When anyone wants to enter the bank area he/she must enter a password that is given to every bank user. When someone enters the correct password the gate opens allowing the person to enter into the bank premises and then the gate closes after a pre selected time period say 30s. When someone enters an incorrect password for more than three times the alarm will ring. Also, when there is an unauthorized entry the alarm will start ringing intimidating the concerned authority of the proposed threat. This security system also consists of heat and liquid sensors for safety against any fire and acid threats. As soon as the alarm rings our attached GSM system will send a call to the last dialed number. This system has an advantage that if someone is not present at actual site then also he will get intimidated of the security flaw. In this way, the banks can be protected from any mishapening.

PROPOSED SYSTEM AND METHODOLOGY

Our project deals with security system and gives us a more innovative outlook to deal with security flaws. Our security system uses GSM system for detecting an intrusion into the monitored area by an infrared detector. Password Based Door Security System using Microcontroller” is used in the places where we need more security. It can also used to secure homes, offices and other protective doors. The system comprises of a keypad and the keypads are connected to the 8 bit microcontroller AT89S52. This is one of the popular Microcontrollers. It has only 40pin stand there are 32 input and output lines. Microcontroller ATMEL 89S51 has a program memory of 8 Kilobytes. The microcontroller continuously monitor the keypad and if somebody enters the password it will check the entered password with the password which was stored in the memory and if it they are same then the microcontroller will switch on the corresponding device. The system will only allow the person who knows the password to enter into the area restrict those who doesn't know the password and the system will also show the persons who try to break the protection barrier. We have developed a security system that can be accessed by a keypad.

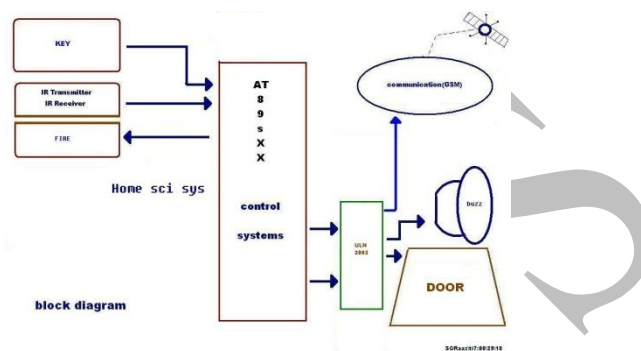


Fig 1: Block Diagram of the Bank Security System using GSM

The microcontroller used here is ATMEL89S5 microcontroller. The 89S51 microcontroller is a derivative of 8051 microcontroller whose architecture and instructions are same as 8051 microcontroller with some added facilities. GSM technology provides a theft alert system for bank system. The input and output unit automates the entry door. This project consists of two modes one is normal mode and another one is security mode. In normal mode a person enters the password and enters the secured area. It also consists of heat and liquid sensors to protect against any fire and acid incidents. The door closes after a pre selected time. If any person tries to enter the area without entering the correct password it will ring the alarm and send a call to the last dialed number. The GSM system is connected with the microcontroller through a serial port. The GSM module converts the digital information into airborne signals. This system offers better solution for the Bank security system and also it will help you to track the intruder.

METHODOLOGY

Over the course of the project we worked together to document and record as much of our expertise as possible related to setting up and managing of institutional multimedia services. Through this collaborative approach the project attracted and grew an active community of peers who are keen to learn and share their own experiences with the widest audience possible.

The planned work was broken down into discrete areas, and then distributed amongst the contributing partners based upon their own specific interests and resourcing. SRM University led on the policies and process work, building on their long standing background as a high production value, high quality, method driven institution, though they also worked to compare and contrast our different approaches to the same problems. Whilst all areas were of mutual interest and all partners had direct experience, this division of labor worked well as a way of spreading control and resourcing.

I. TECHNOLOGY USED: GLOBAL SYSTEM FOR MOBILE

GSM has been the backbone of the phenomenal success in mobile telecom over the last decade. Now, at the dawn of the era of true broadband services, GSM continues to evolve to meet new demands. GSM is an open, non-proprietary system that is constantly evolving. One of its great strengths is the international roaming capability. This gives consumers seamless and same standardized same number contact ability in more than 212 countries. This has been a vital driver in growth, with around 300 million GSM subscribers currently in Europe and Asia. In the Americas, today's 7 million subscribers a reset to grow rapidly, with market potential of 500 million in population, due introduction of GSM 800, which allows operators using the 800 MHz band to have access to GSM technology too.

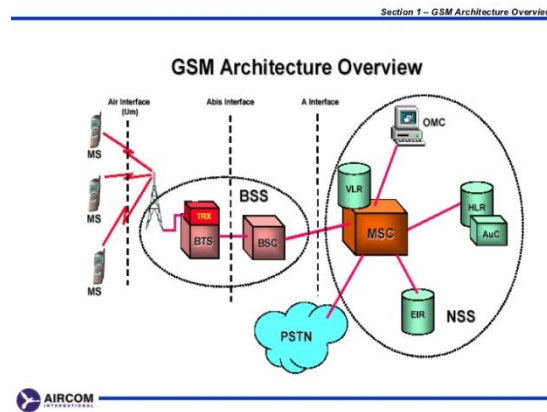


Fig 2: GSM architecture

IV. SIMULATION RESULT

The μ Vision IDE is, for most developers, the easiest way to create embedded system programs. μ Vision windows can be re-arranged, tiled, and attached to other screen areas or windows respectively. It is possible to drag and drop windows, objects, and variables. A Context Menu, invoked through the right mouse button, is provided for most objects. You can use keyboard shortcuts and define your own shortcuts. You can use the abundant features of a modern editor. Menu items and Toolbar buttons are grey out when not available in the Current context. Graphical symbols are used to resemble options, to mark unsaved changes, or reveal objects not included into the project. Status Bars display context-driven information. You can associate μ Vision to third-party tools.

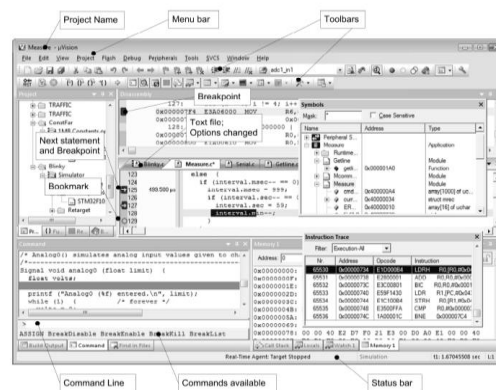


Fig 3: uPRO

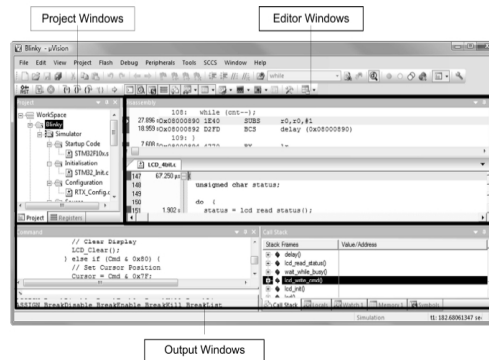


Fig 4: uPRO view

The **Project Windows** area is that part of the screen in which, by default, the Project Window, Functions Window, Books Window, and Registers Window are displayed. Within the **Editor Windows** area, you are able to change the source code, view performance and analysis information, and check the disassembly code. The **Output Windows** area provides information related to debugging, memory, symbols, call stack, local variables, and commands, browse information, and find in files results.

If, for any reason, you do not see a particular window and have tried displaying/hiding it several times, please invoke the default layout of μ Vision through the **Window – Reset Current Layout Menu**.

Positioning Windows

The μ Vision windows may be placed onto any area of the screen, even outside of the μ Vision frame, or to another physical screen. Click and hold the **Title Bar** of a window with the left mouse button. Drag the window to the preferred area, or onto the preferred control, and release the mouse button. Please note, source code files cannot be moved outside of the **Editor Windows**. Invoke the **Context Menu** of the window's **Title Bar** to change the docking attribute of a window object. In some cases, you must perform this action before you can drag and drop the window.

μ Vision displays docking helper controls³, emphasizing the area where the window will be attached. The new docking area is represented by the section highlighted in blue. Snap the window to the Multiple Document Interface (MDI) or to a Windows area by moving the mouse over the preferred control.

Keil software converts the C-codes into the Intel Hex code.

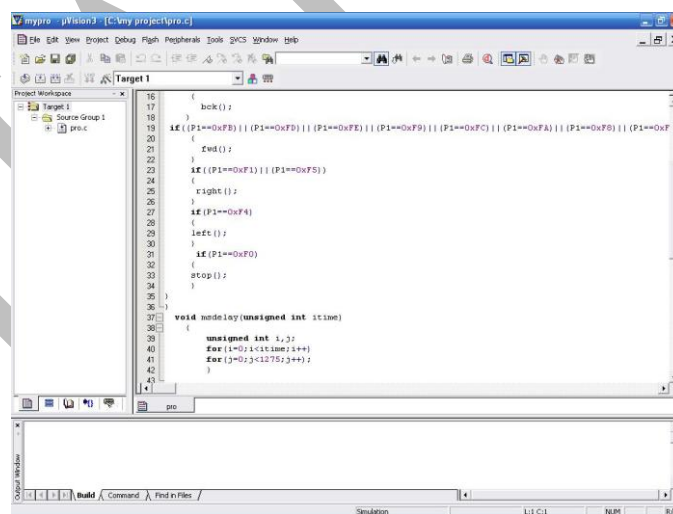


Fig 5: A view of Keil uVision 3

8051 Burner Software

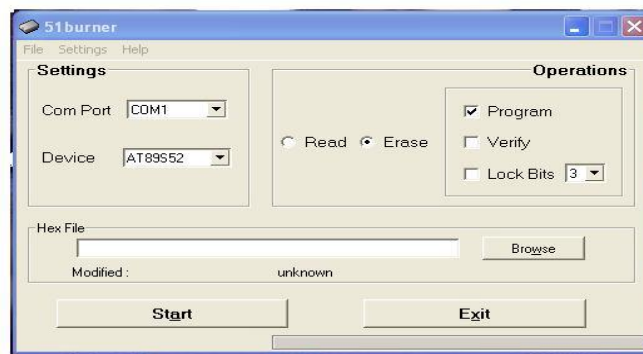


Fig 6: 8051 burner software

PROCEDURE TO PROGRAM A CHIP

1. Connect the PRO51 to COM port and USB port on your PC. USB is used for +5V power supply only. You can use regulated 5V supply and connect it on pin 4 of the 9 Pin connector.
2. Start PROG51 from your program menu.
3. Select appropriate com port on your PC.
4. Insert desired device in the ZIF socket on PRO51. 20 Pin devices like 89C2051 should be aligned with the bottom side, i.e., pin 10 on the 89C2051 should be inserted in Pin 20 of the socket.
5. Specify the device in the target device text box.
6. Click Identify button to check if the device inserted matches with the one you specified in the Target Device text box.
7. Load Hex or Binary file generated using compiler or assembler in the buffer.
8. Click on Erase button to erase the contents of the flash memory of the microcontroller. Erase process will automatically be followed by a blank check.
9. Click on Program button to write the buffer contents in to the program memory of the microcontroller. Program action will automatically be followed by a verify cycle.
10. If you wish click on Lock button to secure the device.
11. Remove the device from ZIF socket.

V. RESUT AND CONCLUSION

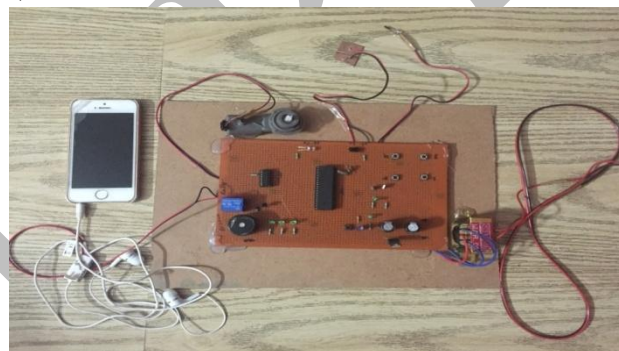


Fig.6 Bank Security System Using GSM

Bank Security System using GSM implemented on ATMEL 89S51 microcontroller can be used in homes, offices, and bank and so on. This system has the potential to become an unavoidable necessity in large cities since it is more secured than any other security system.

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