Automatic Bank Locker Locking System

Aditya Kapadi
B.E student
Department of Electronics and Communication Engineering
Vadodara Institute of Engineering, Gujarat Technological University, Gujarat, India

Dhaval Vyas
B.E student
Department of Electronics and Communication Engineering
Vadodara Institute of Engineering, Gujarat Technological University, Gujarat, India

Mrs. Dipali Bhatt
Assistant Professor
Department of Electronics and Communication Engineering
Vadodara Institute of Engineering, Gujarat Technological University, Gujarat, India

Abstract

Banking is one of the sectors where technology and advancements in technologies have not been utilized to the fullest potential. Be in security system or access systems or even in material handling in banks. For example in the security systems even today very old practices are followed that can be made lot better using technologies like GSM which is easily usable and also easy to implement at a consumer level. In this project we take up one such segment of the banking industry, which is the safety locker system and propose a fault proof system for enhancing the security in banks. In the existing system in banks, for the access of a locker all an individual requires is a key, the locker number and a signature. All of these are relatively easy to either access or duplicate. If any individual has these then they can easily access the locker because there is no other verification or authentication involved .In this project we propose a GSM based secure access which combines many details of the individual in a very easy to use system at the customer level. In this project we used microcontroller. We use one time password generation method. We also interface liquid crystal display, keypad, GSM, Relay etc. we used wireless network to communicate between two microcontrollers. So this type we can provide security.

Keywords: GSM module, LCD display, AT MEGA 32 Micro Controller, ZIGBEE Module, Relay, Keypad

I. INTRODUCTION

In banks currently keys are used to unlock lockers which have security issues when keys are stolen or lost. This Project improves the safety & security of bank lockers using multi-model biometric technology.

The conventional method has many drawbacks such as –

- Both the bank employees must have to present with the keys to open the locker.
- There is possibility of losing the key which makes the system insecure.
- The system is unable to match with today fast pacing digital world
- The keys can be duplicated

This system consists of microcontroller, GSM modem, and LCD. In this system the Microcontroller reads the password, if the password is valid then only it gives the access to the authenticated person otherwise it stops the process. In first manager will come and enter the password through keypad. Then user enters in locker room as soon as he/she enter in room OTP generated by microcontroller is received by authenticated person mobile number on through SMS. Then user enters the login id and OTP through keypad, if password is matched then microcontroller. If these passwords are matched then the locker will be opened otherwise the microcontroller sends the warning message to the authenticated person mobile number and it will be sound the buzzer otherwise it stops the process. In this project person need not carry identity proof & keys etc. This Project is based on the OTP generator method which improves the security. This system will reduce the misuse and fraud by stealing Keys, PIN and ID proofs. Our project aims to improve bank locker security using GSM and OTP. The benefit of using this security system are increased security, increased convenience, reduced fraud or delivery of enhanced services, Increased Convenience Increased Accountability, Reduce Fraud & Risk, Increase Privacy, Increase Performance & accuracy, Increase Reliability & robust.

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II. BLOCK DIAGRAM

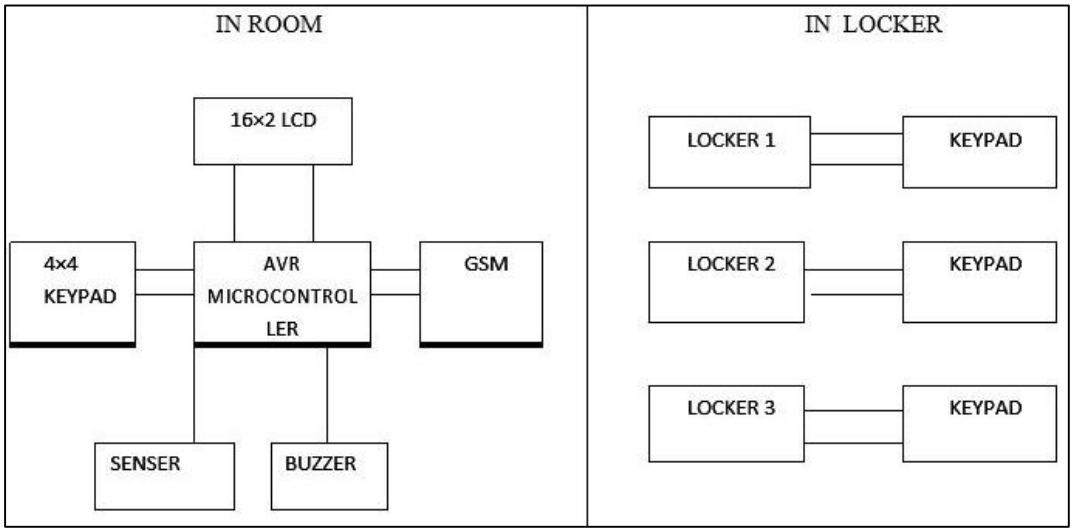

Fig. 1: Block Diagram

III. FLOW CHART

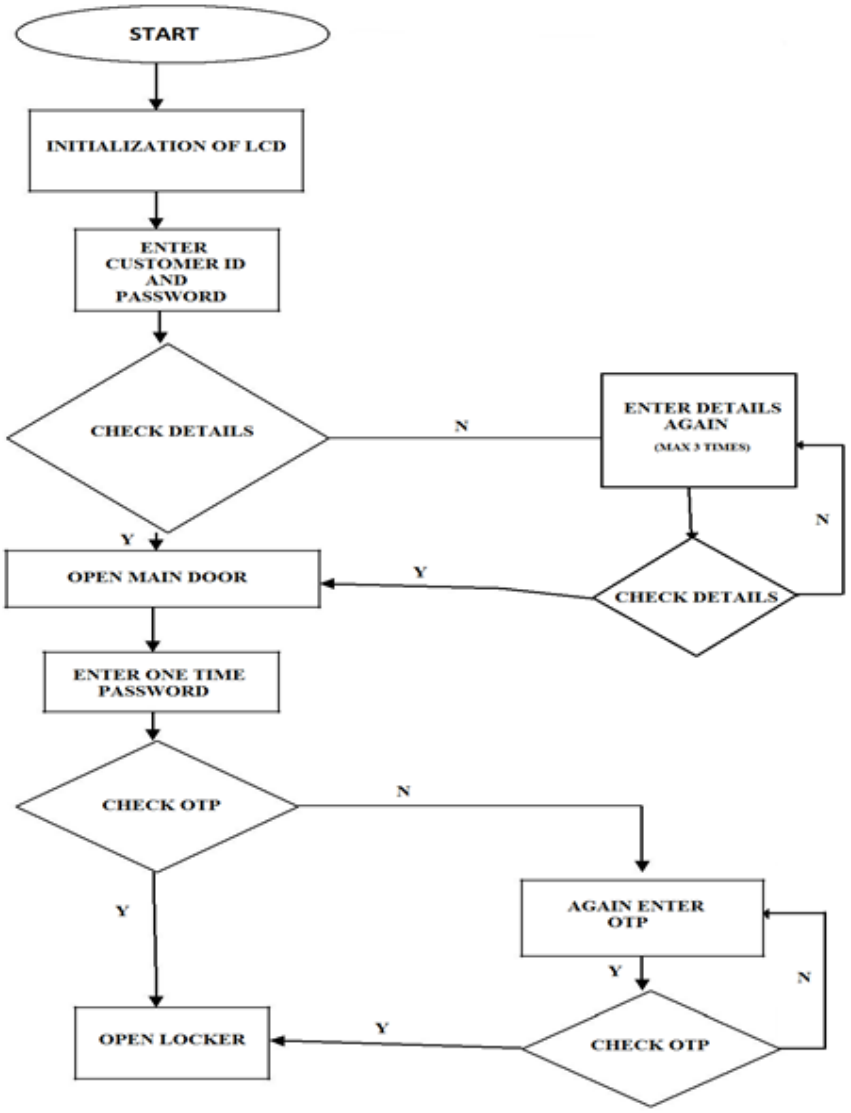

Fig. 2: Flow Chart

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IV. SOFTWARE IMPLEMENTATION

A. Code Vision AVR:

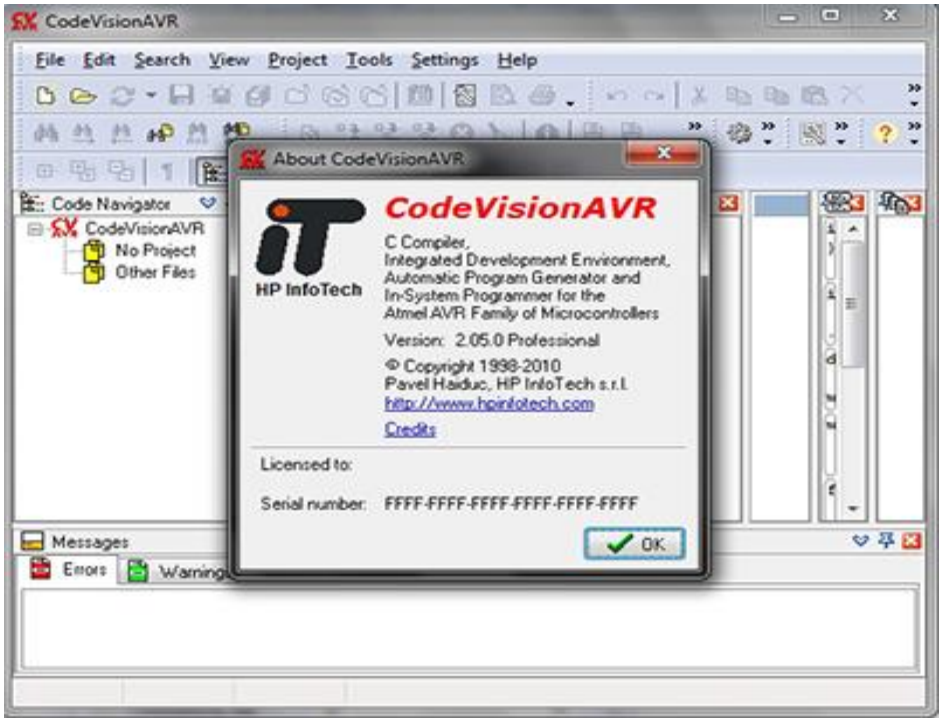

Fig. 3: A. Code vision AVR

Application that runs under Windows XP, Vista, Windows 7 and Windows 8, 32-bit and 64-bit it is very simple and easy to use Integrated Development Environment and ANSI C Compatible Compile. Code size limited Evaluation version of the Code Vision AVR C Compiler and Code Wizard for the Atmel Tiny, Mega and X mega AVR 8-bit Microcontrollers. It also includes the LCD Vision font and image editor/converter for graphic displays. It Requires Atmel Studio 6.1 or later. Both Atmel Studio and Code Vision AVR must be installed and run with Administrator order. Transparent, easy accessing of the EEPROM & FLASH memory areas, without the need of special functions like in other AVR compilers so it's make the system easy .Bit level access to I/O registers, Interrupt support ,Support for placing bit variables in the General Purpose I/O Registers which are available in the new chips. Peephole optimized advanced variables to register allocator, allows very efficient use of the AVR architecture Common Block Subroutine Packing, and replaces repetitive code sequences with calls to subroutines. This optimizer is available as Standard in Code Vision AVR, at no additional costs, not like in our competitor's products Common sub-expression elimination , Loop optimization, Branch optimization, Subroutine call optimization ,Cross-jumping, optimization Constant folding ,Constant literal strings merging, Store-copy optimization, Dead code removing optimization 4 memory models: TINY , SMALL , MEDIUM and LARGE . The MEDIUM and LARGE memory models allow full FLASH addressing for chips like ATmega128, ATmega1280, ATmega2560, etc. the compiler handling the RAMPZ register totally transparently for the programmer. This feature is available as Standard in Code Vision AVR, at no additional costs, not like in our competitor's products.

It is user selectable optimization for code Size or Speed and Possibility to insert inline assembler code directly in the C source file and here for Constant literal strings are stored only in FLASH memory and aren't copied to RAM and accessed from there, like in other compilers for the AVR which are fully compatible with Atmel's In-Circuit Emulators: AVR JTAG-ICE, AVR Dragon, etc.

V. APPLICATION

- Used in banks, offices. Etc.
- Used in vehicle security purpose. Etc.

VI. FUTURE SCOPE

- We can provide voice feedback system.

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VII. CONCLUSION

The microcontroller compares the passwords entered by keyboard and received through mobile phone. If these passwords are correct the microcontroller provides necessary control signal to open the locker. Future work of this project is planned to a develop security system based on Iris scanner for visual identification of the person.

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