

ATM Transaction without Debit Card

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Abstract: Today, number of the systems is automated in order to solve new challenges and present day requirements to achieve better results. Automated Systems have not more manual operations, so that flexibility, reliabilities are high and accurate. There for each field use automated control systems, especially in field of electronics. The goal of the project is to develop unique system through GSM technology controlling various units of the houses, industries, and offers a scarified system. The various appliances are used by controlling them remotely by using GSM Technology, which enables the user to remotely handle the operations different types of the appliances. Just by pressing keypad the user does switching operations on the device. The system is designed to carry out ATM transactions without the use of debit card. The structure of ATM transaction without using debit card contains a matrix keypad, a GSM modem, an IVRS, DTMF decoder for security interfaced to the microcontroller (ARM 9). The keypad interfaced to the controller is used as the password entry system. The GSM modem uses the UART interface to the controller. When the unknown user gives an unauthorized password then the controller uses the modem to give knowledge the user. The modem gives a secure dial up number and message. And uses the GSM network to transmit the message. There is a socket in the modem which inputs the SIM card to use the GSM network. The destination mobile number & the password are stored in the EEPROM of the controller.

Keywords: Card less; secure transaction, Anti-theft, Fast process.

I. INTRODUCTION

The motto of project is to guide the user financially in case of emergency. Although ATMs were originally urbanized as just cash distributors, they have evolved to include many other bank-related functions. A Talking ATM gives audio instructions so that persons who are unable to differentiate an ATM display can independently use the machine. On sophisticated ATMs, the customer is judged by inserting a plastic ATM card with a magnetic stripe card number and some security information such as an expiration date. Authorization is guided by the user entering a personal identification number (PIN). Some developed systems also use the biometric recognition for safe banking but it require large data base which stores the biometric information of each user. The system consists of an ARM microcontroller, GSM module, DTMF decoder and an IVRS system. Here, the person in ATM has to two options with him. One is with debit card and another is without debit card. After selecting without debit card the machine asks for the secondary password and the name of the card holder. The machine searches the password in the database from IVRS machine. If the password doesn't match then the transaction is cancelled. If the password is correct, a call is generated to the user. The user is asked to enter the primary password and the amount to be withdrawn. Thus the transaction takes place.

II. PROPOSED METHODOLOGY

Here we judged the difficulty people encountered in the existing technology. Deliberately Multifactor Authentication (MFA) method offers more difficulty to the

user. This project helps to overcome the problem of complexity and gives simplest way to safeguard the ATM transaction. Whenever person enters account number onto the ATM machine, the system needs PIN to validate the customer. If PIN gets verified, it makes a call to the user's mobile. If the user wishes to make an operation, then transaction process takes place.

The proposed system uses GSM modem for instruction from ATM to the user and receiving respond from consumer to ATM. If user correctly entered amount and secondary password from mobile then transaction occurs.

There is no any problem of lost or damaged ATM card. Also if the robbers try to harm ATM machine then the pulsations are detected by vibration sensor and give an alert message to the nearest police station and switches on the alarm. The system consists of an ARM microcontroller, GSM module, DTMF decoder and an IVRS system. Here, the person in ATM has to two options with him. One is with debit card and another is without debit card. After selecting without debit card the machine asks for the secondary password and the name of the card holder.

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A. Block diagram Description(Hardware)

Block wise Description of fig.1 are as follow

2.1 ARM Cortex (LPC2148):

The operation is on the ARM7 microcontroller. The LPC2148 microcontrollers is based on a 32/16 bit ARM7TDMI-S CPU with real-time emulation and embedded trace support, that combines the microcontroller with embedded high speed flash memory ranging from 32 kB to 512 kB. The ARM is a modified Harvard architecture machine where program and data is stored in separate physical memory systems that appear in different address spaces, but having the ability to read data items from program memory using special instructions. ARM microcontroller delivers a unique combination of performance, power efficiency, and design flexibility. Optimized to speed time to market, they are based on the industry's most code-efficient architecture for C and assembly programming.

2.2 LCD:

A liquid crystal display (LCD) is a flat panel display, electronic visual display, video display that uses the light modulating properties of liquid crystals (LCs). LCs does not emit light directly. They are used in a wide range of applications, including computer monitors, television, instrument panels, aircraft cockpit displays, signage, etc.

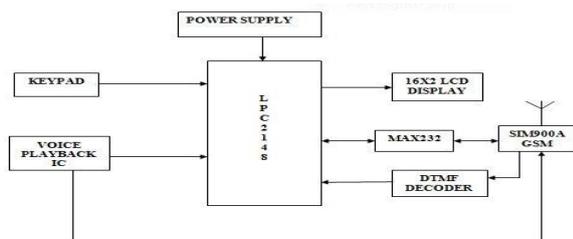


Figure 1: Proposed System Block Diagram

2.3 DTMF decoder

DTMF stands for Dual Tone Multi Frequency and it is the basis for your telephone system. DTMF is actually the general term of Touch-Tone (touch-tone is a registered trademark of ATT). Touch-tone phone is technically a DTMF generator that produces DTMF tones as an individual press the buttons .Dual-tone multi-frequency signalling (DTMF) is used for communication signalling on analog telephone lines in the voice-frequency band between telephone handsets and other connecting devices and switching centre. The version of DTMF that is used in push-button telephones for tone dialling is known as Touch-Tone.

2.4 SIM900A GSM MODULE

A GSM modem can be a dedicated modem device with serial, USB or Bluetooth device, or it can be a mobile phone that provides GSM modem capabilities. For the purpose of this document, the word GSM modem is used as a broad term to refer to any modem that supports one or more of the protocols in the GSM unit, including the 2.5G

technologies GPRS and EDGE, as well as the 3G technologies WCDMA, UMTS, HSDPA and HSUPA.

2.5 MAX232

MAX232 from Maxim was the first IC which in one package contains the necessary drivers (2) and receivers (2), to get used to the RS-232 signal voltage levels to TTL logic. It became popular, because it requires one voltage (+5V) and generates the necessary RS-232 voltage levels (approx. -10V and +10V) internally. This greatly simplified the design of circuitry. A GSM modem exposes an interface that allows applications such as Now SMS to send and receive messages over the modem interface. The mobile operator charges for this message sending and receiving as if it was performed directly on a mobile phone. To perform these tasks, a GSM modem must support an "extended AT command set" for sending/receiving SMS messages, as defined in the ETSI GSM07.05 and 3GPP TS 27.005 specifications. The modem needed only 3 wires (TX, RX and GND) except Power supply to interface with Microcontroller/ Host PC. The built in Low Dropout Linear voltage regulator allows you to connect wide range of unregulated power supply (4.2V -13V).

2.6 IVRS

Interactive voice response (IVR) is a technology that allows a computer to interact with humans through the use of voice and DTMF keypad inputs. In telecommunications, IVR allows customers to interact with a company's database via a telephone keypad or by speech recognition, after which they can service their own inquiries by following the IVR dialogue. IVR systems can respond with pre-recorded or dynamically generated audio to further direct users on how to proceed. IVR applications can be used to control almost any function where the interface can be broken down into a series of simple interactions. IVR systems deployed in the network are sized to handle large call volumes. IVR technology is also being introduced into automobile systems for hands-free operation. Current deployment in automobiles revolves around satellite navigation, audio and mobile phone systems.

2.7 KEYPAD

Keypad is a set of buttons arranged in a block or "pad" which usually bear digits, symbols and usually a complete set of alphabetical letters. If it mostly contains numbers then it can also be called a numeric keypad. The keypad switches are connected in a matrix of rows and columns.

B. Software Description

The software part deals in programming the microcontroller. In the present work we have used the ORCAD design software for PCB layout design, the CODEVISION AVR(KEIL_4) software development tool to write and compile the source code, which has been written in the C language. The UC FLASH serial device programmer has been used to write this compile code into

the microcontroller. The proteus software is used to simulate the project. The project also uses visual basic for interacting with the user.

III. RESULT AND ANALYSIS

The product of this project is to extract money from ATM Machine by means of Mobile . In this project the ordinary ATM card is restored by mobile phone for deep safety than existing system. Also it provides the security of the ATM machine being robbed .The code is executed in AVR Studio and then was simulated using Proteus simulator. The results are satisfactory we went about with the hardware completion part. The stepwise simulation process is as follows:-

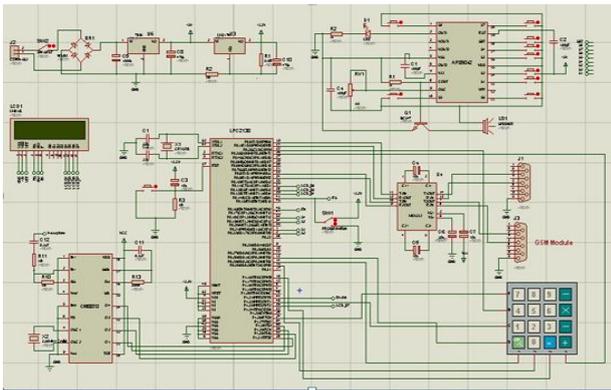


Figure 2: Main Circuit Simulation



Figure 3: Available Options

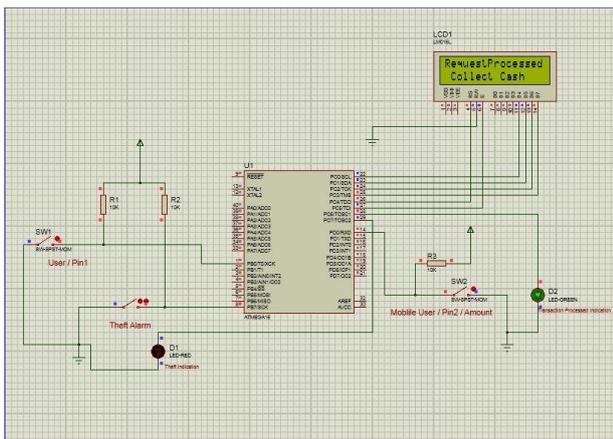


Figure 4: Final Output

IV.FLOWCHART OF PROPOSED SYSTEM

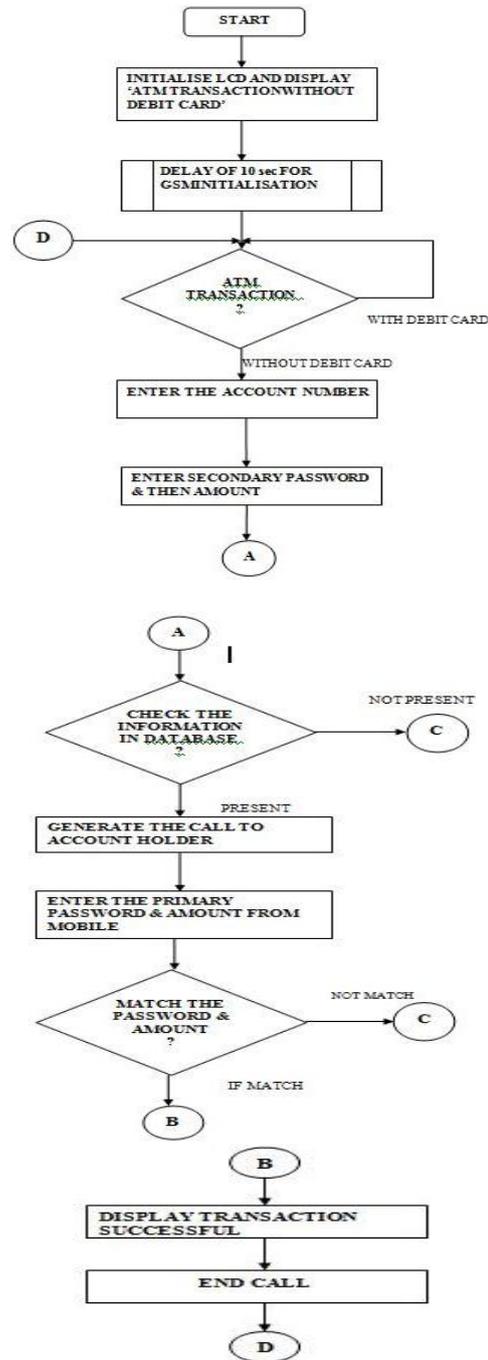


Figure 5: Flowchart of different conditions

V. CONCLUSION

The system performs ATM transaction without the debit card effectively. The database entered by user's relative is accepted and stored in microcontroller. A call is then generated to the user and database is taken from him. This database is then matched with user's relative database. If the database matches transaction takes place successfully. The proposed project on AVR microcontroller is more compact, user friendly and less complex which can readily

be used in order to perform several monotonous and repetitive jobs. Though it is designed keeping in mind about the need for industry it can extensive for other purposes such as commercial and study applications. Due to the probability of tall technology (GSM) used this “secluded Cash Withdrawal in ATM Using Mobile” is fully software controlled with fewer hardware circuit. The feature makes the base for future systems.

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