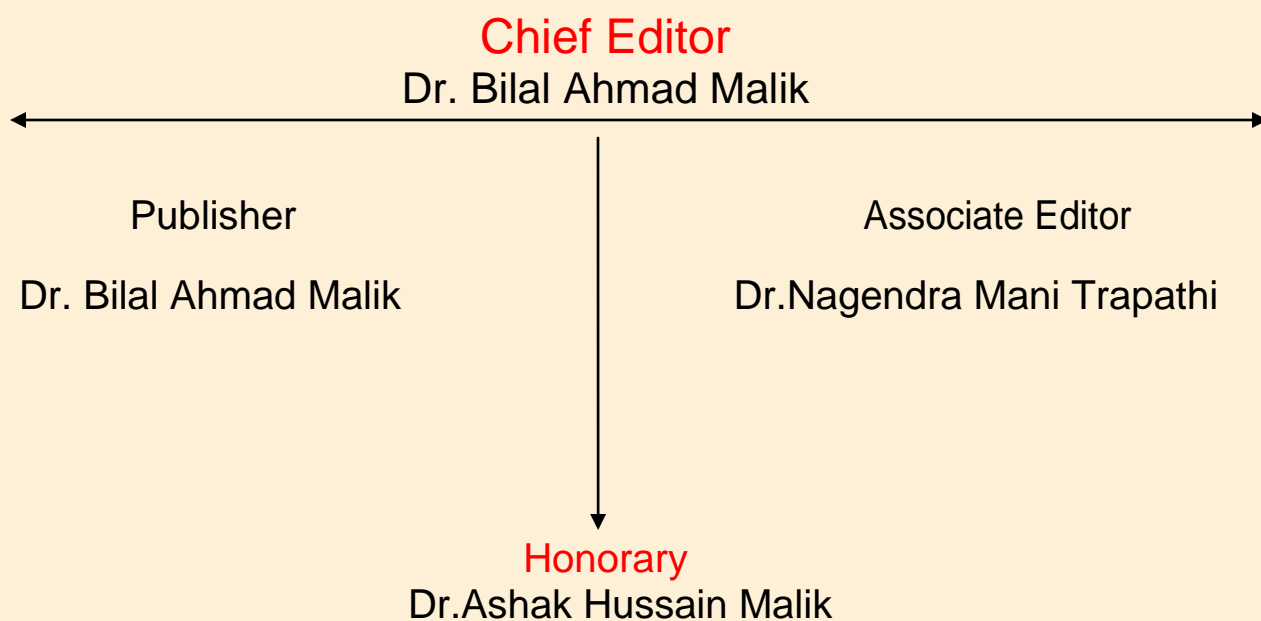# North Asian International Research Journal Consortium

*North Asian International Research Journal*

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*Science, Engineering and Information Technology*

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# Welcome to NAIRJC

North Asian International Research Journal of Science, Engineering & Information Technology is a research journal, published monthly in English, Hindi, Urdu all research papers submitted to the journal will be double-blind peer reviewed referred by members of the editorial board. Readers will include investigator in Universities, Research Institutes Government and Industry with research interest in the general subjects

# Editorial Board

# SMART AND SECURED ATM TRANSACTION SYSTEM

## PRIYANKA LABADE[1], AISHWARYA GOTARNE[2], PADMLATA GULVE[3], & BHAGYASHRI WARHADE[4]

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*Abstract— The basic aim of this paper is to study the system, which is used for ATM access to cash withdrawal with more security. In this system, the database of a person is already saved in bank server. According to the database unique card will be provided to a person who can only access that card for security purpose. The working of system will start when our person goes at ATM center. After getting entry into the center customer will swipe the active card. After that the authentication will be start and a system generated call will be made on persons mobile no via GSM module which is already registered. Then there will be three options in that call from which one option have to choose by person. depending on that any action will be happen i.e. transaction done, transaction cancel ,and action if the person choose first option then ATM ask for the pin has to entered by person. if he selects second option then transaction will be canceled .and if he selects the third one then action will be taken by ATM machine server and the door will be locked automatically n the buzzer will rang.*
*Keywords— ATM Terminal, PIC18f16F877, GSM Modem, DTMF module, Relay, Active card.*

## I. INTRODUCTION

The existing self banking system has got very high popularity with 24 hours service. Use of ATM (Automatic Teller Machine) is helpful for money transaction. ATM is activated by placing the card, then entering the pin number of the particular card. But this system is not safe to use because anybody can access the system if they have the card and pin number like we share our card and pin number to our friends who may miss use it. This is the main disadvantage of existing system.  Traditional ATM systems authenticate the method has some defects.

Using ATM card and password cannot verify the client's identity exactly, and correct password. Once the password and ATM card is stolen by the culprit they can take all money from the account in the shortest time. In recent years, the algorithm that the fingerprint recognition continuously updated, which has offered new verification means for us, the original password authentication method combined with the biometric identification technology verify the users identity better and achieve the purpose that use of ATM machines improve the safety In recent years.

The algorithm that the fingerprint recognition continuously updated, which has offered new verification means for us, the original password authentication method combined with the biometric identification technology verify the users identity better and achieve the purpose that use of ATM machines improve the safety.

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## II. LITERATURE REVIEW

According to the reference paper [1], In this system GSM (Global System for Mobile Communication) is interfaced with the ATM network that can be sends all information to user's mobile. Problems like out of order, out of cash, network jam can be well versed before stepping into ATM. It also comes with a strip of LED Light which alerts people few meters ahead, about the working condition of the ATM machine. So that next time it is not needed to waste time in stepping in, inserting our card and pin in an ATM machine of order, or out of cash. The number of persons entering the ATM should be limited to ONE at a time.[1] According to the  [2], In this system, Bankers will collect the customer finger prints and mobile number while opening the account then only customer can access ATM machine.. First there is switch for entry. After getting entry customer has to places his finger on the finger print module. Then system will check for user identity and checks validity of finger if it finds as a valid then ATM machine will ask to customer for 4-digit ATM pin, which is fixed. If that 4-digit code match with entered pin code then system will automatically generates another different 4-digit code i.e. OTP. And that code will be message to the customer's registered mobile number through GSM modem which is connected to ARM 7. Here customer has to enter this code again .After entering OTP, System will checks whether entered code is a valid one or not. And if it is valid, the customer is allowed for further accessing. ATM will show options like cash withdrawal, cash deposit. Also purpose of using Temperature sensor and tilt sensor is to provide security for ATM Terminal.

## III. BLOCK DIAGRAM
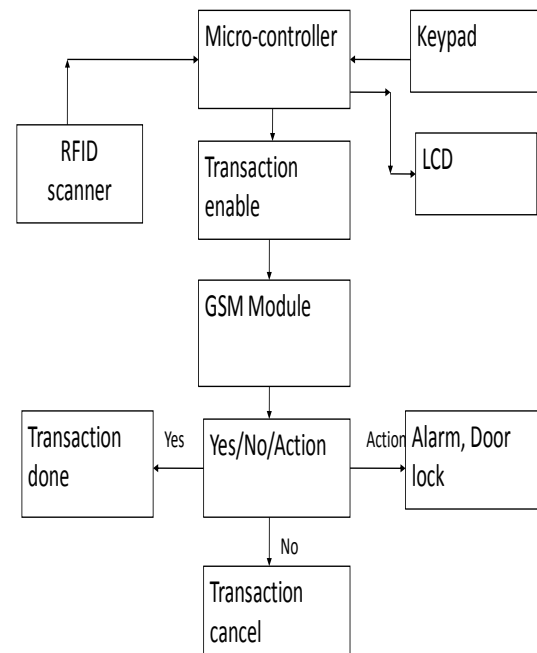


### A.  BLOCK DAIGRAM DESCRIPTION:

In this system first the user will go to the ATM centre and swap his/her card then a message will be displayed on ATM screen enter the pin code. The Transaction action will be enabled. Then system will generate the call through GSM module. This call will go to user mobile. We will hear three options on the call namely (1).YES (2).NO (3).ACTION. Then we will select the appropriate option by pressing the corresponding number. IF we press1 then transaction will be done. If we press2 transaction will be cancelled. If we press3 then card will get blocked, the buzzer will ring, and the door of the ATM centre will get locked then message will go to the control room. Depending on the selected options the appropriate action will be taken.

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## IV. HARDWARE DESIGN

*1. RFID:* An RFID reader transmits an encoded radio signal to interrogate the tag. The tag receives the message and responds with its identification information. This may be only a unique tag serial number, or may be product-related information such as a stock number, lot or batch number, production date, or other specific information. RFID tags contain at least two parts: an integrated circuit for storing and processing information, modulating and demodulating a radio-frequency (RF) signal, collecting DC power from the incident reader signal, and other specialized functions; and an antenna for receiving and transmitting the signal.

A **Passive Reader Active Tag** (**PRAT**) system has a passive reader which only receives radio signals from active tags (battery operated, transmit only).

*2. GSM:-* After, the same user data is transferred to GSM module with the help of serial driver IC and using GSM module the message will send to card holder. After, the same user data is transferred to GSM module with the help of serial driver IC and using GSM module the message will send to card holder. In this message there is three option YES/ NO/ACTION. If card holder want to do a transaction, then simply reply YES and transaction will done. If card holder does not want to do a transaction, then simply reply NO and transaction will stop.

*3. ALARM:* If the person knows his card is missing and someone making misuse of this card, then reply ACTION and at that moment the ATM door will be locked automatically and blow an alert alarm so the outside peoples can take some action. And also a message send to a police control room as well as card holder along with the ATM machine location

and area code by using GSM module, so the necessary action can be taken against them.

*4. (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. They are common in consumer devices such as video players, gaming devices, clocks, watches, calculators, and telephones. LCDs have displaced cathode ray tube (CRT) displays in most applications. They are usually more compact, lightweight, portable, less expensive, more reliable, and easier on the eyes. They are available in a wider range of screen sizes than CRT and plasma displays, and since they do not use phosphors, they cannot suffer image burn-in.

*5. DTMF Decoder:* DTMF stands for **D**ual **T**one - **M**ulti **F**requency and it is the basis for your telephone system. DTMF is actually the generic term for Touch-Tone (touch-tone is a registered trademark of ATT). Your touch-tone phone is technically a DTMF generator that produces DTMF tones as you press the buttons.

Dual-tone multi-frequency signaling (DTMF) is used for telecommunication signaling over analog telephone lines in the voice-frequency band between telephone handsets and other communications devices and the switching center. The version of DTMF that is used in push-button telephones for tone dialing is known as Touch-Tone. It was developed by Western Electric and first used by the Bell System in commerce, using that name as a registered trademark.

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**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 prerecorded 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.

## V. SOFTWARE DESIGN

### A. KEIL:

1. Writing program in C/C++ or Assembly language

2. Compile and assembling programs.

3. Debugging program.

4. Creating Hex and Axf file.

5.Testing your program without available real hardware(simulator mode).

### B. PROTEUS

Proteus 8 is best simulation software for various designs with microcontroller.  It is mainly popular because of availability of almost all microcontrollers in it. So it is a handy tool to test programs and embedded designs for electronics hobbyist. You can simulate your programming of microcontroller in Proteus 8 Simulation Software.

After simulating your circuit in Proteus 8 Software you can directly make PCB design with it

so it could be a all in one package for students and hobbyists.

## VI. FLOW OF PROJECT
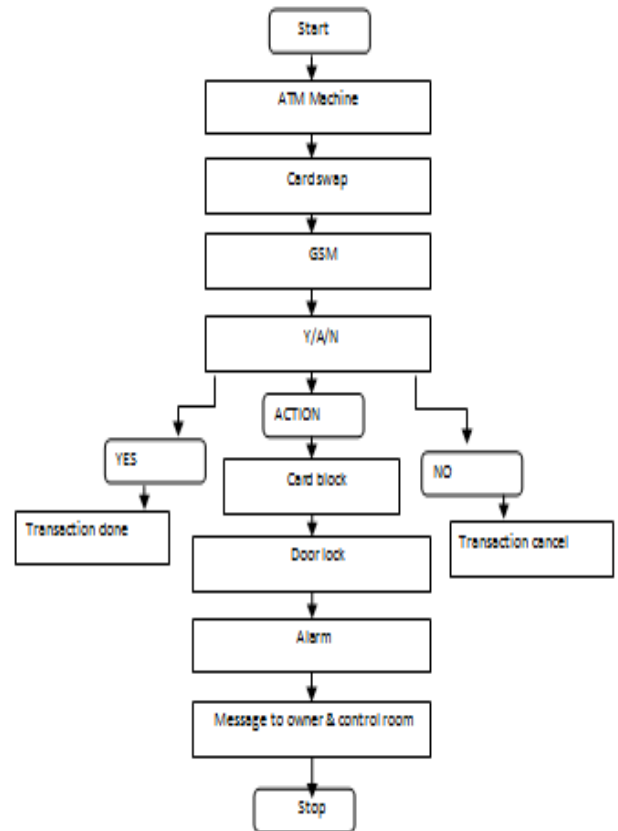


## VII. CONCLUSION

The Implementation of ATM security by using call and   GSM MODEM took advantages of the stability and reliability of secured system. Depending on the owner's choice any action can be taken by controller and the system will be more secured. The whole system will be built on the technology of embedded system which makes the system more safe, reliable and easy to use. Via DTMF the pin will be entered and regarding of that the controller will take action. After this through DC motor door will be locked and the message will be send to control room.

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## VIII. FUTURE SCOPE

The growth in electronic transactions has resulted in a greater demand for fast and accurate user identification and authentication. Access codes for buildings, banks accounts and computer systems often use PIN's for identification and security clearances. Conventional method of identification based on possession of ID cards or exclusive knowledge like a social security number or a password are not all together reliable. When credit and ATM cards are lost or stolen, an unauthorized user can often come up with the correct personal codes. Despite warning, many people continue to choose easily guessed PIN's and passwords birthdays, phone numbers and social security numbers. This paper may solve this problem and useful for detecting a fraud. It is used in Bank sector and any ATM related security. It is also called as thief tracking system. As there is a scope for improvement and as a future implementation we can add a tracking chip on ATM card for tracing the location of card which will help in providing users assistance

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