A 3G design for the Automation of Inter-Network Banking and Teller Machine operations using Universal SIM

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Abstract- *The system is designed on proposed the basis of mobile SIM and the face recognition technique i.e. image will be capture with the help of camera placed in the design. Firstly the SIM of mobile phone when inserted in the GSM unit of the ATM machine then the process will starts and the fitted camera will capture image of the user, then the information about the SIM card and the image captured will be match with the server database for the authenticated user. In the server database the information about SIM user character, behavior with different possible images, account information, etc. stores. When authenticated user then it asks the PIN number for next process. While if SIM and Image captured not match with the server database then the whole process will be terminated, thus the transaction will be secured. Today, single factor authentication, e.g. passwords, is no longer considered secure in the internet and banking world. Easy-to-guess passwords, such as names and age, are easily discovered by automated password collecting programs. Two factor authentications have recently been introduced to meet the demand of organizations for providing stronger authentication options to its users. In most cases, a hardware token is given to each user for each account. The increasing numbers of carried tokens and the cost the manufacturing and maintaining them is becoming a burden on both the client and organization. Since many clients carry a mobile phone today at all times, an alternative is to install all the software tokens on the mobile phone. This will help reduce the manufacturing costs and the number of devices carried by the client.*

Keywords- Microcontroller, GSM, Web Camera, Voice Recognition Module.

I. INTRODUCTION

Automated Teller Machines (ATMs) are well-known devices typically used by individuals to carry out a business financial, individual, transactions and/or banking functions. Therefore ATMs have become more popular. ATMs are now found in restaurants ,supermarkets, Convenience stores, malls, schools, gas stations, hotels, work locations, banking centre, airports, entertainment establishments, transportation facilities and a myriad of in many other locations. ATMs are typically available to users on a continuous basis such that consumers have the ability to carry out their ATM financial transactions and/or banking functions at any time of the day and on any day of the week. In the existing system the user should carry their ATM card without fail. But in many cases user forget it. So in the proposed system we designed a system which helps us to use the ATM machine without the ATM card. Today security concerns are on the rise in all areas such as banks, governmental applications, healthcare industry, military organization, educational institutions, etc. Government organizations are setting standards, passing laws and forcing organizations and agencies to comply with these standards with non-compliance being met with wide-ranging consequences. There are several issues when it comes to security concerns in these numerous and varying industries with one common weak link being passwords. Most systems today rely on static passwords to verify the users identity. However, such passwords come with major management security concerns. Users tend to use easy-to-guess passwords, use the same password in multiple accounts, write the passwords or store them on their machines, etc. Furthermore, hacker shaves the option of using many techniques to steal passwords such as shoulder surfing, snooping, sniffing, guessing, etc. Several proper‟ strategies for using passwords have been proposed [1]. Some of which are very difficult to use and others might not meet the company's security concerns. Two factor authentication using devices such as tokens and ATM cards has been proposed to solve the password problem and have shown to be difficult to hack. Two factor authentication also have disadvantages which include the cost of purchasing, issuing, and managing the tokens or cards. From the customers point of view, using more than one two factor authentication system requires carrying multiple Tokens /cards which are likely to get lost or stolen.

II. METHODOLOGY

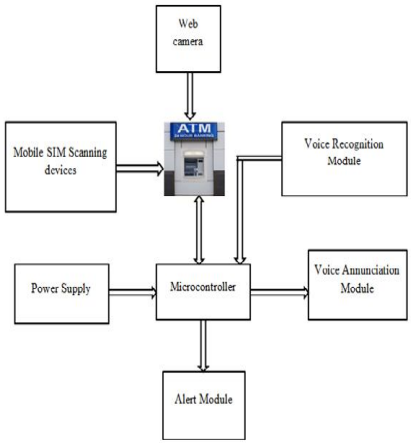

Fig.1. Block diagram of 3G design for the Automation of Inter-Network banking and Teller Machine operations using Universal SIM.

Many embedded systems have substantially different designs according to their functions and utilities. The above shown is the block diagram of Diode and Transistor Tester using PIC. It consists of power supply, hardware of circuit, PIC Microcontroller etc.

A. ARM 7

The ARM7 LPC2148 Primer board is specifically designed to help students to master the required skills in the area of embedded systems. The kit is designed in such way that all the possible features of the microcontroller will be easily used by the students. The kit supports in system programming (ISP) which is done through serial port. NXP's ARM7 (LPC2148), ARM Primer Kit is proposed to smooth the progress of developing and debugging of various designs encompassing of High speed 32-bit Microcontrollers.

B. VOICE RECOGNITION MODULE

Here a microphone is attached to the ATM machine which takes the words said by the user and converts into equivalent texts. For instance a physically challenged need not type is PIN number instead he can just speak and machine types the numbers all by itself and then waits for the user to confirm it and then process the same. Thus by doing so complex situations faced by handicaps are avoided.

Speech recognition is classified into two categories Speaker dependent and Speaker independent

C. VOICE AUNNUCIATION MODULE

The voice chip offers non-volatile storage of voice and/or data in advanced Multi-Level Flash memory . Up to 8 minutes of audio recording and playback can be accommodated. A maximum of 30K bits of digital data can be stored. Devices can be cascaded for longer duration recording or greater digital storage.

D. MOBILE SIM SCANNING DEVICES

In this block gsm and pc is used.Gsm and hardware both are interfaced to PC.Gsm interfaced to pc through serial communication port .In same way hardware also connected to pc through UART.In LPC2148 Primer Board contains two serial interfaces that are UART0 & UART1. Here we are using UART0. The Transmitter pins send the data into PC and the receiver pin receives the data from PC. The PC and microcontroller speed are denoted by using baud rate. When the baud rates of both PC and Microcontroller are same, then only the data transmit and receive correctly otherwise not. A GSM modem is a wireless modem that works with a GSM wireless network. A wireless modem behaves like a dial-up modem. The main difference between them is that a dial-up modem sends and receives data through a fixed telephone line while a wireless modem sends and receives data through radio waves.

E. ALERT MODULE

Buzzer is an electrical device, which is similar to a bell that makes a buzzing noise and is used for signaling. Typical uses of buzzers and beepers include alarm devices, timers and confirmation of user input such as a mouse click or keystroke. A piezoelectric element may be driven by an oscillating electronic circuit or other audio signal source, driven with a piezoelectric audio amplifier. Sounds commonly used to indicate that a button has been pressed are a click, a ring or a beep. When the input port pin from microcontroller is changed, the sound wave is changed in Buzzer

F. POWER SUPPLY

In every electronic circuit, power supply is required. If the power exceeds its limit, it can be fatal. In this project, power supply is given to microcontroller as it works on dc. Power supply converts ac voltage to required variable dc voltage to switch ON the controller. The controller required 5 V dc to work properly. A power supply is an electronic device that supplies electric energy to an electrical load the primary function of a power supply is to convert one form of electrical energy to another and, as a result, power supplies are sometimes referred to as electric power converters.

G. WEB CAMERA

A camera is an optical instrument for recording images, which may be stored locally, transmitted to another location, or both. The images may be individual still photographs or sequences of images constituting videos or movies. The word camera comes from camera obscure, which means "dark chamber" and is the Latin name of the original device for projecting an image of external reality onto a flat surface. The modern photographic camera evolved from the camera obscure. The functioning of the camera is very similar to the functioning of the human eye. For our camera we decided to use a pre-built webcam. These are designed to be used with computers and often have wide angle lenses, making them ideal for our product.

1) Video Capture Resolution: 1600 x 1200
2) Image Capture Resolution : 4000 x 3000

PCB DESIGN SOFTWARE

Dip Trace provides the following features: Easy to learn user interface

To design a schematic, simply select and place components onto your document and connect them together using the wire and bus tools. Multisheet design is supported. Then select the menu option 'Switch to Board' to convert the schematic to PCB. Layout can be updated from Schematic in a few clicks at anytime. When you create or edit design objects they are underlined to improve your work. Step-by-step tutorial available from web-site guides you through the design process and allows to get started with ease.

PCB Design Software

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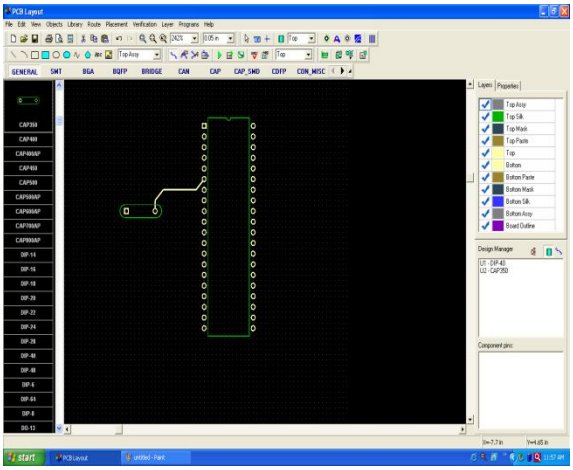

Fig No.3: Window of Dip trace

III. LITERATURE SURVEY

Modeling Internal Controls of Automated Teller Machine (ATM). Systems: A Computerized Decision Aid for Design and Evaluation. The purpose of the study is to identify and model internal controls of Automated Teller Machine (ATM) used by the banking industry. A reliability model of internal controls of ATM systems using series, parallel, and simple structures is presented. Control items and relationships are justified based on the engineering computer, and auditing literatures. Use and limitations of this model are also discussed. An ATM case with field controls and a related questionnaire has been developed. A computerized decision aid programmed in the PC. BASIC language for assisting design and evaluation of the ATM internal control system has been developed and evaluated. To evaluate the modeling effectiveness, a full group of graduate students in the EDP Auditing master program uses the decision aid to evaluate the ATM case by filling out the questionnaire. Computed values are compared with the user-assigned values to examine differences between model results and human intelligence.

IV. CONCLUSION

Thus by implementing this model we can reduce the complexities involved in maintaining number of ATM cards. Face recognition used in this project helps us to get rid of the malfunctioning and our transaction will be much secure. Also the voice enunciator helps in blind people for easy access.

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