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Smart Card Based Security Network

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Abstract: Now a day's smart card are useful in all application**,** Because of features and security that smart card provides. Smart cards are more reliable than any other card. It provides a memory storage as well as computational capability, perform many functions. the smart card include three steps Prevention ,detection and response. These cards are reliable, safe portable device. Smart card is the replacement of barcode and magnetic strip. This paper discuss smart card based security network. Smart card can be used as a multipurpose card so it has bright future.

Keywords: Smart Card, Security, Memory Storage, Reader.

I. INTRODUCTION

A Smart card is electronic device. The main purpose of smart card is security and identification. Plastic card having an integrated circuit chip embedded in it called as smart card. Scope of smart card has increased every year. There are many uses of smart card in different field it can be multipurpose smart card so, it is most useful card. Parts of smart card- plastic card, contact disc, integrated circuit chip. Smart cards proved that they are easier than the any other machine card technique. These are replacement of barcode and magnetic strip. Smart cards are having vast verity that they developed very fast. The security network of smart card is useful in payment system, identification, communication application, transportation, health card, retail and loyalty. Using smart card we can do smart networking. Smart card is easy to carry like credit card. Smart cards are microcontroller or memory card based. This paper looks into current trends in smart card.

II. THEORY AND DEFINITION

Smart Cards are first introduced in EUROPE, three decades ago. People found new ways to use smart card. Security is the protection for something important for data for the purpose data do not lost and changed or stolen. Smart card connected to controller through a card reader, which supplies information to computer. Smart cards are small computer device are form due to combination and integrated circuits for different functions, for this purpose different IC's are used. Smart card doesn't work alone it require electronic device for proper function. This technology is very popular now days. Smart cards can store many type of information which is used in different application. Working methods are depending on device used. Smart card can't retrieve the data so a device used to decode the data called as smart card reader. Smart card is a portable device, which store information and used for security purpose. Smart card are based embedded System, processing power is high and also storage capacity.

III. TYPES

Smart cards are classified as follow
1. Contact smart card
2. Contactless smart card
3. Memory card
4. Multipurpose card
5. Dual-Interface smart Card

1. Contact smart card:
This type of smart card requires physical connections. Contact smart card is used for ID and security purpose, speed and direct coupling are another advantages of this card. This type of card is having golden plates, contact pads. The plates are used for supply of energy and communication with reader. Reader is plugged in serial or vandal resistance. This type of smart card technology is more mature and offers that type of capability which not offers a contactless smart card like high memory capacity and operating system. The component of smart card is software, sawn, module bonding, and module underneath, module embedding, card manufacturing personalization. Contact smart card is complex and cost is more.

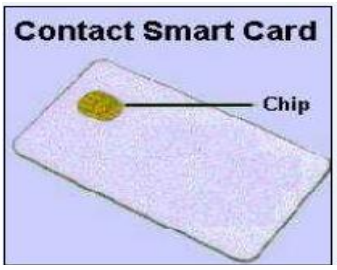

Figure 1: Contact smart card

2. Contactless smart card:
This smart card does not require physical connections. Radio frequency is used between card and reader. This card is communicating at 125 mhz. Contactless smart card is mainly designed for payment and transportation application, but do not have industrial support. The components are power supply, data communication, and microcontroller. Contact pads are not available. Wire loop used to supply of energy from card to reader for communication. The reader may have slot. Contact smart cards are combination of serial interface and antenna which is connected to card.

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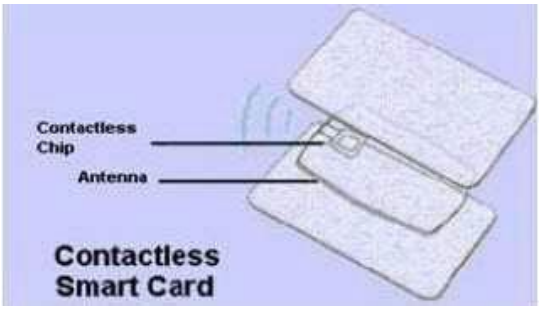

Figure 2: Contactless smart card

3. Memory card:
This card also designed for store and protects data. types of memory card: straight card, protected card, stored card. This can hold more data than the magnetic strip. In straight card they can store data but cannot process data.

4. Multipurpose Card:
Due to Multipurpose card we can save our time as well as it simplifies user life. In future we can carry them in phones, memory tics or in any another device. It is easy to use because it is portable. It gives cash less and paperless transaction, used in voting, time and attendance management.

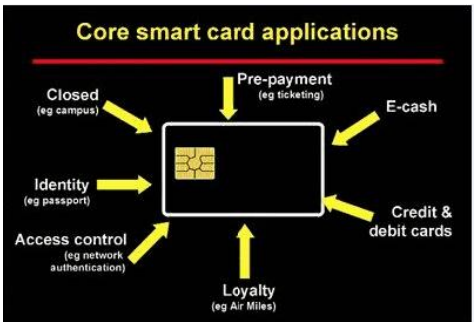

Figure 3: Multipurpose Card

5. Dual-interface Card:
The name indicates that contact and contactless interface is available. This type of card having two additional contact points. IC uses two protocol to communicate with reader multi technology gives easy transactions. In these type reader support magnetic stripe-contact and contactless read operation all in one device.

IV. CONSTRUCTION AND WORKING

In this system there are 8051 Microcontroller are used. It is a heart of system. And other component such as power supply, relay driver, level shifter (MAX 232) and LCD display. In this system 8051 IC are used to developing any hardware project. It is an 8 bit microcontroller, used for controlling all operations of circuits. This project consists of a smart card, used to store the particular data or information, which is read with the help of card reader and it show on LCD display. It is used for display the authorized and unauthorized person. 8051 microcontroller is used to provide the security to organizations by using smart card. The entire circuit gets power from these components voltage, regulator, and bridge rectifier circuit used in power supply.

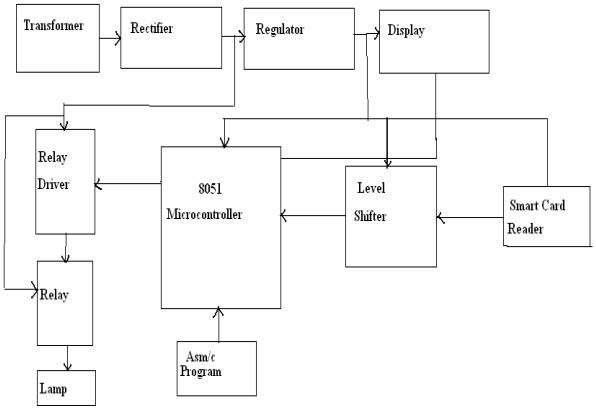

Figure 4: Block Diagram of Security System Based Smart Card

The voltage regulator gives 5volt constant output voltage. The power supply block comprises of a voltage regulator. Bridge rectifier circuits end step down transformer, the step down transformer connected to bridge rectifier which rectifies the current ac into dc. The rectifier dc output is filter by using filter. Smart card reader are used to read the information store in the smart card, it is interface with microcontroller using level shifter. Level shifters provide the communication between the smart card reader and 8051 microcontroller with the help of MAX232. This level shifter provides a standard serial binary data interconnection. RS232Level signal from the smart card reader is converted into TTL levels signal of Microcontroller. In this project uses a ULN2003 relay used for switching of the load in the project with the help of relay driver.

V. CONCLUSION

In this paper we discuss the smart card based security network. Smart card gives security in payment, transactions, attendance, transportations, voting and also works as personal ID. A smart card security network provides security and protections. We can carry that one card and used for multiple functions. Security is the main element in any payment or identity system. It also provides trust and loyalty. By using smart card we implement safe trust chain. Smart card vantage and security of any transactions also improves customer services because their processing power is good. Smart card gives enhanced security, offline transactions, multifunction, customization, economical, and portable features so it is best security technique. This paper attempt to study the smart card based security network.

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