Multipurpose Smartcard System

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Abstract— **To carry several cards one card can simultaneously be an ID, a credit card, a stored-value cash card, and a repository of personal information such as telephone numbers or medical history.**

Currently smart card implementations can be seen around the world but they are not unified i.e. each developer uses different programming standards and data structures, therefore a variety of smart cards exist in our society today. An example can be seen in Singapore where they have variety of smart card for the same purpose i.e. storing monetary value. One called E2 Link is used for their public transport system and is also usable in some food courts while the other cash cards are used for their toll system ERP, parking and supermarkets. This is a problem that exists today and one that needs to be noted or fixed. Our aim is to create a Multipurpose card system, in this system using single card you can handle number of technology.

Here in this paper we are providing the concept of bringing different applications together in one smart card. Thus, the person needs not to carry different cards for different purposes. The person can carry one card and can use the same card for different purposes. In this paper, we are introducing a smart card, which will work for different purposes like voting, attendance and transportation (ticketing). It will also work as a personal ID.

*Keywords*-**ERP, ID, Multipurpose, notunified, repository, smartcard.**

I. INTRODUCTION

Multipurpose smart card would be giving all services and making data processing and data transfer more efficient and secure. First application involves in various modes of transport, each time a traveler swipes his card, money would be deducted from it and a confirmation ticket would be provided to him. Transactions would be recorded in the swap machine which can be easily retrieved by providing the card number.

This system can also be used in voting. Eligible voters can be registered with the issuance of smart card. The card will be marked inactive once he casts his vote. Thus eliminating phantom of multiple votes by the same

person. It can also be used in Time and Attendance Management system in various organizations and educational institutes. The system records details such as arrival and departure of employees besides maintaining information regarding their personal, official profiles and to minimize loss due to employee downtime.

The smart cards play a vital role in today's life. There are different smart cards for different purposes. For example- credit cards, debit cards, voting cards, Aadhar cards(in INDIA), etc. These different cards are to be carried by the people wherever they go, for different purposes.

II. SMART CARD
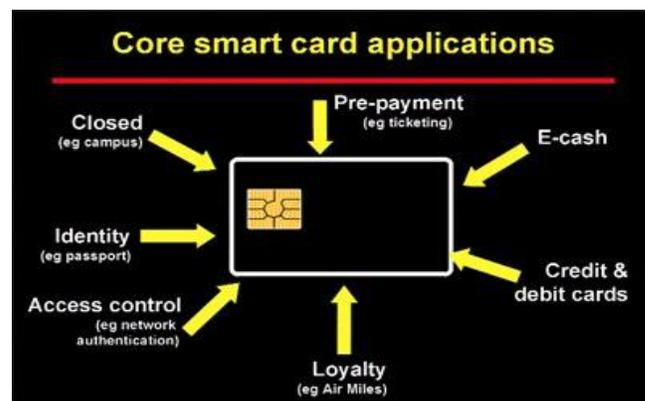
Fig(a):Smartcard

A smart card, typically a type of chip card, is a plastic card that contains an embedded computer chip–either a memory or microprocessor type–that stores and transacts data. This data is usually associated with either value, information, or both and is stored and processed within the card's chip. Systems that are enhanced with smart cards are in use today throughout several key application, including healthcare, banking, entertainment, and transportation.

III.SMART CARD READER-WRITER

Smart Card Readers are also known as card programmers (because they can write to a card), card terminals, card acceptance device (CAD), or an interface device (IFD). There is a slight difference between the card reader and the terminal. The term 'reader' is generally used to describe a unit that interfaces with a PC for the majority of its processing requirements. In contrast, a 'terminal' is a self-contained processing device. When the smart card and the card reader come in contact, each identifies itself to the other by sending and receiving information. If the messages exchanged do not match, no further processing takes place. So, unlike ordinary bank cards, smart cards can defend themselves against unauthorized users and uses in innovative security measures.

IV.FEATURES AND BENEFITS

1.Security: Smartcard chip is tamper-resistant & information stored on the card can be accessed using only PIN code.

2.Protected: System is capable of performing encryption each smart card has its own, unique serial number.

3.Intelligence: It is capable of processing & not just storing information. Smart cards can communicate with computing devices. Through a smart card reader, information and applications on a card can be updated without having to issue new cards.

4.Convenience: Chip used is tamper-resistant(security). Smart cards provide a portable, easy to use form factor that many are familiar with using it.

A smart card, a type of chip card, is a plastic card embedded with a computer chip that stores and transacts data between users. This data is associated with either value or information or both and is stored and processed within the card's chip, either a memory or microprocessor. The card data is transacted via a reader that is part of a computing system. Smart card-enhanced systems are in use today throughout several key applications, including healthcare, banking, entertainment and transportation. To various degrees, all applications can benefit from the added features and security that smart cards provide. According to Eurosmart, worldwide smart card shipments will grow 10% in 2010 to 5.455 billion cards. Markets that have been traditionally served by other machine readable card technologies such as bar-code and magnetic stripe are converting as the calculated return on investment is revisited by the each card issuer year after year.

First introduced in Europe nearly three decades ago, smart cards debuted as a stored value tool for pay phones to reduce theft. As smart cards and other chip-based cards advanced, people found new ways to use them, including charge cards for credit purchases and for record keeping in place of paper.

In the U.S., consumers have been using chip cards for everything from visiting libraries to buying groceries to attending movies, firmly integrating them into our everyday lives. Several U.S. states have chip card programs in progress for government applications ranging from the Department of Motor Vehicles to Electronic Benefit Transfer (EBT). Many industries have implemented the power of smart cards into their products such as GSM digital cellular phones to TV-satellite decoders.

V.COMPARISON WITH OTHER SYSTEM

Multipurpose smart cards are portable, easy to use and offer cashless and paperless transactions.
Compared to other cards like credit cards, ATM cards, fuel and phone cards, they can be used to as a one-stop shop for citizens to access multiple services.
Smart cards improve service delivery by connecting clients directly with service providers thereby reducing the discretion of public authorities. If implemented well smart cards can improve service delivery systems to cut out middlemen, corruption and bring services to closer to end users and beneficiaries.

From a service delivery and accountability perspective, smart cards can help plug leakages and curb corruption in the implementation of large-scale social welfare schemes. As they are capable of storing a range of beneficiary data such as name, address, photographs as well as biometric information, smart cards can help in beneficiary selection, identification and targeting under anti-poverty programme and schemes.

VI. EXTERNAL INTERFACE REQUIERMENTS

A. User Interfaces

The software is useful in Transportation, Attendance system and for Voting system. We are designing web forms related to these system , if the user doing travelling through bus or train then he needs transportation system, in that system he need to fill his smart card number and amount. Like this, important thing in the software is "smart card no" which is unique for each person.
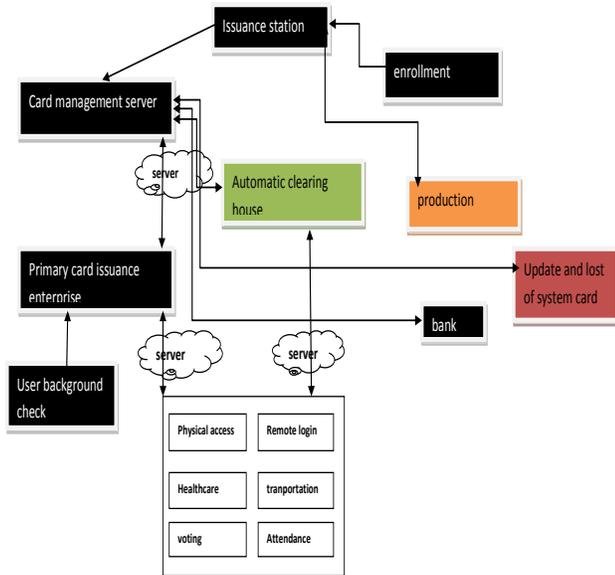
Fig(b)card logix

B.Hardware Interfaces:

Contact smart card reader

This type of reader requires a physical connection to the cards, made by inserting the card into the reader. This is the most common reader type for applications such as ID and Stored Value. The card-to-reader communications is often ISO 7816 T=0 only. This communication has the advantage of direct coupling to the reader and is considered more secure. The other advantage is speed. The typical PTS Protocol Type Selection (ISO7816-3) negotiated speed can be up to 115 kilo baud. This interface enables larger data transport without the overhead of anti-collision and wireless breakdown issues that are a result from the card moving in and out of the reader antenna range.

Interface

A contact reader is primarily defined by the method of it's interface to a PC. These methods include RS232 serial ports, USB ports, PCMCIA slots, floppy disk slots, parallel ports, infrared IRDA ports and keyboards and keyboard wedge readers. Some readers support more than one type of card such as the tri mode insert readers from MagTek. These readers support magnetic stripe-contact and contactless read operations all in one device.

VII.READER AND TERMINAL TO CARD COMMUNICATION

All cards and readers that follow ISO 7816-3 standards have a standardized set of commands that enable communication for CPU cards. These commands, called APDUs (Application Protocol Data Units) can be executed at a very low level, or they can be scripted into APIs which enable the user to send commands from an application to a reader. Photo Courtesy of Precise Biometrics Photo Courtesty of Magtek 16 The reader communicates with the card where the response to the request takes place. From a technical perspective, the key is the APIs that are chosen. These layers of software can enable effective application communication with smart cards and readers from more than one manufacturer. Most terminal SDKs come with a customized API for that platform. They are typically in some form of C, C++ or C # and will have the header files included. Many smart card readers have specific drivers/APIs for memory cards. For ISO7816 processor cards the PC/SC interface is often employed, but it has limitations. This is especially important if you have both memory and microprocessor cards that can are used in the same system. Some APIs give the software designer the ability to select readers from multiple vendors.

The following are some of the function calls provided for transporting APDUs and their functions:

Reader Select
Reader Connect
Reader Disconnect
Card Connect
Card Disconnect
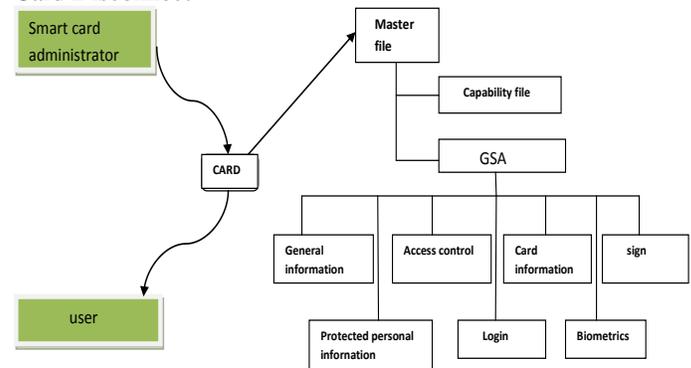
Proprietary Commands for specific readers and cards allow ISO Commands to be passed to cards using standard ISO format allow ISO Commands to be sent to cards using a simplified or shortcut format (As in the Fig(b) CardLogix Winplex®API)

VIII.CONCLUSION

In this paper, we introduced concept of a smart card, which will work for different purposes like voting, attendance and transportation (ticketing). It will also work as a personal ID.

In this paper we are demonstrating the idea of different applications together in one smart card. Thus, the person

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needs not to carry different cards for different purposes. The person can carry one card and can use the same card for different purposes.

Thus, a person needs not to carry number of cards, he can just carry a single card for different purposes.

IX.REFERENCES

[1] The Secure Access Using Smart Cards Planning Guide

http://www.microsoft.com/technet/security/topics/networksecurity/securesmartcards/default.mspx

http://search.technet.microsoft.com/search/default.aspx?siteId=1&tab=0&query=smart+card

[2] The Smart Card Deployment Cookbook

[3] IEEE paper on- Multi-Purpose Student Card System Using Smart Card Technology

[4] Smart Card Concepts

http://www.microsoft.com/technet/security/topics/identitymanagement/smrtcdcb/sec1/smartc02.mspx

[5] http://www.ehow.com/facts_4843889_advantages disadvantages-using-smart-cards.html

[6] International Security, Trust and Privacy Alliance

http://www.istpa.org

[7] www.smartcardbasics.com · www.cardlogix.com · sales@cardlogix.com

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