



# JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

An International Scholarly Open Access, Peer-reviewed, Refereed Journal

## SMART CARD IDS

DR.Sudheer S Marar, Professor and HOD, Department of computer applications, Nehru college of engineering and Research centre.

[ssmarar@gmail.com](mailto:ssmarar@gmail.com)

Sreehari P R , Department of MCA , Nehru college of engineering and Research centre.

[Sreehariharisree98@gmail.com](mailto:Sreehariharisree98@gmail.com)

**Abstraction** :One today takes on the responsibility of managing a wallet full of cards to prove one's identity such as a valid ID card, bar cards, library cards, driver's licenses, etc. Smart card ID has the ability to change these cards in one frame. Identity cards will serve the purpose you want. A variety of smart cards are available from now on with advanced technology where developers use different data structures and system levels. In this paper, we will discuss the functionality of smart cards as a solution to the need for a multi-purpose national ID for every citizen with advanced technology. Our goal is to come up with an effective and efficient multi-purpose ID card solution to eliminate multiple card handling by one person. It will assist governments around the world in better governance with an affordable solution for multiple smart single ID cards. It will also require the management of a large processed website and a refined computer to be returned home to the ID you want. Data centers that handle this large amount of data contribute to reducing delays and costs of data processing and improving service quality in order to incorporate a variety of services using Internet-based services.

A smart card is an electronic device with a micro-processor based system that contains embedded integrated circuits that can process and store a large portion of data and applications. A smart card reader is used to access stored information and is also called a smart terminal when a card is connected to this course. In addition to the card reader, radio waves are also used to operate the smart card. Different protocols are used for different types of card readers to communicate between card and reading. The level of protection adopted on smart cards defines the level of protection regarding sensitivity and confidentiality of data against breaches. The problem with smart cards is its data storage capacity and processing ability. If we choose to associate any new application with a smart card the security method will require the use of additional space which also requires the use of a lightweight security algorithm. This paper considers the division integer algorithm and then a practical plan to ensure appropriate security measures and to combat epidemics of cybercrime. In this regard, all provinces need strict laws with effective legislation to prevent any fraud. The purpose of this paper is to touch on the technology of the smart card and its functionality as

one of the only IDs with ID levels desired by the various regions and to learn their functionality through potential applications.

## SMART CARD: AN OVERVIEW

A smart card is known as a portable device that can calculate, store and manage data on an embedded processing chip to verify your identity in a secure environment. The smart card can also store data related to any person in the form of a barcode issued by a visual scanner. A barcode is an image of data displayed in a line of black and white machine-readable lines that are machine-readable. Barcodes are displayed on a smart card with matching lines with different spaces and widths. The first smart cards were based on contact while the smart cards with no communication date back to the early 90s. Later, a smart card with unconnected ICs completely changed the use of smart cards and their use. Intelligent non-touch cards offer maximum comfort to the user while they can be read without physical contact with bar code readers. And it extends the advantage over smart cards in terms of cost, durability and reliability. The easy carrying of such smart cards in the bag provides good comfort for the users. Dedicated and secure transfer protocol is used on a smart non-touch card that provides excellent security. Magnetic tape is attached in a line to smart magnetic cards. Smart Memory cards have unique features for storing and managing potentially personal or financial information. The embedded IC circuit on the card is called intelligent microprocessor cards that can process and store title data.

The layout view next to the smart plastic card is shown in Figure 1 above. To protect the smart card chip from the curve, it is usually placed on one end of the smart card. The Epoxy layer in this magnetic field is also noticeable when we look at its internal structure. The various applications, communication agreements and production details are defined by the International Standardization Organization (ISO). Currently, there are the following ISO standards for smart cards:

### A. Physical Factors:

The first ISO 7816-1 (ISO 7816-1) in 1987 defined the smart card size as 0.76 mm thick, 53.98 mm long and 85.6 mm wide. It was revised in 1998

### B. Electronic Contacts:

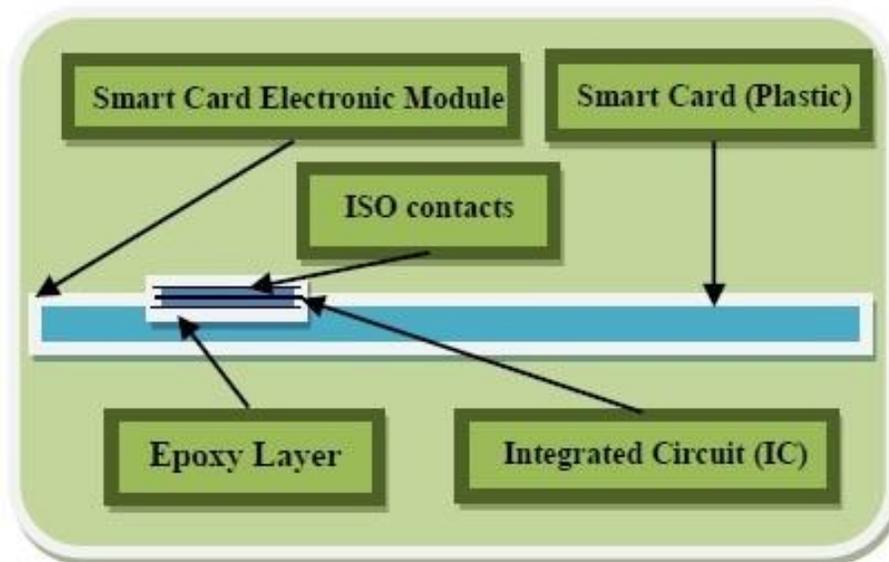
The ISO standard (ISO 7816-2) defines the size and location of electronic communications on smart cards. This too was reviewed in 1998.

### C. Electrical Signals:

The ISO standard (ISO 7816-3) defines the transmission protocol and nature of electronic signals on smart cards. It has tripled in 1992, 1994 and 1998.

#### D. Communication Procedures:

The ISO standard (ISO 7816-4) defines the principles of communication for different types of applications and the file structure to be stored in these applications on smart cards. Updated twice in 1995 and 1998.



#### E. Language:

The ISO standard (ISO 7816-7) has defined the language of instruction questions used on smart cards. This has been revised again in 1998. The use of internet technology has changed the whole concept of security systems. Smart card technology is also no different. The identification of an individual is to do more by securing a secure identity document. Individual information needs to be stored securely when a smart mobile card provides a good platform. The magnetic field functions of smart cards are processed through an electronic connection between the smart card and the service provider. The processor and memory chip on the smart card allows you to store the required data processed by a smart card reader when connected to a central server. Unlike smart contact cards where they have an electronic connection with the card reader, smart non-contact cards operate with a transmission frequency and internal cable coil. It can be picked up and read through an external aerial.

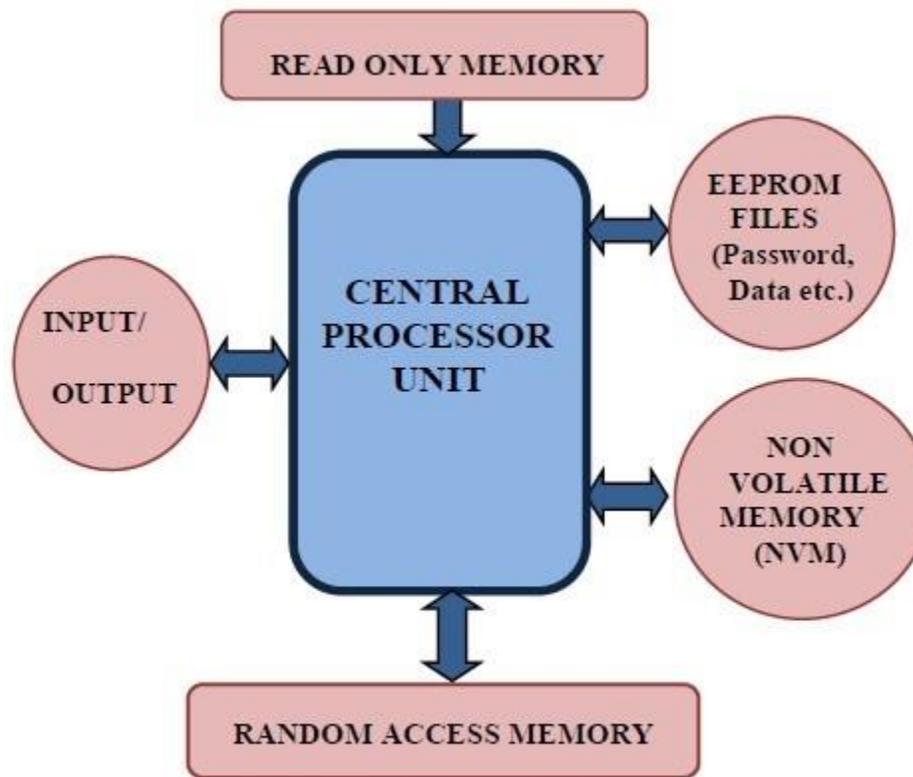


Fig. 2. Basic architecture of an electronic module of smart card.

The two most common materials used for the manufacture of smart cards are Acrylonitrile Butadiene Styrene (ABS) and Polyvinyl Chloride (PVC). There are two main categories of smart cards, namely, such as enabled processor and smart memory cards. Moderate comparisons based on a variety of factors between the two are shown above in Table I. Of the two, the smart memory cards are considered to be smart cards with limited ability to store data with consistent memory features. These cards transmit data to one side only and are also called smart cards that are synchronous and are used offline only. On the other hand, cards are processed by processors using semiconductor technology and as complex cards are also called 'true smart cards'. These cards have a smart chip that uses encryption and decryption technology to process secure data transfers.

Typically, biometric technology is used to establish user identity. These cards have bi-directional data transmission, have important memory and are also called

'Smart cards match' and are hard to replicate. Data storage on such smart cards does not change and is stored in EEPROM. The electronic card module apart from the input / output component contains various types of memory including Read Only Memory (ROM), A (Random Access Memory), Electronic Transmission Memory (EEPROM) and Fixed Memory (NVM) as shown in Fig. 2 above. It is housed in the second layer of the embedded smart card processor chip as shown in Fig. 1. These memory chips are integrated into those electronic modules based on the proposed requirement and at the same time the availability of all memory chips is not sacred. Combining all these memories into a single chip integrated into not only reduces size significantly, combining it with cryptography technology also enhances smart card security.

## SMART CARD APPLICATIONS

The great advantage of a smart card over a standard ID card is its ability to store large amounts of information and its flexibility in various applications. Its feature of having access to contact students gives it a limitation on the same technology in an effort to get a single ID across the country for multiple uses. The word smart, is related to a particular type of application such as memory / linear / optical / microprocessor cards. The main use of smart cards is their use in financial trading for quick processing of income or payments. Its ability to manage individual information and bring it to the desired location distinguishes it from other such applications in real-time authentication. Smart card applications include their use as a GSM cell phone for proprietary requirements. Wide use as a debit / credit card debit card or being a debit / counterfeiting device enhances its popularity. Electronic coupons and credit card programs are other attractive apps for smart cards. The natural security and flexibility of smart cards increase their usability. With improved data storage and security aided by the provision of encryption and encryption by the user provides a high level of ease of use for users. Some notable features for smart cards are as follows:

### A. Verification of ID:

The basic premise of keeping personal information is to make sure of any other use of smart cards. For now. A large number of organizations and institutions including both government and the private sector use smart cards to extend access to their members / employees only after proper verification of their identities based on personal information stored on their identity cards. Its function as an option to ensure secure ownership makes it a very useful tool to be accepted by any potential organization.

### B. Data Verification:

User-related information is verified by data already stored on a smart card or token system which is also known as information processing may be used for this purpose. Token systems are commonly used for applications such as passport verification; credit cards, driver's licenses, etc. while information-based verification is performed on programs with a token system such as PIN numbers.

### C. Financial Services:

Smart cards are very useful as a financial activity tool for both traditional and web applications. The amount of money can be stored on smart cards to use as credit cards. The ability to support both consumers and business against low levels of activity enhances its effectiveness in targeted marketing programs in financial services.

### Category D. Telecom:

The provision of secure mobile communications is aided by smart cards. New apps and functions provide real-time download capabilities for smart cards. The SIM card provided by mobile operators to their subscribers and its use of multimedia programs such as prepaid TV cards make it a very productive tool among the general public.

#### E. Loyalty Marketing Programs:

A large number of loyalty programs are run on smart card-based applications by various business houses in services such as retail, telecommunications, air travel, etc. where customers are offered attractive discounts. Such applications not only make the business market more competitive, but it also helps the general public to reap the benefits at relatively low prices.

#### F. Protect Computer Networks:

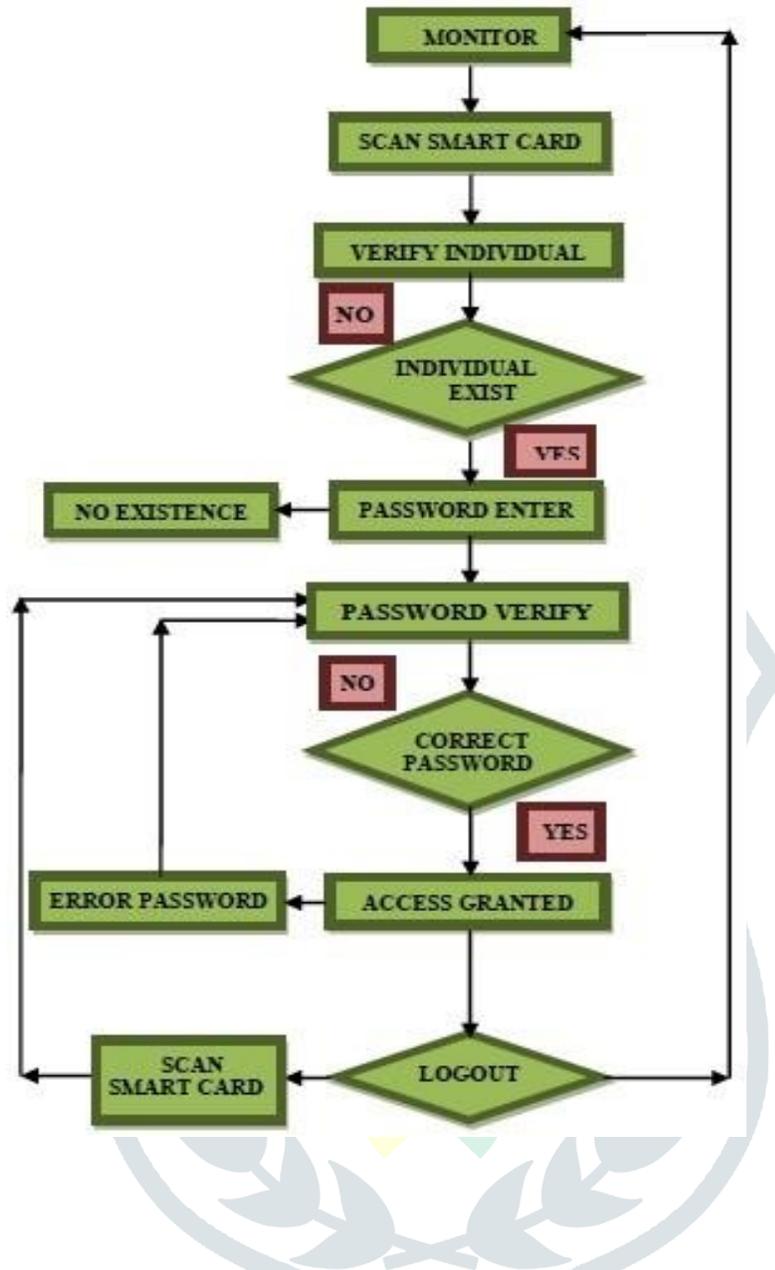
Secure access to networks can be guaranteed by the user's digital signatures. They are used to give only certain people access to a specific computer network. This app is very useful and important for security related organizations. Encryption technology today makes computer networks much safer than older networks.

#### G. Health care:

Specialists from health care services use smart card-based applications to gain access to their data and processing. A large amount of information is shared in the form of medication, doctor details, dosage, etc. it is these workers. Patients use smart cards to give doctors their pre-stored medical history and to pay for their treatment.

#### H. Other Smart Card applications:

Its flexibility and archive support it with a large number of applications. With secure online transactions in most commercial transactions it is well accessible to both service providers and subscribers. A variety of services that benefit from smart card-based applications include agricultural products, Life Insurance sector, vending machines, libraries, restaurants, laundry facilities, set top box services, children's software games, electronic toll collection, technology of knowledge, a multitude. transportation, parking, e-passports etc. just a few words to count. Functional services such as payment, call counters, memory storage etc. they use smart card-based applications.

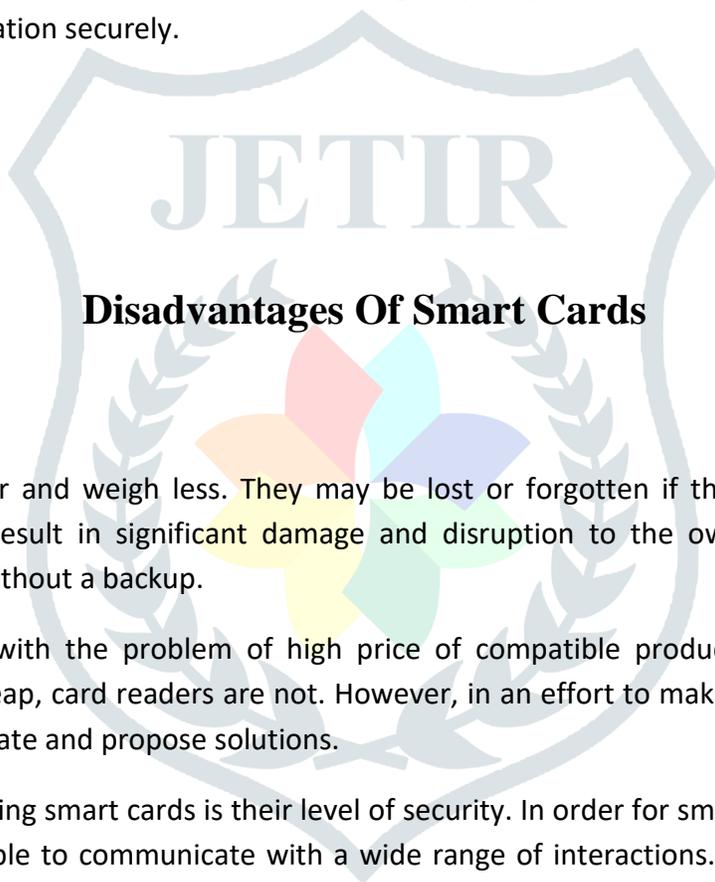


## Advantages Of Smart Cards

Smart cards provide a variety of secure identification and authentication methods for the owner and others who want to securely access the card with a PIN code or biometric data. With an in-depth understanding of the important and unique features and benefits of smart cards, consumers and issuing organizations are probably best suited to consider the concept of using them. Here are some of the benefits of smart cards:

1. because they contain an unstoppable microprocessor, they have an interesting processing power to protect information, encryption and output commands from specific programs. As a result, smart cards provide higher security and confidentiality than other financial information or transaction vehicles and are used worldwide in systems where security and privacy information are essential requirements.

2. The smart card is designed to be easily and easily readable by a variety of devices and students or by students of various technologies and in various expandable environments by adding new control panels to students.
3. These cards support digital signatures, which can be used to verify the organisation's validity and validity issues and that the data on the card is correct and has not been altered fraudulently since its release.
4. Smart cards have two different types of communication: contact and non-contact that indicates physical contact with the student or not. So smart cards can help protect corporate information networks - the so-called logical controls, as well as the control of virtual access access. For example, IT departments seek reasonable access as a key to corporate information on a computer network.
5. Smart cards can support a variety of functions and a high capacity to store information on the card as well as flexibility to add information securely.

The logo is a shield-shaped emblem with a decorative border. Inside the shield, the word "JETIR" is written in a large, serif font. Below the text is a stylized flower with five petals in different colors: red, cyan, blue, green, and yellow. The entire logo is rendered in a light gray, semi-transparent style.

JETIR

### **Disadvantages Of Smart Cards**

1. Smart cards are smaller and weigh less. They may be lost or forgotten if they are used. Due to their excessive use, loss may result in significant damage and disruption to the owner or loss of important information stored on it without a backup.
2. Smart cards will deal with the problem of high price of compatible products. Although smart cards themselves are almost cheap, card readers are not. However, in an effort to make smart cards more widely used, companies try to create and propose solutions.
3. The biggest problem facing smart cards is their level of security. In order for smart cards to reach their full potential, they must be able to communicate with a wide range of interactions. And it should be done so safely. But there is a problem with security that includes public opinion on technology and people may not know enough about protecting their card and personal information. because they believe the cards are secure. but they do not know that all the information obtained from the use of smart cards is collected and analyzed somewhere and in some way.

## CONCLUSION:

Emphasis on the proper identification of every citizen is a fundamental proposal of all independent governments around the world. Thought security threats in existing diagnostic technology are important factors that should be pursued in the development of smart card technology. The protection system that integrates the advanced encryption technology available with this technology makes it even more attractive compared to other available applications. This is a tool that provides storage and use of a minimum of desirable data against a set of people or business. A proper authentication scheme and security algorithm for fast and secure data processing are always a challenge for any such technology. The study proposed above suggests that user acceptance of flexible smart card technology will be the most prominent feature of the expected outcome. Further research on the smart card system may bring better benefits to the issues as discussed in the lessons to be discussed in the aforementioned future program.

## FUTURE SCOPE

8 Places to be replaced by smart cards in the future

If you are a fan of Hollywood sci-fi films, you may have come across a variety of personal identification options. Remember retina scanning in *Minority Report*, fingerprinting at *Gattaca* and much more. But these future technologies can take a long time to become everyday solutions that work. In the near future - say in the next few decades, we have smart cards, everyone including you and me can find them easy to use.

Smart Cards or Integrated Regional Cards (ICC) are very similar to credit cards and are usually made of plastic. Smart cards contain integrated circuits embedded within them. They are able to provide many functions such as identification, data storage, authentication and processing of the application. The advantages of smart cards over ordinary magnetic cards are high security, comfort, reduction of fraudulent activities etc. So smart cards have a bright future. By using a smart card, you can access various applications and networks. Smart cards provide services to both public and private sectors. The future features of smart cards in these fields are discussed below:

Public Industry Services:

Smart card provides services in various fields under the public sector. Those mentioned below:

1. Health Care: Smart health cards are able to store a variety of information about patients such as medical, administrative, medical and biological records. It also helps reduce fraud in health care, improve the privacy and security of patient data and provides a secure platform for applying new demands with the health care organization. A smart health card helps simplify the management process and allows physicians to access complete and complete patient information.

2. Schools: Students are given smart cards with lots of activities in schools and colleges. Take, for example, the smart card solutions for Edsys students. Their uses include:

Student tracking: Edsys smart card solutions enable parents to get real-time information about their children and their car. They can track the location of their children's car. Automatic SMS notifications are sent to parents when their children are in any kind of danger. Edsys' smart card solutions also produce a variety of Management Information System (MIS) reports. Data for students, drivers and parents can also be stored on this smart card.

Like an electronic wallet in a canteen / restaurant: Edsys smart card allows students to buy items at canteens. Students can check the balance found on their smart card over time

to buy. At the time of purchase, the fair amount will be deducted from the available balance and the employee will issue the ordered item. Parents will be able to check the purchase statements with the money included in the Edsys smart card.

Fees: Using Edsys' smart card, parents can pay their children's school fees. Compared with the usual way of giving name and other details to extract information, coded information helps to identify the student and his financial details. At the Cash Collection Account, parents can fill out a credit card payment by paying the amount to the cashier.

Library: Using the Edsys smart card, students can mark their presence at the library when using the reading library. Similarly, scholars are able to extract students' records in order to extract / return library books.

Bookstore Management: Students can purchase books, magazines, etc. at a bookstore using Edsys smart card. Parents would receive a statement of store purchases.

3. Transportation: Smart travel cards are also charged and touchable cards. If you have this smart card, you do not need to take tickets or pay money while traveling. There will also be a passenger system. By using this smart card, you can pay for parking.

#### 4. Welfare:

Smart cards can be used to identify cardholder fingerprints. By using this facility, the cardholder can access a government website and receive a social security payment. The security provided by the card will help eliminate fraud.

5. Telecommunication: The Subscriber Identity Module (SIM) used on mobile phones is a smart card with a reduced size. Calls can be made to a cell phone using a smart card and can be recharged at cash points. By using the card, you do not need to use coins on public phones and this will reduce the damage. The use of smart cards will reduce operating costs and increase revenue. Studies have shown that people who use smart cards to communicate tend to talk more on the phone.

#### Private sector services:

The use of smart cards can reduce administrative and transaction costs. Smart cards combine the functions of different cards into one. Provides users with the ability to perform peer-to-peer and offline / offline activities. Smart cards have made rapid and potential advances in various fields such as Banking, the Internet and electronics trading.

6. Banking: Smart cards can avoid major problems in the banking sector such as fraud, bad credit and magnetic field restrictions. Smart cards are able to store 80 times more data than regular cards. Based on an individual profile, a smart card helps financial institutions provide more services and personalized products for cardholders.

7. Internet: Instead of a remote device, a smart card can store all personal data such as e-mails, user IDs, phone numbers etc. Allows you to connect to the Internet anywhere in the world if you have a phone or a phone. information kiosk.

8. Electronic Commerce: Smart cards can hold electronic cash in it and cardholders can use that to make payments online. Customer data and payment details are securely transmitted online using the Secure Electronic Transaction (SET) protocol.

## BIBLIOGRAPHY:

- [1] Munizaga, Marcela A and Carolina Palma, —The matrix rating of public transport destinations varies from smartcard data from Santiago to Chile "in Transportation Study Part C: Emerging Technologies 2012, vol. 24 pp. 11-17.
- [2] Sven Vowe, Ulrich Waldmann, Andreas Poller and Sven Türpe, "Identity Cards to Assure User Promise and Performance", IEEE Security & Privacy January / February 2012, vol.10, No . 1, pp. 48-53.
- [3] Y. Wang and X. Ma, "The development of a platform driven by transport performance measurement data using smart card and GPS data" J. Transp. English 2014, vol. 140 no. 12 pages 4026-4053.
- [4] M. Batty, C. Zhong, J. Wang, E. Manley, F. Chen, Z. Wang and G. Schmitt, "General flexibility: Template mining patterns in London Singapore and Beijing using smart-card data" PLoS ONE 2016, vol. 11 no. 2 pages 1-15.
- [5] M. Mesbah, A.A. Alsker and L. Ferreira, "Use of smart card payment data to measure the origin of public transport – destination" Transp. Res. Rec. J. Transp. Res. Board 2015, vol. 2535, pages 89-94.

