"Smart Card System For Paperless Campus"

Phapale Ketaki 1, Nawale Snehal 2, Kharnar Smita 3, Darekar Suchita 4,
Prof. Ganesh Jorvekar 5
Student of Department of Information Technology Engineering, S.R.E.S. College of Engineering,
Kopargaon, India1,2,3,4
Professor of Department of Information Technology Engineering, S.R.E.S. College of
Engineering, Kopargaon, India5

ABSTRACT

Now a days, development of campus information is very fast, the complexity of consumption types and identification of college teachers and students increases. Number of cards required for different purposes. Instead of carrying several cards one card can simultaneously be a personal ID, a credit card, a library card and a repository of personal information such as all documents. Smart card implementations can be seen around the world nowadays but they are not unified i.e. currently a variety of smart cards available in our society. But these variety of smart card used for the same purpose i.e. for storing monetary value. This is a problem that exists today and it needs to be solved or fixed. Our aim is to create a multipurpose smart card system, in this system using single card you can handle number of technology. Here we are providing the concept of bringing different applications together in single smart card, so called multipurpose smart card. Thus, the student, teaching staff and non-teaching staff needs not to carry different cards for accessing the different functionalities of the college or campus such as canteen, library, stationary, T&P section, student section. The so-called campus Multipurpose Smart Card system, in brief, is to have every student teaching staff and non-teaching staff to possess a campus card, which could take the place of all or part functions of all previous identifications (including students identity card, employees card, library card, etc.).We are introducing a multipurpose smart card using RFID for the Digital and Paperless campus. We illustrates the overall planning of campus Smart Card system, discussing the construction target and technical requirements of campus card system, designing the general framework and putting forward the design plan of the construction of campus Smart Card system.

Keywords: *Multipurpose smartcard, campus smart card, Program design, Overall planning, System Platform*

I.   Introduction

Now a days college students have various consumption types, such as canteen, library, stationary, T&P section, surfing on the net, etc. Generally different consumption types are managed by different departments. Every department maters the information of its own system, therefore the information data could not be shared. . Therefore, it is of great necessity to construct a centralized platform. Nowadays various colleges and universities are laying more and more attention on identification of persons inside the campus so as to build secure campus. Currently smart card implementations are exists around the world. Nowadays variety of smart cards available in our society. These variety of smart card are used for the same purpose i.e. for storing monetary value. Persons are using smart card for the single purpose. Different card is used for the different purpose. One called E2 Link is used for their public transport system and is also usable in some food courts or mall while the other cash cards are used for their toll system ERP, parking and supermarkets, credit cards, ATM cards, debit cards are used for the transaction purpose. For every activity different card is required. This is a problem that exists in our society today and one that needs to be noted or fixed. Our aim is to create a multipurpose campus smart card system, in this system using single card you can perform the number of activities or you can access the different functionality of the campus. Card technologies such as magnetic cards and newer, "smarter" cards having a micro- processor chip are playing an increasingly important role in modern life. Their possible uses vary from providing access to financial facilities and the storage of electronic money, allowing easy access to facilities such as telephone and photocopying, repository of personal information to providing a secure identification and authorization mechanism.
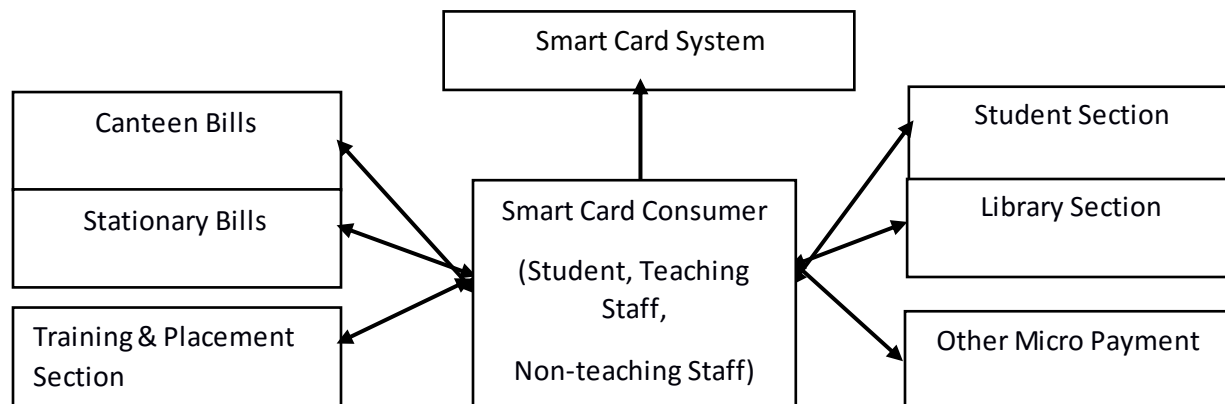
A smart card, typically a type of Systems that are enhanced with smart cards are in use today throughout several key application, including healthcare, banking, entertainment, and transportation. Here we are using Radio

frequency identification (RFID) technology for the smart card. Contactless smart cards utilize RFID technology for identifying people as well as for performing financial transactions. RFID having main components that the RFID technology consists are RFID Reader and RFID Tag. RFID technology utilizes inexpensive wireless RFID chips or tags that report their location to nearby scanners. It provides security like encryption and electronic signatures, stores up to 100 or more times the information than a typical magnetic strip card, and reduces tampering and counterfeiting through high security mechanisms. A single smart card has the potential to replace all the cards and documents currently found in your wallet for example, student identification card, credit card(s), ATM cards, staff identification cards, library cards, as well as the coins and currency notes. The so-called campus Smart Card system, in brief, is to have every student, teaching staff and nonteaching staff to possess a campus smart card, which could take the place of all or part functions of all previous identifications   which includes student's identity card, employee's card, library card, credit card, and a repository of personal information such as all documents. With the campus card, teachers and students could go into all places, do business, do activities and purchase. And it could even realize auto-deposit with the bank card. Thus it could realize finally the ideal of "with one card in hand, you could go the campus around", meanwhile, it can also promote the process of information and standardization of the management of all units and departments.

II.   System architecture

1. The design of Application Platform:

The speedy development of campus informationization, the complexity of consumption types and Identification of college teachers and students, Non-teaching staff also increases, which raises more requirements to college management. This aspire illustes the overall planning of Smart Card System for Paperless Campus, discussing the construction target and technical requirements of Smart card system, designing the general framework and putting forward the design plan of the construction of College smart card System for paperless Campus. At present, the campus card applies widely in colleges. The general application design sees the Figure 1.
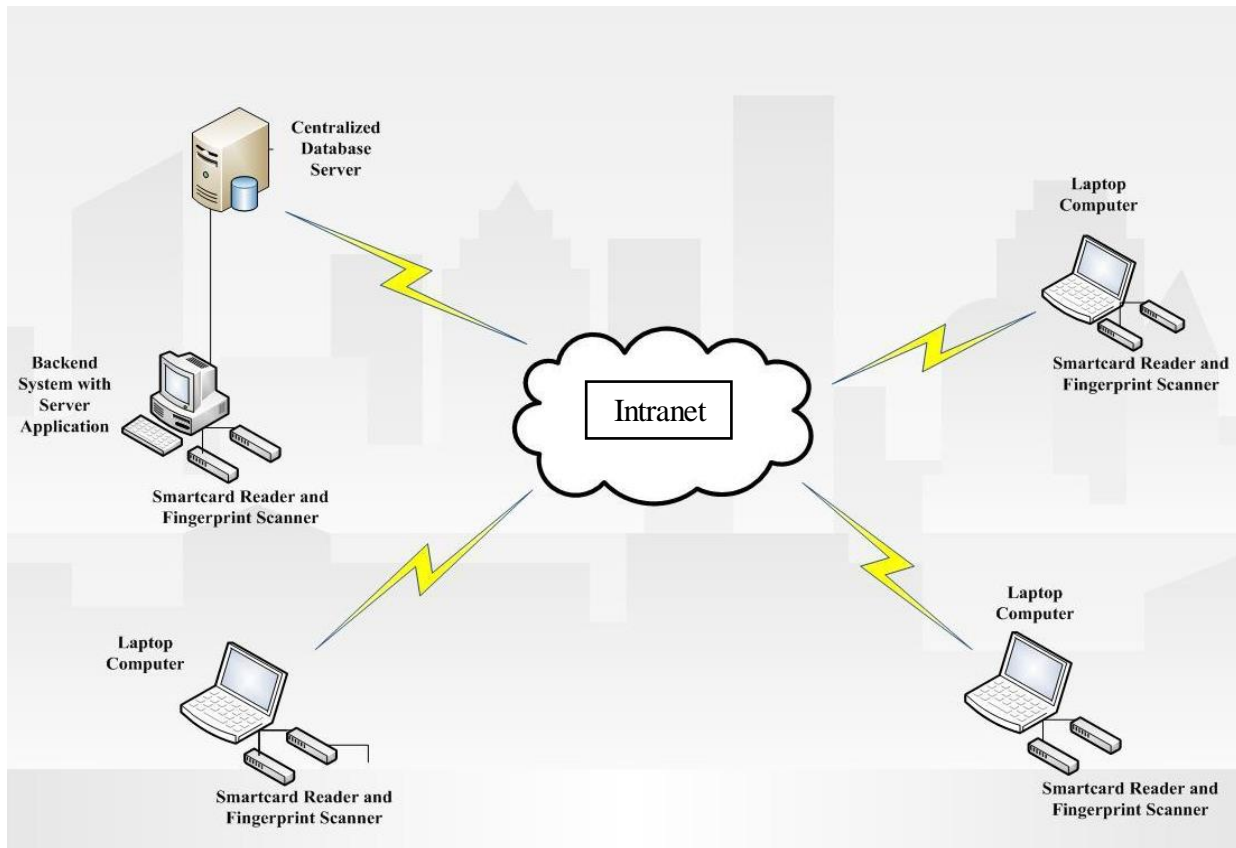

Fig 1 Smart Card Application Deployment.

Smart Card of colleges based on systems of shared library, unified identification platform to form "Smart Card system for paperless Campus" on centralized platform, which includes identification platform and another remaining subsystems. With the advantage of college net resources, the Smart card could identify student's card, employee's card, library card, medical card, computer card etc. Payment function of Smart card which is mainly use the id, in the canteen bills, , in the library, in stationary section and other places. It is to fulfill the payment of various consumptions on campus of the teachers and students. Smart card access control and lock management system are mainly to safely and efficiently control access to the passage.

2. Topology design of system network:

In Smart card system for paperless campus, we are using the network topology which is based on

Tree topology. As shown in figure each section has its own computer or laptop with the smart card reader. Means each section like canteen, student, stationary, library, T&P contain each computer and one smart card reader.
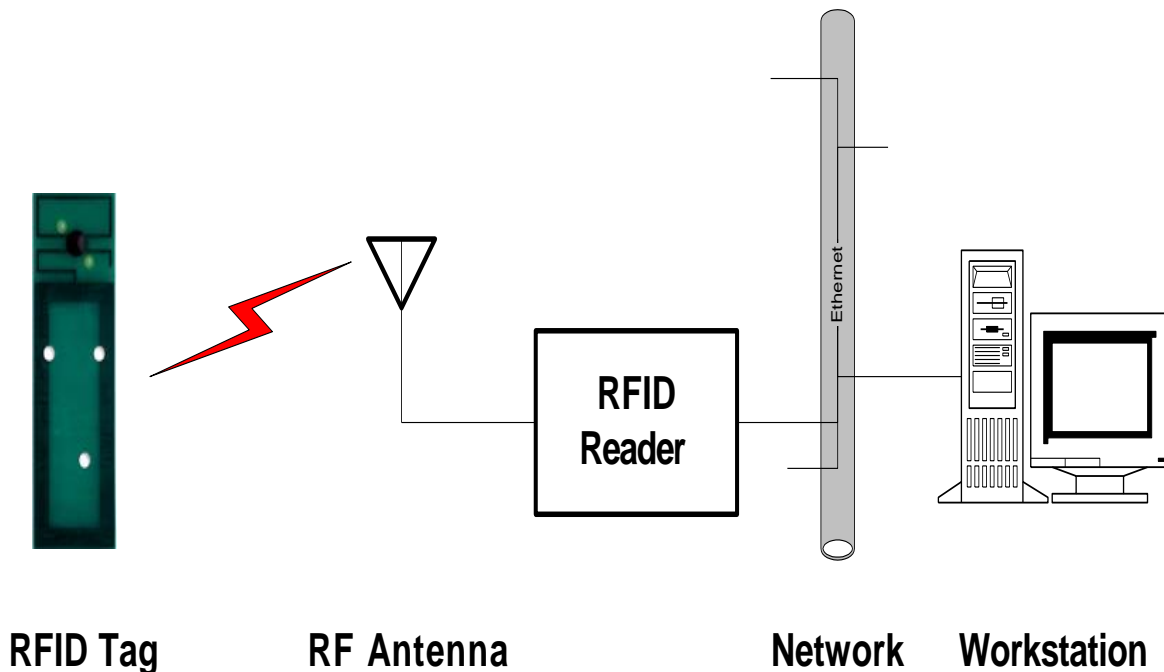

Fig.2 Topology design of system network:

When student, teaching staff and Non-teaching staff is detect the card then all information is display on the screen, all this information is review from the centralized database. All details of the transaction and the details of student, teaching staff and Non-teaching staff are stored on the centralized database through the Intranet. This system is based on the college level so Intranet is used [2].

III.   Technology used

1. RFID Technology:

   RFID stands for Radio Frequency IDentification. Attempts to provide unique identification and backend integration that allows for wide range of applications. It uses radio-frequency waves to transfer data between a readerand a movable item to identify, categorize, and track. Is fast and does not require physical sight or contact between reader/scanner and the tagged item RFID, is a technology, which includes wireless data capture and transaction.

RFID Tag   **RF Antenna**   **Network**   **Workstation**

Fig:-3 RFID system components

IV. Conclusion

Campus Smart Card is an important part of digital campus. It realizes comprehensive consumption, identity authentication, financial service. Multifunction smart ID cards offer several easy and cost effective ways for collages to raise the level of protection.Campus Card is a powerful carrier of campus digitization, its contents will be more rich and its composition will be more abundant with the development of electronics and information technology. With smart ID cards and faculty students alike can gain peace of mind that their students and campus remain protected.

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