

E-CASH: A Novel Approach of Virtual Money Transaction Using Smart Cards

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ABSTRACT

At present competitive digitized world the banking process should be more secure. Now a day's cash transferring is highly sensitive issue. Everyone wants their banking account details should be safer from the theft, hacking and cybercrimes. The project is implemented in embedded that is "E-cash: A novel approach of virtual money transaction using smart cards", this method provides safer transactions and more secure through smart card without going to ATM'S and Banks. Amounts can be transferred very easily from anywhere and avoiding hard cash. This project provides better safety to their banking accounts and doesn't need to every time govt to go for demonetization policy. It has replaced the conventional method of transaction now money has become the intangible item and can easily travel across the world.

Keyword: - Health-care services, Internet of Things (IoT), Cloud computing, Security, Privacy.

1. INTRODUCTION

Cash's role is waning, as mobile, encryption, and other technologies let us plug directly into the digital economy. The basic paradigm has been in effect for years. You toil, scheme, cajole, and cogitate, and in exchange you get paid—but probably not in cash. Some bits get altered periodically in a database somewhere, as infinitesimal patches of ferromagnetism on disks or electromagnetic pulses flitting from here to there. Your earnings, your savings, your spending: Virtually all of it is virtual.

Money is the most important abstraction human beings have ever devised. And yet that abstraction has not been fully embraced. Decades after money began going electronic, we all continue to cling to cash, a quaint vestige from earlier eras when money meant cowrie shells, giant stone disks, and shiny gold pieces. Of the many things we could do now with technology, getting rid of cash would be one of the more sublime.

Established alternatives to cash include cards: credit, debit, and more recently, prepaid. There is also a growing assortment of marginal electronic alternatives, such as the scrip that gets passed around in online games and social networks. More interesting and much more ambitious are the cryptocurrencies, chiefly Bit coin, which is backed by no government and has a fluctuating value linked in part to a scarcity that is mathematically predetermined. Unlike other forms of digital cash, Bit coin is truly untraceable and therefore, like cash, cannot be recovered if lost or destroyed. The biggest near-term threat to cash, though, will come from mobile payments. All over the world, the push is on to get you to use your cell phone to buy stuff.

In this project we are concentrating on the device looks like a smart card but include GPRS and RFID which is connected to network. All the citizens of a nation are given with this type of card, which is unique from one another. The main advantage of this project is complete elimination of corruption which now mainly relying on hard cash.

2. LITERATURE SURVEY

The history of money begins around 2500 years ago with the first minting of coinage in about the seventh to sixth century BC. Money is any clearly identifiable object of value that is generally accepted as payment for goods and services and repayment of debts within a market or which is legal tender within a country. Since ancient times people have swapped items of value either in the exchange of gifts or else in markets where a commonly shared system of tokens is more convenient. Many things have been exchanged in markets including, for example, livestock and sacks of cereal grain (from which the Shekel is derived) – things directly useful in themselves, but also sometimes merely attractive items such as cowry shells or beads were exchanged for more useful commodities. Precious metals, from which early coins were made, fall into this second category.

Numismatics is the scientific study of money and its history in all its varied forms.

The earliest places of storage were thought to be money-boxes containments made similar to the construction of a bee-hive, as of the Mycenae tombs of 1550–1500 BC. An early type of money were cattle, which were used as such from between 9000 to 6000 BCE onwards (Davies 1996 & 1999) Both the animal and the manure produced were valuable; animals are recorded as being used as payment as in Roman law where fines were paid in oxen and sheep (Rollin 1836) and within the *Iliad* and *Odyssey*, attesting to a value c.850–800 BCE (Evans & Schmalensee 2005). It has long been assumed that metals, where available, were favoured for use as proto-money over such commodities as cattle, cowry shells, or salt, because metals are at once durable, portable, and easily divisible. The use of gold as proto-money has been traced back to the fourth millennium BC when the Egyptians used gold bars of a set weight as a medium of exchange, as had been done earlier in Mesopotamia with silver bars.

Use Electronic Money over Plastic Money

The world we live in is changing rapidly. Every day there comes a new invention, a new discovery and development. In the ancient world, it used to take months to transfer money and then banks became a bit faster and started comparatively speedy processes. After that, the convergence of manual system into digital networks really made a huge difference. Years ago, we were only introduced with the term hard cash but now there are many types of money we are familiar with.

2.1 Plastic money

Hard cash is the money we keep and use in everyday life and use to fulfil our routine necessities and requirements. Then comes the relatively new types of money such as Plastic money and electronic currency. Starting with the former, plastic money is the substitute to the regular cash we use in our daily lives. More specifically, Plastic money is the money we use in place of actual bank notes such as cash cards, credit cards, prepaid cash cards, debit cards and store cards. There are a variety of differences within plastic money and it has different types as cash cards for instance will not allow its users to directly buy something from somewhere rather they allow to withdraw money from the authorized teller machine (ATM) whereas credit card allow you to withdraw money and purchase things both at the same time. To overcome the disadvantage of plastic money we are using electronic money transfer.

2.2 Electronic money

Now let's talk about the latter, e money which can be exchanged electronically. It is an online representation of debits and credits which are used to buy things and do shopping online entirely opposite to paper money. The block diagram of electronic money card is shown in fig 1.1. Two users are given with separate online account. When one user needs to give some money to other user who is standing in front of him then he has to type the amount through the keypad and then he has to touch the other user card to whom the money has to be transferred, The RFID senses the other user account and transfers the money to that account.

3. PROPOSED SYSTEM

The project works in two technologies one is near field communication (NFC) and other is for field communication (FFC). Two users are provided with the smart cards and the data regarding name account number and the deposited amount of both the users is stored in the database. There is server where the transaction occurs and acknowledgment to both can be given at the time of every transaction. If the two persons are near to each other and if they want to transfer the amount then simply by swiping the card with each other, required amount can be transferred on the spot without going to bank or ATM along with the acknowledgments to both the users regarding the amount transferred and remaining balance. If the two persons are far from each other and they want to have the transaction then simply by entering the account number the recipient entering and required amount, the transaction can be done within no time.

Basically cards are the portable machines having embedded circuitry to give the user interface and a media to connect with the server with Wireless sensor technology. The cards are having the different hardware according to our requirement. The cards are having centralized Microprocessor for controlling the peripherals connected to it such as Digital display system meant of displaying the card status, entered password, amount and so on, a RFID Reader to read the information of another card, a Keypad to enter the password and amount while transferring the amount, a GSM/GPRS modem for connecting the cards to the server and allowing the transaction to occur.

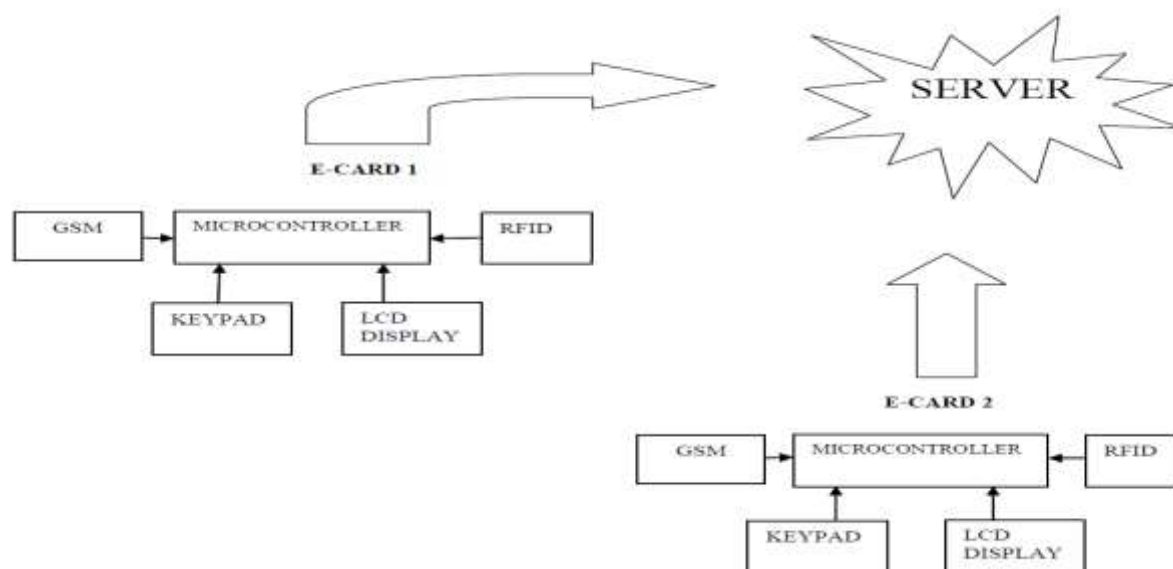


Fig-1: Block diagram of Electronic card

At the receiver end there will be web based application installed into the pc which is having the data base of all the cards present in it. Whenever any person swipe the card with another for transferring the amount he need to enter his password in the keypad of the portable machine he has. Once after entering the password he need to enter the amount to be transferred, as and when he enters the amount the GPRS of the device will be active and sends the request to the server regarding the transaction. In the server amount verification and database verification is done amount will be transferred instantly within no time. The database will be updated with the fresh data and both the card holders get the acknowledgments to their mobile phones regarding the status of the amount transferred or received at that time. In FFC instead of swiping the card account number of the person who is far and for whom amount to be transferred will be entered and the process of entering the password and amount repeats this system includes the two cards which incorporate ARM 7 lpc2148 microcontroller, keypad, LCD display, GSM modem and RFID module. Two users are given with separate online account. When one user needs to give some money to other user who is standing in front of him, he has to touch the other user card to whom the money has to be transferred.

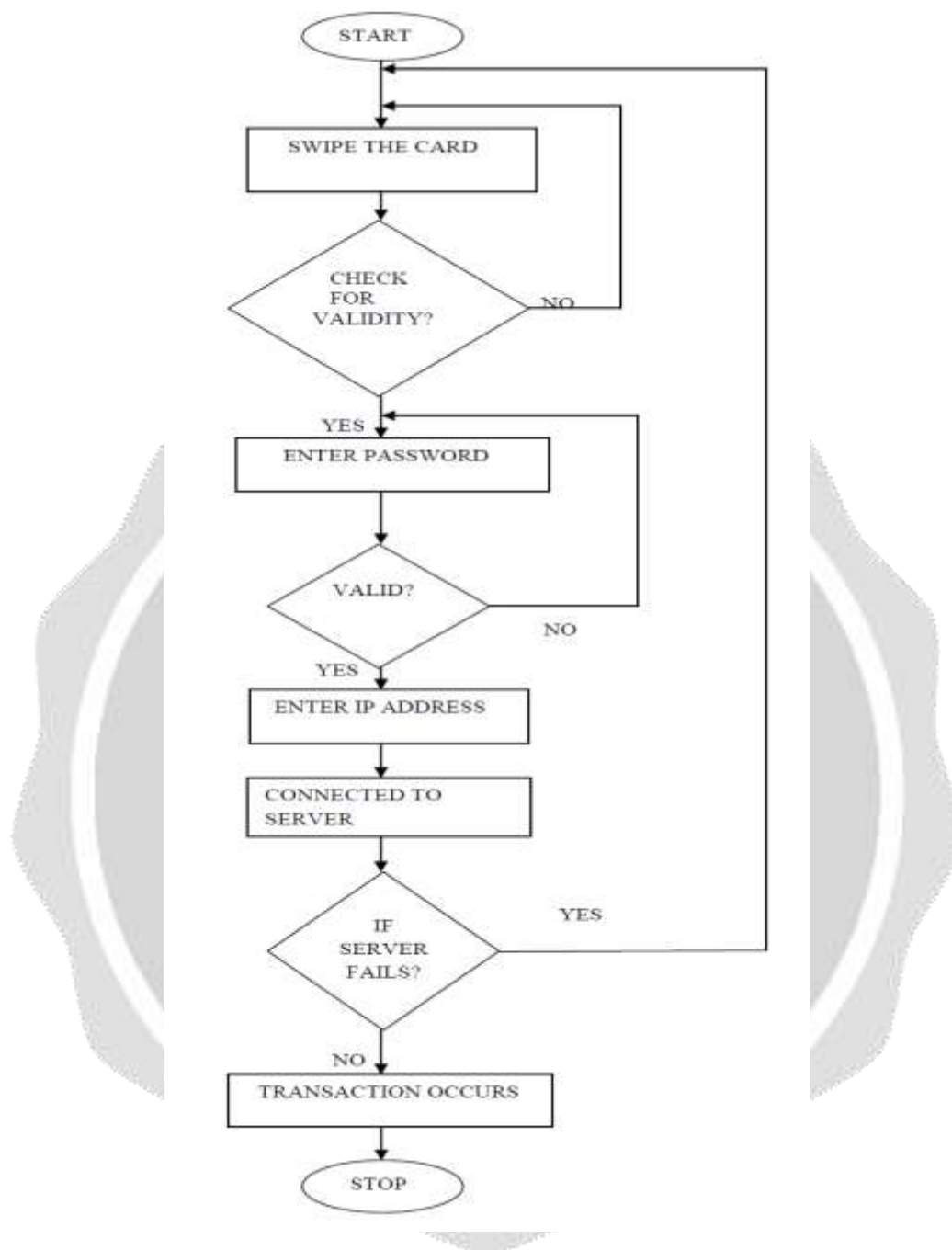


Fig-2: flow chart of E-money transaction

4. CONCLUSION

By using this system money wasting on production of notes and coins will be completely saved, Corruption will be completely eliminated. It is Easy and secure way of transaction. And bank robbery and other criminal activities can be eliminated.

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