

E WALLET SYSTEM USING BLOCK CHAIN TECHNOLOGY

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ABSTRACT

In 2016, the Indian government, led by Prime Minister Narendra Singh Modi, announced that the nations two highest-denomination bank notes would cease to be legal tenders. At the time, the two denominations accounted for roughly 86 percent of cash in circulation in India. People who possessed the banknotes were to deposit them in the bank. With the move, the Indian government aimed to punish tax evaders in retrospect. The logic was that people with hoards of black money would have to answer questions if they attempted to deposit the demonetized banknotes. Banking and technology are very closely associated and innovations have changed banking drastically over the period of time. The digital innovations in the banking sector started with the introduction of money that replaced the barter system and then the gradual replacement of wax seal with digital signatures. One such disruptive innovation which is changing the banking sector globally is Blockchain Technology (BCT). Blockchain is shared distributed ledger which stores business transaction to a permanent unbreakable chain which can be viewed by the parties in a transaction. Blockchain technology has the potential to disrupt the nancial business applications as it provides permanent and tamper proof recording of transactions in a distributed network.

Keyword : - Blockchain, Banking, Cash, Tax, Transaction.

1. INTRODUCTION

India is currently the seventh-largest economy in the world. It currently has an estimated population of about 1.34 bln people, or about 18 percent of the worlds population, according to the World Economic Forum. Despite its GDP dropping by roughly 5.7 percent in the quarter that ended June of this year, India remains the fastest growing large economy in the world other than China. If estimates are anything to go by, India will have overtaken China as the worlds most populous country by 2024, which would help solidify its position as the nation with the worlds largest youth population. The World Economic Forum also projects that Indias economy will be the second-largest economy in the world by 2050, with China occupying the first position. Poor as the policy might have been for average Indians, though, there were bright spots for proponents of a cashless economy. The World Economic Forum reported that the number of digital transactions in India increased following the demonetization policy a plus for the government, who would now have increased ability to track the flow of money within the economy. The growth in digital transaction in India is, in turn, a big plus for Blockchain and cryptocurrency. Just about 0.5 percent of the people in India are into Bitcoin, the cryptocurrency that popularized the Blockchain technology. By inference, if such few people in India know about Bitcoin, its safe to say that only about 0.5 percent of Indias population is conversant with Blockchain technology. However, on the national level, a lot of work is going on to integrate Blockchain technology into various sectors of the economy including the financial and health sectors. In 2016, the Indian bank, ICIC Bank, announced that it had completed a cross-border transaction executed on a Blockchain. In September of this year, the Institute for Development and Research in Banking Technology, or IDRBT, founded by the Reserve Bank of India, announced plans to launch a new Blockchain platform. The Reserve Bank of India is Indias central bank. The announcement followed a report published by the IDRBT in January of this year, that India could use Blockchain to digitize its national currency, the rupee. Given the positives increased tax payments, for instance that the demonetization policy in India has yielded through increased digital transactions, its plausible that

the Indian government will double down on its drive to grow a cashless economy. There are some challenges, but it seems promising. If, as in any place in the world, the Indian government wants to boost its cashless economy, it needs to find lasting solutions to the challenges confronting the propagation of a cashless economy. Some of those challenges include financial inclusion, high setup and transaction costs and transaction times.

1.1 Motivation

The digital innovations in the banking sector started with the introduction of money that replaced the barter system and then the gradual replacement of wax seal with digital signatures. One such disruptive innovation which is changing the banking sector globally is Blockchain Technology (BCT). Blockchain is shared distributed ledger which stores business transaction to a permanent unbreakable chain which can be viewed by the parties in a transaction. Blockchain technology has the potential to disrupt the nancial business applications as it provides permanent and tamper proof recording of transactions in a distributed network

1.2 Problem Definition and Objective

1. If, as in any place in the world, the Indian government wants to boost its cashless economy, it needs to find lasting solutions to the challenges confronting the propa- gation of a cashless economy. Some of those challenges include financialinclusion, high setup and transaction costs and transaction times.

2. Due to a considerable segment of the Indian economy remaining informal, theres still a huge part of the population that doesnt rely on traditional financial institutions for financial services. Based on the cashless technologies employed today, most people would need a bank account in order to live in a cashless economy an uphill battle. In essence, for you to run a cashless economy, youll need an alternative to traditional financial services.

1.2.1 Objective

1. To implement a java based web application.
2. To implement AES.
3. To implement visual cryptography.
4. To implement block chain.
5. To implement distributed database system using WLAN.

2. Literature Survyay

Sr. No.	Title	Authors / Year	Advantage	Description
1.	The Implementation of E-money in Mobile Phone:A Case Study at PT Bank KEB Hana	Didik Haryadi ; Harisno ; Victory Haris Kusumawardhana ; Harco Leslie Hendric Spits Warnars2018	Cryptography	This study aims to analyze the design of e-money, as well as provide some development ideas that must be done related to the implementation of e-money. Here the system uses e payment using QR code and encryption technology.

2.	A Landscape of Cryptocurrencies	Zhaofang Li ; Qinghua Lu ; Shiping Chen ; Yue Liu ; Xiwei Xu 2019	Used Cryptography	This study aims to analyze the design of e-money, as well as provide some development ideas that must be done related to the implementation of e-money. Here the system uses e payment using QR code and encryption technology.
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Sr. No.	Title	Authors / Year	Advantage	Description
3.	Security Management and Visualization in a Blockchain-based Collaborative Defense	Christian Killer ; Bruno Rodrigues ; Burkhard Stiller 2019	BCT	This work presents the design of a security management dashboard for BloSS, designed for interactive use by cyber security analysts. This work is about DDos attacks in defense system.
4.	On the Effectiveness of Multi-Token Economies	Sean Kang ; Kideok Cho ; Kyle Park 2019	BCT	This paper addresses the token classification, the reason for adopting multi-token economies and the effectiveness of them. We analyze the Steemit as a representative example of multi-token economies. We describe how the multi-token economy has been working and show the distinctive features of multi-token economies. We also propose the evaluation criteria for multi-token economies.

5.	Digitizing Invoice and Managing VAT Payment Using Blockchain Smart Contract	Van-Cam NGUYEN ; Hoai-Luan PHAM ; Thi-Hong TRAN ; Huu-Thuan HUYNH ; Yasuhiko NAKASHIMA 2019	BCT	This paper proposed implementation of VAT system as an on-line system using BCT. A distributed database system is used in online system. System can be prevented from hacking using BCT.
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3. SOFTWARE REQUIREMENT SPECIFICATION

3.1 PROJECT SCOPE

To develop prototype model for cashless india using BCT. This model will be run at local host using Glassfish server. BCT features such as decentralization, cryptography and hash codes will be implemented.

3.2 ASSUMPTIONS AND DEPENDENCIES

This document will provide a general description of project, including user requirements, product perspective, and overview of requirements, general constraints. In addition, it will also provide the specific requirements and functionality needed for this project such as interface, functional requirements and performance requirements.

3.3 FUNCTIONAL REQUIREMENTS

Functional user requirements is nothing but very high-level statements about what the system should and also it should describe clearly an overview of system services in detail.

3.4 EXTERNAL INTERFACE REQUIREMENTS

3.4.1 User Interfaces

The user interface or UI for the software should be compatible to be used by any standard browser such as IE, Mozilla or Google chrome. Using this UI user can have access to the system. The UI or user interface can be developed by using many tool or software package like JFrame.

3.4.2 Hardware Interfaces

A hardware interface is needed to run the software. Java (JDK) and NetBeans compatible hardware is required which is minimal requirement.

3.4.3 Software Interfaces

It uses Java as the front end programming tool. MySQL has been used as back end application tool. Latest version of java anything higher than 7.0 can be used.

3.5 NON FUNCTIONAL REQUIREMENTS

3.5.1 Performance Requirements

- System can work optimal or faster on 8 GB or more of RAM.

- The system is targeted to be available all time. Once there is a fatal error or system down, the system will provide understandable feedback to the user.

3.5.2 Safety Requirements

- The system is designed in modules where errors can be detected.

3.5.3 Security Requirements

- The system is designed in modules where errors can be detected and fixed easily.

3.5.4 Software Quality Attributes

- **Usability:**

This relates to how easily people can use app/website. A measure of usability could be the time it takes for end users to become familiar with my app/website functions, without training or help.

- **Reliability:**

This can be defined as the available time or UP time of software.

- **Performance:**

This is essentially how fast app/website works. A performance requirement for the app/website could be start in less than 20 seconds.

- **Security :**

Say that app/website saves all the previous code and lets you reuse a saved code.

3.6 SYSTEM REQUIREMENTS

3.6.1 Database Requirements MySQL Database

MySQL is an open source database which is mainly a RDBMS i.e. relational database management system. As a database server, primary function of this software is to store and retrieve data as requested by other from end software applications like java which may or may not run either on the same computer or on different computer. This can be across the network either in internet or intranet.

3.6.2 Software Requirements

1. **Operating System:** Microsoft Windows 7 and Above
2. **Programming Language:** Java
3. **IDE:** Netbeans, Android Studio

3.6.3 Hardware Requirements

1. **Processor:** Intel Core I3 or Higher
2. **RAM:** 4 GB or Higher
3. **Hard Disk:** 100 GB (min)

3.7 ANALYSIS MODELS: SDLC MODEL TO BE APPLIED

SDLC model to be applied Waterfall Model:

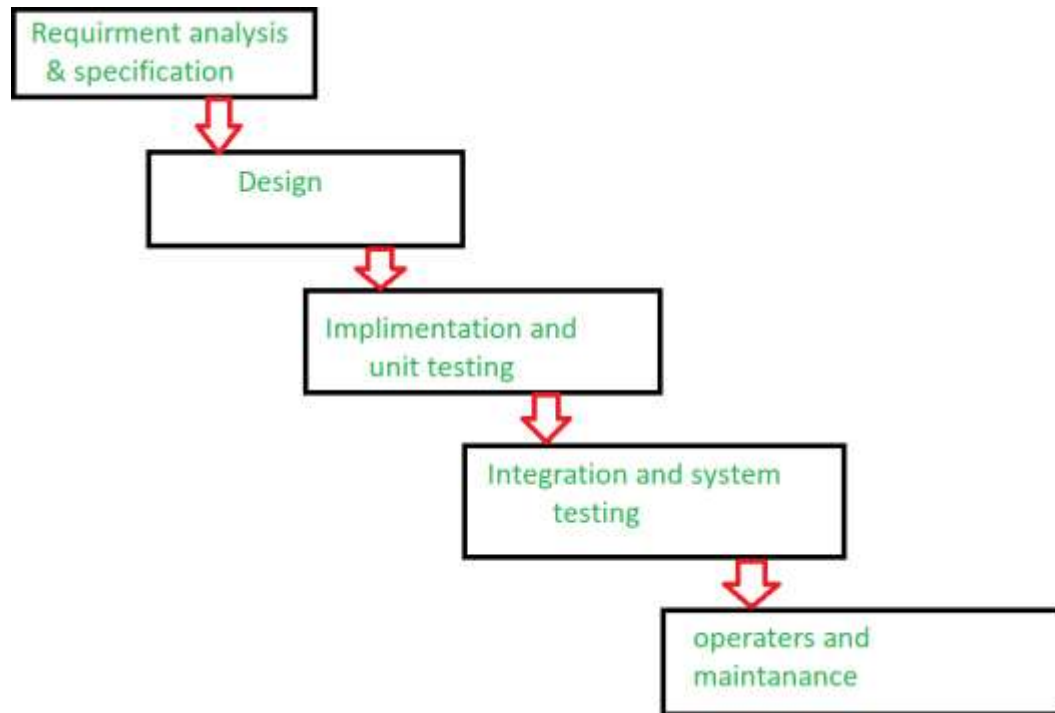


Figure 3.1: Waterfall Model

4. CONCLUSIONS

Thus we are have implemented a prototype web based software application in Java for application of BCT for cashless economy . We have implemented block chain features such as: 1. Decentralization 2. Visual Cryptography 3. Hash Al- gorithm 4. Encrypted Database. Thus it is possible to track every transaction in cashless system using BCT. Also the system can be transparent using BCT.

1. FUTURE SCOPE

In future we will try for sponsorship from government and will implement a project on large scale with some domain and hosting space online.

2. APPLICATIONS

1. Enterprises
2. Government Organizations
3. Banking Sector

5. REFERENCES

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