DEPARTMENT OF INFORMATION TECHNOLOGY

Project Idea Priority: 1

Title: Blockchain technology for regulation of smarter , more secure and decentralised bank transactions.

Brief Description: With repeated frauds in the banking sector in the past years , it has become the need of the hour to integrate blockchain technology into banking.

Blockchain , is a chain of digital "blocks" that contain records of transactions. Each block is connected to all the blocks before and after it, thus making it difficult to change or modify any one single block. Also, blockchain provides additional means of security by securing records and transactions through cryptography. Network participants have their own private keys that are assigned to the transactions they make and act as a personal digital signature. If a record is altered, the signature will become invalid and the peer network will know right away that something has happened.

Blockchains are decentralized and distributed across peer-to-peer networks that are continually updated and kept in sync. Because they aren't contained in a central location, blockchains don't have a single point of failure and cannot be changed from a single computer.

Technology Integration:

Java programming language, PKI Cryptography for key generation

and security, Business logic for block processing , network enabled computer to connect to bank prototype, a simple bank prototype for user interface with html, css and backend with MySQL.

Scope of the Project:

- We will create a blockchain for regulation of bank transactions with cryptography and public key infrastructure.
- Blocks will be visible to the end user and it will be a transparent system.
- The user will communicate with the entire system and blocks by means of the bank prototype.
- The blocks will be chained together with all or nothing approach, with the entire transaction failing even if one of the blocks fail.
- The entire system will be decentralised with no admin or high ranked professional being able to access or manipulate any of the blocks.

Literature Base Papers:

1. An Overview of Blockchain Technology:Architecture, Consensus, and Future Trends

Zibin Zheng1, Shaoan Xie, Hongning Dai2, Xiangping Chen4, and Huaimin Wang,School of Data and Computer Science, Sun Yat-sen University Guangzhou, China,Faculty of Information Technology, Macau University of Science and Technology, Macau, SAR

2.Building a block cipher mode of operation with feedback keys.

Yi-Li Huang, Fang-Yie Leu, Jung-Chun Liu, Jing-Hao Yang, Chih-Wei Yu, Cheng-Chung Chu, Chao-Tung Yang Department of Computer Science, TungHai University, Taichung ,Taiwan

3.A Small Java Application for Learning Blockchain

Xing Liu,Dept. of Computer Science and Information Technology,Kwantlen Polytechnic University,Surrey, Canada,xing.liu@kpu.ca

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