

STUDENTS' ECONOMIC FORUM

*To kindle interest in economic affairs...
To empower the student community...*

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Theme 281

BITCOIN

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NEXT GENERATION IS GETTING READY



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Theme No: 281 : BITCOIN

A well informed customer will make the policy makers as well as organisations which produce goods and services more responsive to the customer needs. This will also result in healthy competition among organisations and improve the quality of goods and services produced.

The “SIB Students’ Economic Forum” is designed to kindle interest in economic affairs in the minds of our younger generation. We highlight one theme in every monthly meeting of the “Forum”. As we all know digitalisation is growing very fast and it is likely to continue for some time in future. There has been tremendous growth in usage of internet banking, ATMs, E commerce etc. Developers wanted a new automated system without central control for settlement of payments and introduced Bitcoin - digital money This month we discuss about Bitcoin. .

What is Bitcoin?

Bitcoin is a consensus network that enables a new payment system and a completely digital money. It is the first decentralized peer-to-peer payment network that is powered by its users with no central authority or middlemen.

Who created Bitcoin?

Bitcoin is the first implementation of a concept called “crypto-currency”, which was first described in 1998 by Wei Dai on the cypherpunks mailing list, suggesting the idea of a new form of money that uses cryptography to control its creation and transactions, rather than a central authority. The first Bitcoin specification and proof of concept was published in 2009 in a cryptography mailing list by Satoshi Nakamoto. Satoshi left the project in late 2010 without revealing much about himself. The community has since grown exponentially with many developers working on Bitcoin.

The Bitcoin protocol and software are published openly and any developer around the world can review the code or make their own modified version of the Bitcoin software.

Who controls the Bitcoin network?

Nobody owns the Bitcoin network much like no one owns the technology behind email. Bitcoin is controlled by all Bitcoin users around the world. While developers are improving the software, they can’t force a change in the Bitcoin protocol because all users are free to choose what software and version they use. In order to stay compatible with each

other, all users need to use software complying with the same rules. Bitcoin can only work correctly with a complete consensus among all users. Therefore, all users and developers have a strong incentive to protect this consensus.

How does Bitcoin work?

From a user perspective, Bitcoin is nothing more than a mobile app or computer program that provides a personal Bitcoin wallet and allows a user to send and receive bitcoins with them. This is how Bitcoin works for most users.

Behind the scenes, the Bitcoin network is sharing a public ledger called the “block chain”. This ledger contains every transaction ever processed, allowing a user’s computer to verify the validity of each transaction. The authenticity of each transaction is protected by digital signatures corresponding to the sending addresses, allowing all users to have full control over sending bitcoins from their own Bitcoin addresses. In addition, anyone can process transactions using the computing power of specialized hardware and earn a reward in bitcoins for this service. This is often called “mining”.

Is Bitcoin really used by people?

Yes. There is a growing number of businesses and individuals using Bitcoin. This includes brick and mortar businesses like restaurants, apartments, law firms, and popular online services such as Namecheap, WordPress, Reddit and Flattr. While Bitcoin remains a relatively new phenomenon, it is growing fast. At the end of August 2013, the value of all bitcoins in circulation exceeded US\$ 1.5 billion with millions of dollars worth of bitcoins exchanged daily.

What are the advantages of Bitcoin?

- ◆ **Payment freedom** - It is possible to send and receive any amount of money instantly anywhere in the world at any time. No bank holidays. No borders. No imposed limits. Bitcoin allows its users to be in full control of their money.
- ◆ **Very low fees** - Bitcoin payments are currently processed with either no fees or extremely small fees. Users may include fees with transactions to receive priority processing, which results in faster confirmation of transactions by the network. Additionally, merchant processors exist to assist merchants in processing transactions, converting bitcoins to fiat currency and depositing funds directly into merchants’ bank accounts daily.
- ◆ **Fewer risks for merchants** - Bitcoin transactions are secure, irreversible, and do not contain customers’ sensitive or personal information. This protects merchants from losses caused by fraud or fraudulent chargebacks, and there is no need for PCI compliance. Merchants can easily expand to new markets where either credit cards are not available or fraud rates are unacceptably high. The net results are lower fees, larger markets, and fewer administrative costs.
- ◆ **Security and control** - Bitcoin users are in full control of their transactions; it is impossible for merchants to force unwanted or unnoticed charges as can happen with

other payment methods. Bitcoin payments can be made without personal information tied to the transaction. This offers strong protection against identity theft. Bitcoin users can also protect their money with backup and encryption.

- ♦ **Transparent and neutral** - All information concerning the Bitcoin money supply itself is readily available on the block chain for anybody to verify and use in real-time. No individual or organization can control or manipulate the Bitcoin protocol because it is cryptographically secure. This allows the core of Bitcoin to be trusted for being completely neutral, transparent and predictable.

What are the disadvantages of Bitcoin?

- ♦ **Degree of acceptance** - Many people are still unaware of Bitcoin. The list of users remains small and still needs to grow in order to benefit from network effects.
- ♦ **Volatility** - The total value of bitcoins in circulation and the number of businesses using Bitcoin are still very small compared to what they could be. Therefore, relatively small events, trades, or business activities can significantly affect the price.
- ♦ **Ongoing development** - Bitcoin software is still in beta with many incomplete features in active development. New tools, features, and services are being developed to make Bitcoin more secure and accessible to the masses. In general, Bitcoin is still in the process of maturing.

Is Bitcoin fully virtual and immaterial?

Bitcoin is as virtual as the credit cards and online banking networks people use everyday. Bitcoin can be used to pay online and in physical stores just like any other form of money. Bitcoin balances are stored in a large distributed network, and they cannot be fraudulently altered by anybody.

What happens when bitcoins are lost?

When a user loses his wallet, it has the effect of removing money out of circulation. Lost bitcoins still remain in the block chain just like any other bitcoins. However, lost bitcoins remain dormant forever because there is no way for anybody to find the private key(s) that would allow them to be spent again.

Can Bitcoin scale to become a major payment network?

The Bitcoin network can already process a much higher number of transactions per second than it does today. It is, however, not entirely ready to scale to the level of major credit card networks. Work is underway to lift current limitations, and future requirements are well known. Since inception, every aspect of the Bitcoin network has been in a continuous process of maturation, optimization, and specialization, and it should be expected to remain that way for some years to come.

Is Bitcoin legal?

To the best of knowledge, Bitcoin has not been made illegal by legislation in most jurisdictions. However, some jurisdictions (such as Argentina and Russia) severely restrict

or ban foreign currencies. Other jurisdictions (such as Thailand) may limit the licensing of certain entities such as Bitcoin exchanges.

Regulators from various jurisdictions are taking steps to provide individuals and businesses with rules on how to integrate this new technology with the formal, regulated financial system.

What is Bitcoin mining?

Mining is the process of spending computing power to process transactions, secure the network, and keep everyone in the system synchronized together. It can be perceived like the Bitcoin data center except that it has been designed to be fully decentralized with miners operating in all countries and no individual having control over the network. This process is referred to as “mining”. However, Bitcoin mining provides a reward in exchange for useful services required to operate a secure payment network.

How does Bitcoin mining work?

Anybody can become a Bitcoin miner by running software with specialized hardware. Mining software listens for transactions broadcast through the peer-to-peer network and performs appropriate tasks to process and confirm these transactions. Bitcoin miners perform this work because they can earn transaction fees paid by users for faster transaction processing, and newly created bitcoins issued into existence according to a fixed formula.

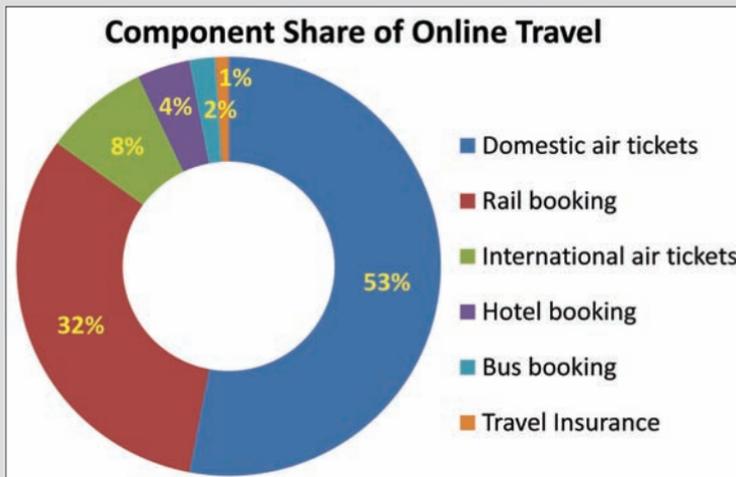
For new transactions to be confirmed, they need to be included in a block along with a mathematical proof of work. Such proofs are very hard to generate because there is no way to create them other than by trying billions of calculations per second. This requires miners to perform these calculations before their blocks are accepted by the network and before they are rewarded. As more people start to mine, the difficulty of finding valid blocks is automatically increased by the network to ensure that the average time to find a block remains equal to 10 minutes.

The proof of work is also designed to depend on the previous block to force a chronological order in the block chain. This makes it exponentially difficult to reverse previous transactions because this requires the recalculation of the proofs of work of all the subsequent blocks. When two blocks are found at the same time, miners work on the first block they receive and switch to the longest chain of blocks as soon as the next block is found. This allows mining to secure and maintain a global consensus based on processing power.

Exchange rate of BITCOIN against various currencies

1 Bitcoin	USD 244.00
1 Bitcoin	EUR 223.42
1 Bitcoin	GBP 164.25
1 Bitcoin	INR 15,203.4
1 Bitcoin	AUD 309.95
1 Bitcoin	CAD 305.18
1 Bitcoin	JPY 29190.3

Source - www.xe.com/currency/xbt-bitcoin



Source – IMAI, IMRB-CUBE 2014 (DEC 2014)

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