VISION AND MISSION OF THE INSTITUTION

Vision

To be one of the premier Institutes of Engineering and Management education in the country

Mission

- To provide Engineering and Management education that meets the needs of human resources in the country
- To develop leadership qualities, team spirit and concern for environment in students

Objectives

- To achieve educational goals as stated in the vision through the mission statements which depicts the distinctive characteristics of the Institution
- To make teaching-learning process an enjoyable pursuit for the students and teachers

VISION AND MISSION OF THE DEPARTMENT

Vision

To be a premier department of learning in Information Science and Engineering in the state of Karnataka, moulding students into professional Engineers

Mission

- Provide teaching-learning process that develops core competencies in Information Science and Engineering to meet the needs of the industry and higher education
- Create an environment for innovative thinking and self-learning to address the challenges of changing technology
- Provide an environment to build team spirit and leadership qualities to succeed in professional career
- Empathize with the societal needs and environmental concerns in Information Science and Engineering practices

Satoshi Nakamoto

In 2009, the first decentralized cryptocurrency, bitcoin, was created by presumably pseudonymous developer Satoshi Nakamoto. He authored the bitcoin white paper, and created and deployed bitcoin's original reference implementation. As part of the implementation, Nakamoto also devised the first blockchain database.

Nakamoto stated that work on the writing of the code for bitcoin began in 2007. On 18th August 2008, he with his colleagues registered the domain name bitcoin.org and created a web site at that address. On 31st October. 2008, Nakamoto published a white paper on the cryptography mailing list at metzdowd.com describing a digital cryptocurrency, titled "Bitcoin: A Peer-to-Peer Electronic Cash System".

On 9th January 2009, Nakamoto released version 0.1 of the bitcoin software on SourceForge, and launched the network by defining the genesis block of bitcoin (block number 0), which had a reward of 50 bitcoins.

Nakamoto continued to collaborate with other developers on the bitcoin software until mid-2010, making all modifications to the source code himself. He then gave control of the source code repository and network alert key to Gavin Andresen, transferred several related domains to various prominent members of the bitcoin community, and stopped his recognized involvement in the project.

Message from the Editorial Team

We are delighted to present Volume 7 issue 1 of our Newsletter 'Inspire'. The Newsletter has culminated from a plethora of efforts extended by Department of Information Science and Engineering. We feel privileged to highlight our theme "Cryptocurrency" to indeed inspire and provide a forum for exchange of ideas with innovative, empirical and conceptual cases having an inclusive ethos open to a wide range of methodological approaches and philosophical support in the field of Cryptocurrency. We are indeed indebted to our reviewers who have spared their valuable time and contributed towards this endeavor. Lastly, we would like to express our heartfelt thanks to our honorable Secretary of BNMIT Sri Narayan Rao R.Maanay for his continued guidance and motivation. We sincerely hope that the readers will find the case contents interesting, relevant and intellectually stimulating, leading to diverse outlook in research issues.

About the Department

The Department of Information Science and Engineering (ISE) is presently headed by Dr. Shashikala. The Department was established in the year 2001 with an intake of sixty students. Since its inception, the Department has forged a path of technical excellence and innovative teaching methods. It comprises highly qualified, research-oriented teaching staff, committed to instill moral values among students, in addition to providing cutting edge technical knowledge. The Department has well equipped laboratories with state-of-the-art computational facilities. The Department is accredited by NBA for academic years 2018-19 to 2021-22 & valid upto 30.06.2022. The vision of the department sets the goal and the mission portrays the process of achieving the vision. The vision of the Department is to be a premier Department in correlation with the vision of the institution. The Program Educational Objectives (PEOs) depict the strength of the Department in moulding students to become successful graduates by inculcating professionalism with concern to society and the environment. The PEOs are defined, based on the vision and mission of the institute and the Department. The program outcomes are also taken as input for drafting the PEO's of the Department.

CRYPTOCURRENCIES

Introduction

Cryptos. The very word rings a bell: a small sparkly coin next to every photo of Elon Musk. It's the obscure term which you overlook every time you see it on the news feed but also look for it. The majority of us will navigate these arduous topics without sparing so much as a second glance, but thanks them, let me make you understand this in as simple terms as possible.

Cryptocurrency, often known as crypto, is any type of virtual currency that employs encryption to enable the secure transfer and exchange of digital tokens in a distributed and decentralised manner. These tokens can be exchanged for fiat money at market rates. Bitcoin was the first cryptocurrency, and it began trading in January 2009. Since then, several other cryptocurrencies have been formed, many of which use the same breakthroughs that Bitcoin did, but with some of the exact features of their governing algorithms changed.

Cryptocurrencies like Bitcoin, Ethereum, Monero, Litecoin, Binance Coin (BNB) and Dogecoin exist. But the studies show that BITCOIN is the most popular and successful decentralized cryptocurrency. Let's know briefly about what cryptocurrency is. According to Park and Park (2019), cryptocurrencies are not controlled by capital governing bodies such as a banking system or other financial institutions. Instead, it uses a public transaction ledger. This ledger logs each scale, trade, etc., and is not monitored by an organization.

This ledger uses blockchain technology as a public transaction database for relaying the transferred currency. The ledger uses simple accounting methods to record data transactions and information. Due to the ledger, the transactions are single in allowance, resulting in increased privacy due to the protective nature of its single transaction mode.

History of Cryptocurrency

The idea of cryptocurrencies was first mentioned in the 1980s by American Cryptographer David Chaum. He invented digital cash that relied on cryptography to secure and verify transactions. In October 2008, a paper by Satoshi Nakamoto (a pseudonym) titled Bitcoin: A Peer-to-Peer Electronic Cash System outlined a system for creating a digital currency that did not require trust in any third party. Nakamoto's paper effectively launched the cryptocurrency revolution. Bitcoin is an online payment system launched as open-source software in 2009. Bitcoin is generated through a sequence of mathematical formulas that runs on a system. The first Bitcoin transaction took place between Nakamoto and Hal Finney on 12th January 2009.
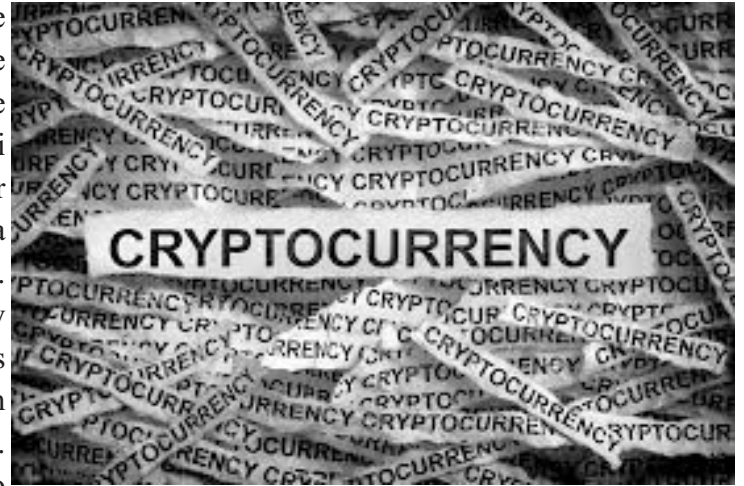
As the value of Bitcoin and other digital coins skyrocketed, the number of schemes and scams targeting crypto investors also increased. From fake ICOs to phishing attacks, thieves managed to steal millions of dollars from innocent people looking to make a quick buck in the crypto craze. Countries that have legalized cryptocurrency include India, the US, Japan, South Korea, Hong Kong, South Africa, Mexico, Singapore, El Salvador, Pakistan, Argentina, Brazil, Israel, etc. Countries that have illegalized cryptocurrency include China, Bolivia, Nepal, and a few others.

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2. https://indianexpress.com/article/technology/crypto/year-of-bitcoin-where-do-we-stand-in-2021-7679285

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HOW DOES CRYPTO WORKS?

Cryptocurrencies are based on blockchain, a distributed public ledger that keeps track of all transactions that are updated and maintained by currency holders. A blockchain can be thought of as a highly unusual database. Because the structure of a blockchain is distributed, rather than centralized, it is often referred to as distributed ledger technology. A network of peers with equal standing is a typical feature of cryptocurrencies. It is unnecessary to know or trust your peers on a blockchain.

It is also feasible to construct a blockchain so that only certain trusted people can add to the ledger. However, Bitcoin employs an exceptionally energy-intensive technology, which raises environmental concerns, particularly given the prominence of bitcoin mining. As of April 2018, the overall energy allocated to bitcoin mining alone had surpassed 60 TWh, almost equivalent to the yearly energy consumption of Switzerland as a country.

Here's how blockchain works using the bitcoin system as an example:

1. Bitcoin transactions are entered and broadcast to a network of powerful computers known as nodes.

2. This global network of thousands of nodes competes to confirm the transaction using computer algorithms. This is referred to as bitcoin mining. The miner who is the first to successfully complete a new block receives bitcoin in exchange for their efforts. These benefits are paid in the form of newly minted bitcoin as well as network fees, which are passed on to the buyer and seller. Fees can vary depending on the amount of transactions.

3. The sale is added to a block on the distributed ledger once it has been cryptographically confirmed. The transaction must next be confirmed by the majority of the network.

4. Using a cryptographic fingerprint known as a hash, the block is permanently connected to all previous blocks of bitcoin transactions, and the sale is completed.

Investment on Crypto

The lack of regulation is cryptocurrency's most distinguishing feature. Cryptocurrencies are appealing for a variety of reasons because no government or organization has authority or voice over them. Transactions are not subject to sales tax because there is no government oversight. Furthermore, because no one regulates transactions on a federal or other level, no middleman is required in the userto-user system, such as lawyers, banks, or payment providers.

The following are common ways to invest in blockchain:

Stocks of a well-known firm:- Blockchain technology is novel and dangerous. As a result, if you are risk averse, consider investing in the stocks of companies that use blockchain technology but are also wellestablished enterprises in their own right. Microsoft, Paypal, and Square are just a few examples.

Blockchain ETF:- It is available to retail investors. Exchange-traded funds may invest in companies that employ blockchain technology or in companies that use the technology to innovate.

Invest in companies that have cryptocurrency holdings:- Blockchain technology is the driving force behind cryptocurrencies. Tesla is an example of a firm that has made a significant investment in bitcoin.

Penny stocks :- On the blockchain, invest in blockchain penny stock if you are willing to take a risk. Investing in penny stocks is extremely dangerous, and their investments in blockchain or Bitcoin are riskier.

Crowdfunding:- Crowdfunding has become a popular way for startups to raise capital. You can buy tokens with the expectation that the price would rise if the company or service becomes popular.

Investing in blockchain technology does not imply investing in Bitcoin or any other digital money. Investments can be made in the stock of other firms, through the purchase of ETFs, and through crowdsourcing, among other options. Blockchain may have a bright future, but it may be some time away.

How to buy Cryptocurrencies?

While some cryptocurrencies, such as bitcoin, can be purchased with US dollars, others require bitcoins or another cryptocurrency to be paid for.

To purchase cryptocurrencies, you'll need a "wallet," which is an internet application that stores your funds. In general, you open an account on a cryptocurrency exchange and then use real money to purchase cryptocurrencies like bitcoin or Ethereum.

However you can follow these steps:

1.Determine where you will purchase it

There are numerous ways to purchase cryptocurrency, but a centralised exchange is likely to be the most accessible for newcomers. These exchanges often trade cryptocurrency at market rates and profit from fees for various parts of their services. Though centralised exchanges are very simple to use, the volume of crypto that passes through them makes them an appealing target for hackers. For more advanced users, there exist decentralised exchanges with lower fees than centralised systems. These are more harder to utilise and need more technical expertise, but they may provide some security benefits because there is no single target for a cyberattack. Peer-to-peer transactions can also be used to trade cryptocurrencies.

2. Determine how you will pay

While thousands of cryptocurrencies are traded globally, the most popular options are generally available for purchase in fiat currencies such as the US dollar. If you're a first-time buyer, you'll almost certainly have to use traditional currency to purchase cryptocurrencies. If you're a more seasoned investor, you might consider exchanging part of your existing crypto holdings for another sort of cryptocurrency, such as Bitcoin for Ethereum.

3. Increase the value of your account

You may need to fund your account before purchasing any cryptocurrency, depending on how you want to pay. Most exchanges accept debit and bank transfers if you're using fiat currency. Some also allow you to pay using your credit card, though this is a dangerous move with a volatile asset like cryptocurrencies because interest rates can compound your losses if your assets lose value.

4. Decide on a Cryptocurrency

There are numerous possibilities for bitcoin investors, but none are likely to be suitable for everyone. Before you buy, consider what you want to get out of this investment. Do you expect it to appreciate in value? Do you want to conduct transactions with cryptocurrency? Do you want to use the underlying technology through decentralised apps? These may assist you in making your decision.

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3. https://www.cpajournal.com/2018/06/19/the-coming-world-of-blockchain

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BLOCKCHAIN TRANSACTIONS, A UTOPIA OR A FAR-FETCHED DREAM?

INTRODUCTION

What is Blockchain?

Blockchain can be understood as a system for a database that is recording information and makes it impossible to change, hack or cheat the system. A blockchain is a coded transaction record that is duplicated and replicated across the vast network of computing systems on the blockchain. Every block in the chain comprises several transactions, and any time a new transaction happens on the network, a record of that transaction is added to the ledger of each party. The decentralized multi-stakeholder database is known as Distributed Ledger Technology (DLT).

Contracts, transactions, and the records of them are among the defining structures in our economic, legal, and political systems. They protect assets and set organizational boundaries. They establish and verify identities and chronicle events. They govern interactions among nations, organizations, communities, and individuals. They guide managerial and social action. And yet these critical tools and the bureaucracies formed to manage them have not kept up with the economy's digital transformation. They're like a rush-hour gridlock trapping a Formula 1 race car. In a digital world, the way we regulate and maintain administrative control has to change.

Blockchain promises to solve this problem. The technology at the heart of bitcoin and other virtual currencies, blockchain is an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way. The ledger itself can also be programmed to trigger transactions automatically.

HOW DOES BLOCKCHAIN HELP SOLVE THIS?

With blockchain, we can imagine a world in which contracts are embedded in digital code and stored in transparent, shared databases, where they are protected from deletion, tampering, and revision. In this world every agreement, every process, every task, and every payment would have a digital record and signature that could be identified, validated, stored, and shared. Intermediaries like lawyers, brokers, and bankers might no longer be necessary.

Individuals, organizations, machines, and algorithms would freely transact and interact with one another with little friction. This is the immense potential of blockchain, a peer-to-peer network that sits on top of the internet—was introduced in October 2008 as part of a proposal for bitcoin, a virtual currency system that eschewed a central authority for issuing currency, transferring ownership, and confirming transactions. Bitcoin is the first application of blockchain technology.

In a blockchain system, the ledger is replicated in a large number of identical databases, each hosted and maintained by an interested party. When changes are entered in one copy, all the other copies are simultaneously updated. So as transactions occur, records of the value and assets exchanged are permanently entered in all ledgers. There is no need for third-party intermediaries to verify or transfer ownership. If a stock transaction took place on a blockchain- based system, it would be settled within seconds, securely and verifiably. (The infamous hacks that have hit bitcoin exchanges exposed weaknesses not in the blockchain itself but in separate systems linked to parties using the blockchain.)

"Smart contracts" may be the most transformative blockchain application at the moment. These automate payments and the transfer of currency or other assets as negotiated conditions are met. For example, a smart contract might send a payment to a supplier as soon as a shipment is delivered. A firm could signal via blockchain that a particular good has been received—or the product could have GPS functionality, which would automatically log a location update that, in turn, triggered a payment. We've already seen a few early experiments with such self- executing contracts in the areas of venture funding, banking, and digital rights management.

The implications are fascinating. Firms are built on contracts, from incorporation to buyer-supplier relationships to employee relations. If contracts are automated, then what will happen to traditional firm structures, processes, and intermediaries like lawyers and accountants? And what about managers? Their roles would all radically change. Before we get too excited here, though, let's remember that we are decades away from the widespread adoption of smart contracts. They cannot be effective, for instance, without institutional buy-in.

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3.   O. Ali, A. Jaradat, A. Kulakli and A. Abuhalimeh, "A Comparative Study: Blockchain Technology Utilization Benefits, Challenges and Functionalities," in IEEE Access, vol. 9, pp. 12730-12749, 2021, doi: 10.1109/ACCESS.2021.3050241.

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PROS & CONS OF CRYPTO CURRENCY

PROS : <u>Learning about the benefits of Crypto currency can help you decide if it's a good investment opportunity</u>

1. ACCESSIBILITY: You can make crypto currency transactions whenever you want to. It is a very accessible and versatile currency. It only takes a few minutes to make transactions, purchase goods and services from other countries, this makes it a global form currency with a bonus of having little to no fees applied. It can also be easily sold at any moment.

2. ANONYMOUS USE AND TRANSPARENCY: Users are identified by numerical code aims can have multiple public keys. This ensures no public tracking. Despite the transactions being permanently viewable, which gives

you transparency, they're still kept safe from fraud due to blockchain technology. On top of that, only you, as the wallet owner, would be able to know how many bitcoins you have.

Unlike traditional currency systems in which personal information could be leaked from banks, no personal information is required to conduct crypto transactions which increase user privacy.

3. INDEPENDENCE FROM CENTRAL AUTHORITY: Bitcoin is a decentralized currency, meaning it's not regulated by a single government or central bank. This means that authorities will likely not freeze and demand your coins. There's also no viable way that taxation would be implemented for Bitcoin.

CONS: **Despite its rapid growth and an increasing number of users, there are some disadvantages**

1. NO GOVERNMENT REGULATIONS: A decentralized currency can be viewed as one of the benefits of cryptocurrency, but it can also be considered a disadvantage of Bitcoin since it means investing in Bitcoin is not regulated. Unlike a currency that's regulated by a central bank, Bitcoin transactions don't come with legal protection and typically are not reversible, which makes them susceptible to scams. Another issue with Bitcoin being decentralized is that there's no guarantee of a minimum valuation. So, if a big group of investor decides to stop using bitcoins and sell them, their value of it could decrease greatly and affect users with a large amount of the cryptocurrency.

2. UNRECOVERABLE: Since Bitcoin transactions are anonymous and unregulated, the disadvantage is the lack of security. Transactions done through Bitcoin are irreversible and final, so nothing can be done if the wrong amount is sent or if it's sent to the wrong recipient. In addition, there's a risk of loss. Many Bitcoin users choose to keep their bitcoins in a cryptocurrency wallet, which puts them at risk of losing their investments if they lose access to their private key. In case a hard drive crashes or a virus corrupts the records, even your wallet, your funds could become inaccessible or gone completely in a matter of minutes and the data cannot be retrieved.

3. DIFFICULT TO UNDERSTAND THE MARKET: Many investors do not understand how modern technology works. Many potential investors do not trust crypto because of this reason.

Reference:
https://www.theweek.in/news/biz-tech/2021/03/08/Pros-and-Cons-of-Investing-in-Bitcoin-and-Other-Cryptocurrencies.html

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Blockchain Healthcare Use Cases in Digital Health

1.   Supply chain transparency

A major challenge across the healthcare sector, as in many others, is ensuring the provenance of medical goods to confirm their authenticity. Using a blockchain-based system to track items from the manufacturing point and at each stage through the supply chain enables customers to have full visibility and transparency of the goods they are buying.

This is a top priority for the industry, especially in developing markets where counterfeit prescription medicines cause tens of thousands of deaths annually. It is increasingly important for medical devices, too, which are proliferating quickly with the adoption of more remote health monitoring, and therefore also attracting the interest of bad actors.

MediLedger is a leading example of a blockchain protocol that enables companies across the prescription drug supply chain to verify the authenticity of medicines, as well as expiry dates and other important information.

Key benefits of blockchain (paired with AI):

• **Customer confidence:** Ability for the customer to track each package's end-to-end provenance, with integration with manufacturers, wholesale, shipping, etc.

• **Compliance:** Medical device manufacturers and pharmaceuticals face high reporting burdens to ensure patient safety, so aggregating supply chain data into one system helps streamline compliance – For example, FarmaTrust's blockchain based system provides automated law enforcement notifications when they spot an issue

- **Supply chain optimisation:** Once all the data is in one place, companies apply AI to better predict demand and optimise supply accordingly

Outside of financial markets, supply chain management and transparency is one of the most advanced use cases for blockchain, for example including the high profile partnership between IBM and Walmart to ensure food safety in the supply chain. As the technology and ROI has already been proven, we expect this to be the most significant short-term impact of blockchain on the healthcare industry.

2. Patient-centric electronic health records

Healthcare systems in every country and region are struggling with the problem of data siloes, meaning that patients and their healthcare providers have an incomplete view of medical histories. In 2016, Johns Hopkins University published research showing that the third leading cause of death in the US was medical errors resulting from poorly coordinated care, such as planned actions not completed as intended or errors of omission in patient records.

One potential solution to this problem is creating a blockchain-based system for medical records that can be linked into existing electronic medical record software and act as an overarching, single view of a patient's record. It is crucial to emphasize that actual patient data does not go on the blockchain, but that each new record appended to the blockchain, whether a physician's note, a prescription or a lab result, is translated into a unique hash function – a small string of letters and numbers. Every hash function is unique, and can only be decoded if the person who owns the data – in this case, the patient – gives their consent.

In this scenario, every time there is an amendment to a patient record, and every time the patient consents to share part of their medical record, it is logged on the blockchain as a transaction. Medicalchain is a leading example of a company working with healthcare providers to implement blockchain enabled EMRs.

The key benefits of blockchain-enabled EMRs are:

- A comprehensive single source of truth of a patient's medical records, creating a better experience for patients and healthcare providers

- They enable patients to see every time their medical records are updated and to give explicit consent every time they are shared with healthcare providers or others. Patients can also choose to share their medical records (or part of their medical records) with researchers and set time limits on how long any third party can have access to their medical information.

- Medical insurers can receive immediate, validated confirmation of healthcare services directly from patients, without the time and cost of an intermediary.

- Beyond creating blockchain-based medical records, Medicalchain is also developing a platform upon which others can build digital health solutions, including a virtual consultation service and a medical data exchange, where patients can choose to sell their anonymised medical data, in exchange for Medtokens, to support digital health application development, e.g. population level analytics solutions.

3. Smart contracts for insurance and supply chain settlements

Companies such as Chronicled and Curisium provide blockchain-based systems where various players in the healthcare sector, such as pharmaceutical companies, medical device OEMs, wholesalers, insurers and healthcare providers, can authenticate their identities as organisations, log contract details, and track transaction of goods and services, and payment settlement details for those goods and services.

This type of environment goes a step beyond supply chain management to also enable trading partners and insurance providers in the healthcare sector to operate based on fully digital and in some cases automated contract terms.

By having shared digital contracts between manufacturers, distributers and healthcare organisations logged on a blockchain ledger, rather than each player having their own version of contracts, they can significantly reduce disputes over payment chargeback claims for prescription medicines and other goods.

According to Chronicled, because pricing structures often change, there are over one million chargeback claims made

between these players every year, more than 5% of which are disputed, requiring lengthy manual resolution.

Similarly, shared smart contracts can be used to manage medical insurance contracts for patients, where Curisium states that 10% of claims are disputed. Like in other use cases, once this data is digitised and easily accessible, insurance providers can use more advanced analytics to optimise health outcomes and costs.

4. Medical staff credential verification

Similar to tracking the provenance of a medical good, blockchain technology can be used to track the experience of medical professionals, where trusted medical institutions and healthcare organisations can log the credentials of their staff, in turn helping to streamline the hiring process for healthcare organisations. US based ProCredEx has developed such a medical credential verification system using the R3 Corda blockchain protocol.

The key benefits of the blockchain system are:

- Faster credentialing for healthcare organisations during the hiring process
- An opportunity for medical institutions, insurers, and healthcare providers to monetise their existing credentials data on past and existing staff
- Transparency and reassurance for partners, e.g. organisations sub-contracting locum tenens, or in emerging virtual health delivery models to inform patients on medical staff experience

5. IoT security for remote monitoring

One of the biggest trends in digital health is the adoption of remote monitoring solutions, where all kinds of sensors measuring patients' vital signs are being used to help give healthcare practitioners more visibility into patients' health, enabling more proactive and preventative care. We've previously covered many promising remote monitoring use cases in our articles on 5G and edge computing in digital health.

However, security is a huge issue in health IoT, both in terms of ensuring that patient data is private and secure and that it is not tampered with to create false information. In some cases, where a connected device may be depended on in emergency situations, e.g. alerting an elderly person's carer that they have suffered a fall or a heart attack, it is also crucial that the supporting systems are very resilient to DDoS or other attacks disrupting service.

How blockchain systems could help secure remote monitoring IoT devices:

Blockchain cryptography ensures that only permitted parties can gain access to personal data, which is stored on the blockchain as a unique hash function (any change in the source data will create a different hash function, and a user must have a specific set of cryptographic keys to decode the hash function into the source data)

Once patient data is recorded on the blockchain ledger (as a hash function) then it is nearly impossible to tamper with since it would require gaining access to all stored copies

The decentralised nature of blockchain means that IoT devices can interact directly with each other, without going through a centralised server (as most IoT connections do today), making it very difficult to launch DDoS and man in the middle attacks. See STL Partners report Moving beyond the lab: How to make blockchain pay for more detail on this use case.

While blockchain could enhance IoT security in healthcare, these use cases are still in the early stages of development and it is not yet clear whether blockchain will be the best tool to use. For digital health companies exploring how to ensure the security of remote monitoring devices, it is worth exploring blockchain, but only as part of a much more comprehensive end-to-end security strategy

Reference:
https://stlpartners.com/articles/digital-health/5-blockchain-healthcare-use-cases

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1BG19IS028
5th Semester

Cryptocurrency Facts You Should Know

1.   Digital currencies are exceptionally volatile

Probably the first thing you'll notice if you've been following cryptocurrencies is that they're exceptionally volatile. This derives from the fact that virtual currency trading occurs on various cryptocurrency exchanges rather than a central exchange, leading to increased volatility.

Since the year began, the aggregate market cap of all cryptocurrencies combined has increased by more than 3,200% as of Dec. 18. Nonetheless, bitcoin, the world's most popular cryptocurrency, has undergone four corrections of at least 20% over the past six months. In short, cryptocurrencies aren't for the faint of heart.

2.   Cryptocurrencies have no fundamental backing

unlike the U.S. dollars in your wallet, or any other currency around the world, digital currencies aren't backed by a central bank or a government.

They also have no tangible fundamental factors with which to help derive an appropriate valuation. Whereas you can look at the earnings history of a publicly trading stock to estimate its worth, or the economic performance of a country with regard to GDP growth to value a currency like the dollar, digital currencies have no direct fundamental ties. This makes valuing cryptocurrencies in a traditional sense especially difficult, if not impossible.

3.   There are more than 1,300 cryptocurrencies (but bitcoin is king)

If you've been following the appreciation of virtual currencies, you've probably heard an awful lot about bitcoin -- and with good reason. It was the first tradable cryptocurrency that was brought to market, and it currently makes up 54% of the aggregate $589 billion market cap of all cryptocurrencies.

However, it's far from alone. There are more than 1,300 other virtual currencies that investors can buy, of which over two dozen have a market cap that's in excess of $1 billion.

4.   Blockchain is where the real value lies

Despite the emphasis on trading virtual currencies, it's actually what underlies cryptocurrencies that could be particularly valuable.

Blockchain technology is the infrastructure that cryptocurrencies like bitcoin are founded on. It's a digital and decentralized ledger that records payment and transfer transactions in a safe and efficient manner. It's also the big reason why big businesses are so excited.

5.   "Miners" play a critical role

Crypto-mining involves using high-powered computers to solve complex mathematical equations on a competitive basis in order to verify and log transactions. Being the first to do so often entitles the miner to a reward, which is given in the form of cryptocurrency coins and/or transaction fees associated with a block. Though the hardware and electricity costs can be enormous, mining can also be extremely rewarding. The graphics-card hardware need of miners has been a big reason why NVIDIA and Advanced Micro Devices have seen a double-digit percentage surge in sales recently.

6.   Decentralization is key

What makes blockchain technology so enticing is the fact that it's decentralized. In other words, there is no central hub where this information is stored, and therefore no major data center where cybercriminals can attack and gain control of a particular digital currency.

Instead, servers and hard drives across the globe contain bits and pieces of information about a particular blockchain network, but not enough to cripple it should be data inside fall into the wrong hands. This makes blockchain a particularly secure technology, which is appealing to big businesses.

7.   Blockchain has numerous other advantages

There's more to like about blockchain technology than just its decentralization. Because miners are working 24 hours a day and seven days a week to verify transactions, they can be settled much quicker than through traditional banking,

which sticks to normal businesses hours, closes for the weekends, and often holds funds for a few days. Plus, without a middleman, transaction costs can actually go down with blockchain.

Additionally, blockchain offers user control and transparency. Rather than letting a third-party control the future of a cryptocurrencies' blockchain, members of a cryptocurrencies' community are who call the shots with regard to future development

8. Blockchain technology is being tested by a number of brand-name businesses

For instance, 200 organizations have joined the Enterprise Ethereum Alliance to test out a version of Ethereum's blockchain in small-scale projects. Some of the companies involved include Microsoft, JPMorgan Chase (JPM - 0.16%), and MasterCard. Cryptocurrencies Ripple and IOTA have announced blockchain projects with brand-name companies recently as well.

Reference:
https://www.fool.com/investing/2017/12/19/16-cryptocurrency-facts-you-should-know.aspx

Namratha N
1BG19IS029
5th Semester

Achievements of Students

- **Mr. R Abhay (1BG20IS038)** from 3rd semester participated in BMSCE PHASE SHIFT (Fizzy Flight Event) and won 2nd prize on 26th November 2021.

- **Mr. Shrayanth S (1BG20IS052)** from 3rd semester completed courses speaking effectively, listening actively, reading deeply, writing proficiently and embracing change on Harappa Language.

- **Mr. Bharath D A (1BG18IS009)** from 7th Semester participated in Technical Quiz conducted by IIC-BNMIT and won 1st Prize on 11th November 2021.

- **Mr. Ashok Aravind S N (1BG18IS007)** from 7th Semester completed course on Adobe UX Foundation Learning Journey on 23rd July 2021.

- **Ms. Pragati Agrawal (1BG18IS064)** from 7th Semester completed course on Adobe UX Foundation Learning Journey on 07th July 2021.

- **Ms. Deepti Teragunti (1BG18IS012)** from 7th Semester completed Course Architecting with Google Compute Engine (Which includes 5 course) specialization on 25th July 2021.

- **Ms. Sahana Hegde (1BG18IS040)** from 7th Semester completed Course Architecting with Google Compute Engine (Which includes 5 course) specialization on 23rd July 2021.

- **Mr. Shishir Bharadwaj (1BG18IS048)** from 7th Semester completed Course Architecting with Google Compute Engine (Which includes 5 course) specialization on 24th July 2021.

- **Ms. Mohana Vani S (1BG18IS023)** from 7th Semester completed Course Architecting with Google Compute Engine (Which includes 5 course) specialization on 25th July 2021.

- **Ms. Namitha V Pawar (1BG18IS026)** from 7th Semester completed Course Architecting with Google Compute Engine (Which includes 5 course) specialization on 25th July 2021.

- **Ms. Rakshitha G R (1BG18IS034)** from 7th Semester completed Course Architecting with Google Compute Engine (Which includes 5 course) specialization on 25th July 2021.

- **Ms. Prajwala P B (1BG19IS404)** from 7th Semester completed Course Architecting with Google Compute Engine (Which includes 5 course) specialization on 24th July 2021.

- **Ms. Mounika P S (1BG19IS403)** from 7th Semester completed Course Architecting with Google Compute Engine (Which includes 5 course) specialization on 24th July 2021.

- **Mr. Jayanth M (1BG19IS401)** from 7th Semester completed Course Architecting with Google Compute Engine (Which includes 5 course) specialization on 24th July 2021.

- **Ms. Shejal Shankar (1BG18IS046)** from 7th Semester completed Course Architecting with Google Compute Engine (Which includes 5 course) specialization on 25th July 2021.

- **Mr. Rohit Kumar Gupta (1BG18IS036)** from 7th Semester completed Course Architecting with Google Compute Engine (Which includes 5 course) specialization on 24th July 2021.

- **Mr. Avinash R D (1BG20IS011)** from 3rd Semester participated in Inter Department Badminton Doubles Tournament conducted by BNMIT.

- **Ms. Prakruthi K V (1BG19IS033)** from 5th Semester participated in VTU volleyball tournament on 29th November 2021.

Achievements of Staff

- **Dr. S. Srividhya** presented paper titled "3D Terrain Mapping and Object Detection using LiDAR" in 2nd International Conference on Recent Innovation in Science, Engineering and Technology organized by the Department of Electrical, Electronics and Communication Engineering, Invertis University, Bareilly, U.P., India on 23rd -24th July, 2021.

- **Dr. Geetha D , V Kavitha, D Karunkuzhali and G Manikandan** published paper titled "A Completely Distributed Blockchain Period Authentication Framework" in Journal of Physics: Conference Series on 01/07/2021.

- **Dr. Geetha D , V Kavitha, D Karunkuzhali and G Manikandan** published paper titled "Enhancement and Development of Next Generation Data Mining Photolithographic Mechanism" in Journal of Physics: Conference Series on 01/07/2021.

- **Mrs. Jagruthi H** presented paper titled "Analysis and evaluation of Machine learning classifiers for IoT Attack Dataset" in International Conference on Machine Learning and Autonomous Systems (ICMLAS-2021) organized by Rohini college of engineering & Technology, Palkulam,Tamilnadu, India on 24th -25th September 2021.

- **Mr. Vijay Kumar S** and team filled a patent tilled "BIG DATA MODEL WITH LOWER COST AND EFFICIENT SECURITY CONSTRAINTS FOR NEW GENERATION MEDICAL SYSTEMS" under field of invention Communication on 15/10/2021.

- **Mrs. Laxmi V, Dr. Roopalakshmi R, Lubna N, Saba Farheen, Sanjana N Shreenivas, and Sayana K Chand** published paper titled "COVID-19 Face Mask Detection System "in Journal of Huazhong University of Science and Technology on 01/07/2021.

- **Mrs. Madhura Prakash M and Dr. Krishnamurthy G N** published paper titled "Encoder-Decoder Attention Network (EDANet) for Polyp Segmentation in Colonoscopy Image" in IJSR Volume - 10 | Issue - 07 | PRINT ISSN No. 2277 - 8179 on 01/07/2021.

Events Details

- **Technical Talk on "Introduction to Virtual Reality and Augmented Reality"** was conducted on 23rd December 2021 by Dr. R. Rajkumar, Data Science and Business Systems, School of Computing, SRM Institute of Science and Technology (SRMIST), Chennai, under "Indian Society for Technical Education (ISTE)" Student chapter, BNMIT.

- **Hackathon on "Cyber Security"** was conducted on 17th December 2021 and 18th December 2021 by NewGen IEDC and BNMIT CSI.

- **Workshop on "Computational Mathematics and Artificial Intelligence using MATLAB"** was conducted on 03rd December 2021 to 04th December 2021 by Mr. Rakshith B S, Senior Application Engineer, CoreEL Technologies, Bengaluru.

- **Workshop on "Natural Language Processing"** was conducted on 03rd December 2021 to 04th December 2021 by Mr. Shreekanth Jere, Assistant Professor, Dept of CSE, MSRIT, Bengaluru.

- **Technical Talk on "Introduction to Finance for IT Decision Makers"** on 13th November 2021 by Mr. Shreyas Venkatesh, Management Consultant, GEP Worldwide, under "Indian Society for Technical Education (ISTE)" Student chapter, BNMIT.

- **Workshop on "Augmented Reality and Virtual Reality"** was conducted on 04th October 2021 and 05th October 2021 by Mr. Supreeth YS, CEO-Tequed Labs and Mr. Aditya SK Director and CTO at Tequed Labs , under "Indian Society for Technical Education (ISTE)" Student chapter, BNMIT.

- **Workshop on "Cyber Security"** was conducted on 04th October 2021 and 05th October 2021 by Samarth Bhaskar Bhat, Technical Director, Reverse Engineering Infosec Pvt. Ltd.

Editorial Team

Students

- **Sonu Sagar,** VII Sem
- **Nagadeepika M,** VII Sem
- **Harshitha S Kanala,** V Sem
- **Sayan Manna,** V Sem
- **Sanjana J Bharadwaj,** III Sem
- **Soujanya S,** III Sem

Faculty

- **Ms. Rashmi T V -** Assistant Professor
- **Dr. Shashi Prabha -** Assistant Professor, English

Layout & Design

- **Sri. Anand P M -** System Manager