Project Report on

Virtual Currency Tracker

Submitted in partial fulfillment of the
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Bachelor of Technology

Under The Supervision of
MR. P.Raja Kumar

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CANDIDATE'S DECLARATION

I/We hereby certify that the work which is being presented in the thesis/project/dissertation, entitled **Virtual Currency Tracker** in partial fulfillment of the requirements for the award of the B.tech submitted in the School of Computing Science and Engineering of Galgotias University, Greater Noida, is an original work carried out during the period of month, Year to Month and

Year, under the supervision of Mr. P Rajakumar AP, Department of Computer Science and Engineering/Computer Application and Information and Science, of School of Computing Science and Engineering , Galgotias University, Greater Noida

The matter presented in the thesis/project/dissertation has not been submitted by me/us for the award of any other degree of this or any other places.

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This is to certify that the above statement made by the candidates is correct to the best of my knowledge.

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CERTIFICATE

The Final Thesis/Project/ Dissertation Viva-Voce examination of Name: Admission No has been held on _____ and his/her work is recommended for the award of Name of Degree.

Signature of Examiner(s)   Signature of Supervisor(s)

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Date: November, 2021

Place: Greater Noida

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<u>Abstract</u>

As we all know that crypto currency has grown to an enormous height. People have started investing a large amount of their savings into crypto currency .As more and more investors are growing for crypto currency there is a need to track down the records and data about the performance of all the crypto currencies so that people can invest in a better and less volatile crypto currency .We are developing an digital platform for the people to view and analyzed the data. In the last ten years crypto currency has yielded more returns than any other form of asset .Also it has given birth to many new technologies which are improving the digital market in a more sophisticated and efficient way. In our digital platform we will provide data about the latest crypto currency market and exchanges and popular crypto currency news .We will used UI and charts to represent the

information in a more understanding way. By using our application people will have benefit of easily tracking down the best crypto currency to invest. Many countries are willing to launched their own form of crypto currency .People have started trading in crypto currency. Through our project people will easily track down different crypto currencies.

List of Table

__Acronyms__

M.Tech.	Master of Technology
BCA	Bachelor of Computer Applications
MCA	Master of Computer Applications
B.Sc. (CS)	Bachelor of Science in Computer Science
M.Sc. (CS)	Master of Science in Computer Science
SCSE	School of Computing Science and Engineering

CHAPTER-1 Introduction

In our project we have designed our platform in such a way that it will track down each and every desired cryptocurrency of the user.We have better interface than any other app or any other platform.It will show all the charts and tables regarding the crypto currency. We are developing an digital platform for the people to view and analyzed the data. In the last ten years crypto currency has yielded more returns than any other form of asset .Also it will give the latest news regarding the blockchain market. Apart from that it also has an attractive feature where an individual an easily deduct the BTC/ETH or any primary currency during the purchase of a new coin. I first heard about bitcoin in 2012 and made my first purchase in 2013.

The blockchain, worked and as far as I was aware bitcoin was the only cryptocurrency. Apart from checking the bitcoin price occasionally I had not looked into the cryptocurrency space much further for a few years. At the beginning of 2017 I came across an article detailing a new currency called ethereum that promised to dethrone bitcoin. Unlike bitcoin, ethereum isn't just another digital currency, ethereum is a decentralised platform that runs applications on top of the blockchain, opening up the blockchain space to an array of new use cases. One of the most important features of the ethereum blockchain is the ability to create tokens. These tokens are treated the same as digital currency and can be used in the decentralised applications they are associated with as well as traded for other digital currencies. With the discovery of ethereum I began to look into the cryptocurrency space a little further and to my pleasant surprise there was more than just bitcoin and ethereum. Before I knew it, I was a frequent visitor of various cryptocurrency subreddits and forums. Unlike traditional stocks, cryptocurrencies have no tangible value attached and prices fluctuate with perceived value. Cryptocurrency trading relies on speculation more so than fundamental analysis and as a result most of the price speculation regarding cryptocurrencies takes place online. Around May 2017 the cryptocurrency market seen an explosion in interest. As a result, thousands of new users came flooding into the cryptocurrency forums searching for the next best coin to invest in. Most of the cryptocurrencies or tokens being recommended had great potential for making a real-world impact but at the time had no product, or development was a few years away from completion. Despite a lot of the cryptocurrencies having no product or being half finished they began to increase

in price anyway. With the influx of new users came a lot of inexperienced traders putting their money where ever the consensus was. The cryptocurrency market is still quite young so there is a lot of volatility. Regulations are scarce and price manipulation from pump and dumps or traders with a large bankroll is a lot easier than traditional stock markets. Compared to the stock market it does not take a lot of buying or selling power to change the price and with the arrival of novice
traders that invest in cryptocurrencies solely because they see them recommended a lot, I believe it may be possible to find a correlation between the sentiment of posts on the various platforms and the prices of the mentioned cryptocurrencies. Bitcoin, the world"s most common and well known cryptocurrency, has been increasing in popularity. It has the same basic structure as it did when created in 2008, but repeat instances of the world market changing has created a new demand for cryptocurrencies much greater than its initial showing. By using a cryptocurrency, users are
able to exchange value digitally without third party oversight. Cryptocurrency works on the theory of solving encryption algorithms to create unique hashes that are finite in number. Combined with a network of computers verifying transactions, users are able to exchange hashes as if exchanging physical currency. There is a finite
number of bitcoin that will ever be generated, preventing an overabundance and ensuring its rarity. Water, despite its requirement as a life giving material, is generally accepted as being free or of little cost because it is so abundant. If water was rare, it would be more valuable than diamonds. Value exists for bitcoin because its users have trust that if they accept it as payment, they would could use it elsewhere to purchase something they want or need . As long as the users maintain this faith, the valued object can be anything. Bitcoin"s value exists in its ecosystem much in the same way that wampum, a seashell, was the currency of the land for Nativ Americans (Kelly, 2014). Bitcoin does not have intrinsic value like gold in that it cannot be used to make physical objects like jewelry that have value. Nevertheless, value continues to exist due to trust and acceptance.

Chapter 2 System Design

System Design is the process of designing the architecture, components, and interfaces for a system so that it meets the end-user requirements.

It's a wide field of study in Engineering and includes various concepts and principles that will help you in designing scalable system. These senior roles demand a better understanding of how you solve a particular design problem, how you respond when there is more than expected traffic on your system, how you design the database of your system and many more. All these decisions are required to be taken carefully keeping in mind Scalability, Reliability, Availability, and Maintainability

Approaching a Design Problem
Breaking Down the Problem: When you are given a Design Problem start breaking it down to small components. These components can be Services or Features which you need to implement in the System. Initially, a System given to be designed can have a large number of features and you are not expected to design everything if it's an Interview. Ask your interviewer about the Features you are planning to put in your

system. Is there anything else you should be putting there? Any Feature? Any Service? ... Ask! Communicating your Ideas : Communicate well with the Interviewer. While designing the system keep him in the loop. Discuss your process out loud. Try to demonstrate your design clearly on the whiteboard with flowcharts and diagrams. Describe your ideas to your interviewer, how you have planned to tackle the problem of scalability, how you will be designing your database and many others. Assumptions that make sense : Make some reasonable assumptions while you are designing the System. Suppose you have to assume the number of requests the system will be processing per day, the number of database calls made in a month, or the efficiency rate of your Caching System. These are some of the numbers you need to assume while designing. Try to keep these numbers as reasonable as possible. Back up your assumption with some solid facts and figures A system is Reliable when it can meet the end-user requirement. When you are designing a system you should have planned to implement a set of features and services in your system. If your system can serve all those features without wearing out then your System can be considered to be Reliable.

A Fault Tolerant system can be one that can continue to be functioning reliably even in the presence of faults. Faults are the errors that arise in a particular component of the system. An occurrence of fault doesn't guarantee Failure of the System.

Failure is the state when the system is not able to perform as expected. It is no longer able to provide certain services to the end-users.

Availability in System Design –
Availability is a characteristic of a System which aims to ensure an agreed level of Operational Performance, also known as uptime. It is essential for a system to ensure high availability in order to serve the user's requests.

The extent of Availability varies from system to system. Suppose you are designing a Social Media Application then high availability is not much of a need. A delay of a few seconds can be tolerated. Getting to view the post of your favorite celebrity on Instagram with a delay of 5 to 10 seconds will not be much of an issue. But if you are designing a system for hospitals, Data Centers, or Banking, then you should ensure that your system is highly available. Because a delay in the service can lead to a huge loss.

There are various principles you should follow in order to ensure the availability of your system :

Your System should not have a Single Point of Failure. Basically, your system should not be dependent on a single service in order to process all of its requests. Because when that service fails then your entire system can be jeopardized and end up becoming unavailable.

Detecting the Failure and resolving it at that point.

<u>Scalability in System Design –</u>

Scalability refers to the ability of the System to cope up with the increasing load. While designing the system you should keep in mind the load experienced by it. It's said that if you have to design a system for load X then you should plan to design it for 10X and Test it for 100X. There can be a situation where your system can experience an increasing load. Suppose you are designing an E-commerce application then you can expect a spike in the load during a Flash Sale or when a new Product is Launched for sale. In that case, your system should be smart enough to handle the increasing load efficiently and that makes it Scalable.

In order to ensure scalability you should be able to compute the load that your system will experience. There are various factors that describe the Load on the System:
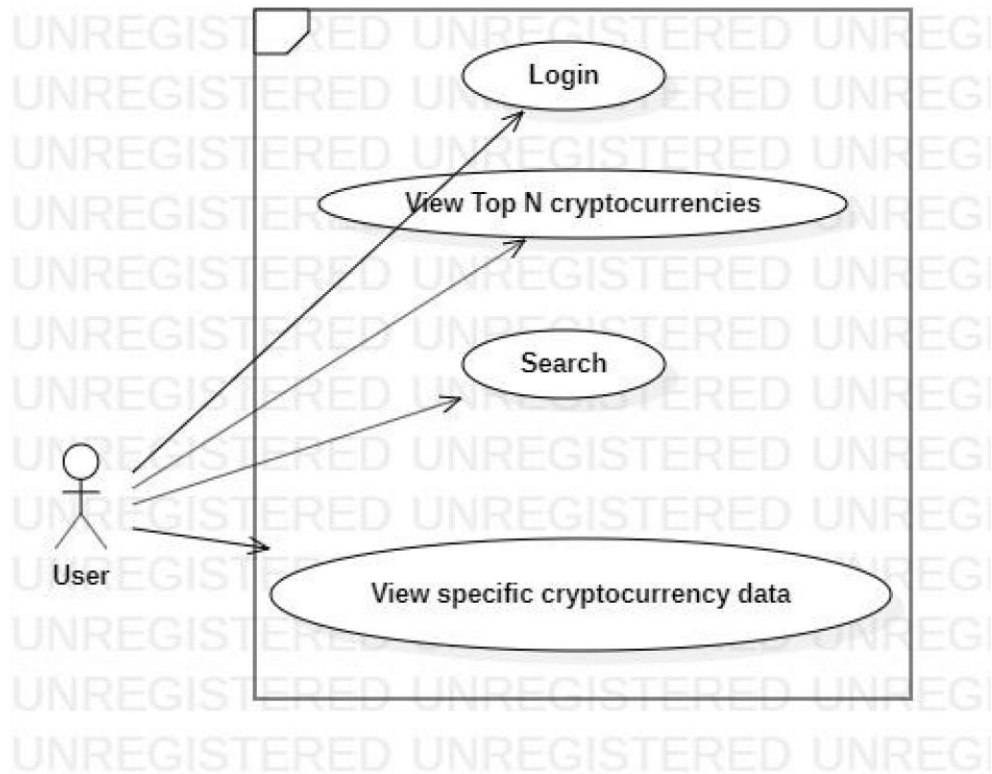
Number of requests coming to your system for getting processed per day
Number of Database calls made from your system
Amount of Cache Hit or Miss requests to your system
Users currently active on your system

Chapter 3 Use CASE diagram

Description & Priority
The user will be able to log into the app with their google account
Use Case Scope
The scope of this use case is to log in the user.
Description
This use case describes how the user will log into the web app with their email and password.

Requirement : Search
Description & Priority
The user will be able to search for a specific cryptocurrency

Use Case Scope
The scope of this use case is for the user to search for a specific cryptocurrency
Description
This use case describes how the user will search for a cryptocurrency and be redirected to the correct page.
Use Case Diagram

Flow Description

```
┌─────────────┐  ┌─────────────┐  ┌──────────────────┐
│ User's enter │ │  suggested   │ │  User's select a  │
│    data      │>│   result     │>│  cryptocurrency   │>
└─────────────┘  └─────────────┘  └──────────────────┘
```

Precondition

The Actor is on the web app

Activation

This use case begins when an Actor begins typing in the search bar

Main flow

1. The Actor begins typing

2. The system returns suggested results 3. The
   Actor selects a cryptocurrency.

4. The system redirects to the selected cryptocurrency page

Exceptional flow

E1: No results

1. The Actor enters their details of a cryptocurrency which does not exist.

2. The system returns no results.

3. The use case continues at step 1 of the main flow.

Termination

The system redirects the user. Post

condition

The system enters a wait state

 Requirement : View top N crypto

Chapter 4 Advantages

The primary aim of our project was to make an app for the crypto currency traders that can have everything related to crypto world at one place. Our app not only contains the value of different currencies but it will also contained the Tweets and news around the world. Today not only private crypto currency but government regulated crypto currency is also coming. We are also trying to provide an better interface and secured app to our user. Bitcoin has strength by design to make it a viable currency that has elevated it in status over the years, more notably the fixed limit of bitcoin that will exist. Bitcoin will be mined with diminishing returns every four years until the maximum number of bitcoins are reached: a total of 21 million. This aspect of Bitcoin is important for its value. Due to the limited amount of bitcoins, it will never become inflated from an overabundance of bitcoins. Also, bitcoin and other cryptocurrencies are generally regarded as being protected from inflation originating from national government changes or restrictions . This creates a "safe haven" for investors to put their wealth into, as it generally does not lose value based on inflation. Bitcoin is quickly showing its strength as a refuge against inflating national currencies. However, as is the case with most commodities, the price can fluctuate wildly based on many other external factors. The combination of demand for a safe haven option and its price volatility helped Bitcoin to become the best performing currency of 2015 using the US Dollar Index . This means that Bitcoin was the highest valued currency in the entire world at the end of last year. This is no small feat in a global economy with powerhouses like China and the United States running the landscape. Today uni-versities, individuals and employers face multiple challenges that include degree fraud, education verification, and problem translating and comparing the same degrees across different learning institutions . Additionally, printing, authenticat-ing, and storing degree and certification are the high costsfor universities and schools in many parts of the world.While e-learning becomes the more and more popular, popular, verification of certification and validation of skills remainsas there is no standard guideline that is accepted by all companies, countries, and institutions. The inability to validate skills continues to contribute to the large gap in the work force. The multi-billion-dollar education industry needs solutions thatmake it easier to validate, verify, aggregate an individual's "learning record", making it easier to apply for the job and hire a qualified candidate.
We need a solution to all the challenges. So, block chain-based educational projects resolved all the issues because blockchain is a safe, fast, the cost-efficient way to structure the records and data such as colleges degree, e-learning certificate,and

much more. Blockchain enables products and services will disrupt the education system

Chapter 5 Functionality and Working of the project

The project has a very user friendly interface. First user needs to login with their given username and password .Then user will have all his personal information regarding all the transaction. The app will have a pop up menu that will have menu such as Transaction history , Newsfeed, Data and charts etc.

Simple Navigation
The most important function of any app is the user's ability to navigate it. Tabbed menus centered at the top or bottom of the screen have become a popular option in recent years. Users understand how to use them intuitively, and most menu items are within tapping distance of the thumb at all times.

Personalization
Providing the best user experience means providing the most relevant user experience. The more personalized we can make the app experience for each user, the more relevant it's going to feel for them. Personalization is becoming more ubiquitous, and it's something users are beginning to expect in a mobile app experience. Stumble Upon successfully personalizes their app experience through their onboarding process.

Filters and search
Mobile users want everything fast. They have very little patience when searching for information or trying to accomplish a task. Typically they're on the go or using an app in between doing other activities, so speed is paramount.

The app should be developed with fast load times and should incorporate filtering and sorting options in order to make the browsing process as seamless as possible.

Feedback Mechanism

The only way to get better is through feedback, and the best people to provide insightful advice are your actual users.

Made it easy for users to give us the feedback we need to improve our app experience by building a feedback mechanism. Not only will a feedback mechanism give developers access to useful insights, it will also let users know that their opinions are valued.
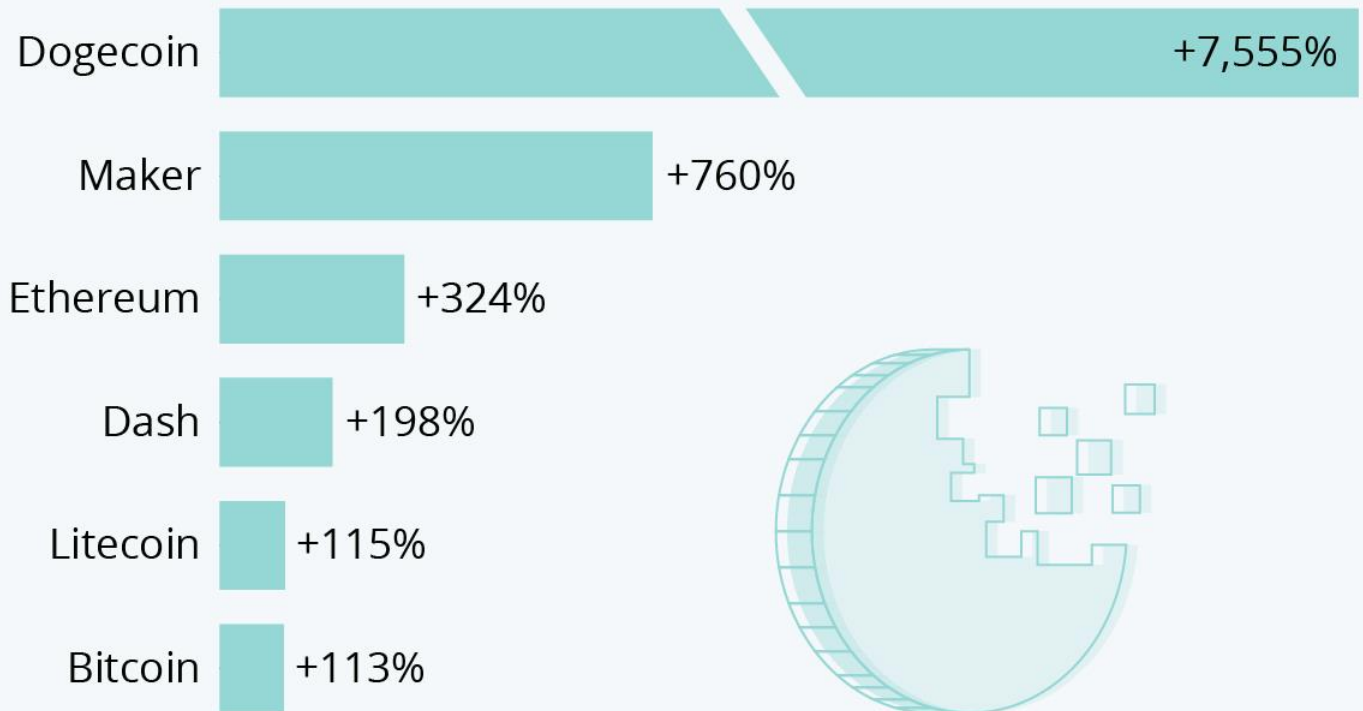
Chapter 6 Literature Survey

One of Bitcoin's largest opportunities is that it can also act as a sort of commodity, similar to gold. The value of gold can spike considerably whenever an event threatens the balance of the global market, as we have seen with the Brexit vote. The precious metal saw an increase in value to a two-year high as investors became uncertain as to how the markets would react to the vote, using it as a safe haven (Reuters, 2016). The commodity market is a widely accepted form of trade worldwide, and cryptocurrency has seemingly begun to mimic the characteristics of gold. Gold has been a long standing holder of value, and that is based on the universal acceptance and trust of its value. Cryptocurrencies could potentially become a big player in the commodity market. They have a unique attribute of being purchased through a direct online mechanism, which creates easy entry for buyers. If bitcoin continues to be a valid refuge for inflating currencies, it will gain validity to investors and push deeper into becoming more mainstream.This lack of trust leads to issues with investors as well. The dead pool of failed startups has increased to 24,mostly citing „security" as the main reason for closure . This metric could be considered a watermark for future investors to consider before investing in bitcoin. The Mt Gox and DAO hack shows how inattentive organization can not only lose millions of dollars" worth of digital currency, but can drop the value significantly. New startups now know that a haphazard and unplanned launch is ill-advised at best, and new market entry will be limited. This could ultimately hurt bitcoin, as development of better software is important to improve security and user acceptance. As obvious of a concern as it may seem, security implementation and fixes are both generally slow to adapt for any new technology. Even the DAO hack exploit was documented as a potential problem weeks before the attack . One of the issues with security is that the decentralized nature prevents a unified effort to completely secure every server that runs the code. A unified front in the realm of cryptocurrency may need to rise before the peer-to-peer network would become truly secured. A standards committee similar to ANSI, the American National Standards Institute, may need to be appointed for cryptocurrencies to develop security standards beyond the bitcoin application requirements. This type of regulation could only be implemented at the cost of the freedom of peer-to-peer networks, and may cause independent miners to exit the market. peer-to-peer network would become truly secured. A standards committee similar to ANSI, the American National Standards Institute, may need to be appointed for cryptocurrencies to develop security standards beyond the bitcoin application requirements. This type of regulation could only be implemented at the cost of the freedom of peer-to-peer networks, and may cause independent miners to exit the market. There are also competitors to cryptocurrency that are attempting to provide an alternative to digital currency.

Apple is one of the main competitors with their product Apple Pay. They are levering their infrastructure and hardware to give users the ability to charge their debit or credit cards associated to their iTunes account with their phones. Traditional credit card companies like Visa and MasterCard are happily joining ApplePay"s infrastructure as are allowed to keep their fees (Gerber, 2015). Bitcoin will always have a difficult time competing with these household names. PayPal has been very successful as the eBay exchanging system, and could potentially be moved into mobile payment. Companies like Apple, Google, and Amazon have entire marketing budgets with a foothold in the mobile application market, giving them a huge advantage over Bitcoin"s comparatively small time players. Mobile consumers want to be able to buy things with phones directly, and bitcoin would have a hard time rallying together as a community to beat out competitors.Another serious threat to cryptocurrency is the maze of US regulations that would need to be traversed before mainstream user acceptance. The US government has yet to even classify what type of asset bitcoin is, which will prevent most market participants from adopting cryptocurrency-based business models. Cryptocurrency could be labeled as either a security, capital asset, commodity, or a currency, and each would have a different effect on how bitcoin is adopted. International views of bitcoin vary by country, but seems to be viewed positively based on Bitpay"s assessment of transactions. In Europe, transactions have reached an all-time high at 102,221 per quarter (Patterson, 2015), which may be the cause regulations being passed regarding bitcoin and cryptocurrency. Bitcoin transaction have become exempt from value added tax by the European Court of Justice, effectively recognizing it as a legitimate means of payment in Europe (Perez, 2015). This simply means that bitcoin transaction will not be taxed in Europe. While great news for European bitcoin users, other major markets are still missing crucial legislation regarding bitcoin taxation. Legislation in the United States could negatively affect how bitcoin transactions are processed, delivering a severe blow to legitimacy as a currency.

2021: Year of the Cryptocurrency

% change in price of selected cryptocurrencies in 2021*

Cryptocurrency	% change
Dogecoin	+7,555%
Maker	+760%
Ethereum	+324%
Dash	+198%
Litecoin	+115%
Bitcoin	+113%

statista ⊿

Chapter 7 Result and Discussion

Through our project we have concluded that crypto currency has become an important part of our life. With Governments of different countries launching their own crypto currency, the crypto trade will reached to a new height in coming years. Thus it becomes very important to provide correct information regarding the crypto currency and also a secured app for the crypto traders. Cryptocurrency seems to have move past the early adoption phase that new technologies experience. Even motor vehicles experienced this phenomenon. Bitcoin has begun to carve itself a niche market, which could help advance cryptocurrencies further into becoming mainstream; or be the main cause of it failing. Cryptocurrencies are still in their infancy, and it is difficult to see if they will ever find true mainstream present in world markets. Lastly, cryptocurrency is a product of using cryptography to create a digital property. The frontier of digital property was popularized by the music industry"s shift to a cloud-based infrastructure. This frontier is still fairly new and unexplored, mainly populated by different types of media. Other forms of digital property may become as popular as music and cryptocurrency.
Eight years ago, digital money was completely unheard of, and the creator of Bitcoin single handedly changed that. Cryptology, the root science beneath bitcoin and all cryptocurrencies, may be the mechanism behind the frontier for new and exciting digital inventions.