

A Review on Cryptocurrency and its Advancements in Present World

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Abstract

A cryptocurrency is a type of digital or virtual money that may be used to make online purchases of goods and services without requiring actual coins or bills. Cryptocurrency serves as a decentralized means of trade, where each transaction is verified and facilitated via encryption. The blockchain technology that supports cryptocurrency will offer trading transactions in a decentralized nature. The development of IT industry in the recent past has made the idea of cryptocurrencies very popular. Cryptocurrencies are available in a variety of forms, and several businesses use and accept it for transactions. Different types of cryptocurrencies, their benefits, and drawbacks are briefly explained in this study. Additionally, this study discusses about the real-time implementations and upcoming advances.

Keywords: Blockchain, cryptocurrency, peer-to-peer technology, decentralized, hash algorithm

1. Introduction

A programmed string of data called cryptocurrency represents a unit of currency exchange. Blockchains are peer-to-peer networks that function as secure transaction ledgers and also monitor the bitcoin transactions like buying, selling, and transferring. It is similar to actual money, with the exception that it doesn't have a physical form, instead it functions through encryption. The hashing method is used by several cryptocurrencies, within which Secure Hash Algorithm (SHA-256), is one of the computational algorithms used in cryptography [1, 2]. With the use of cryptocurrencies, transactions, purchases, and withdrawals can be implemented based on the user suitability. The cryptocurrency may be

used by different types of users. During 1990s, the idea of digital currency has acquired a considerable support. Numerous businesses and programmers took the risk of developing a competing monetary system. E-cash is a form of electronic money invented by American cryptographer David Chaum in 1983. He later added it to Digicash, an early type of encrypted electronic payment. Satoshi Nakamoto invented Bitcoin in January 2009 after a number of authors debated and studied certain papers regarding electronic payments [3]. For this bitcoin, the SHA-256 hash encryption algorithm is employed. Numerous cryptocurrencies are produced after the invention of bitcoin.

To gain an in-depth understanding on cryptocurrencies, one must understand the difference between the terms "coin" and "token". A digital coin functions similar to traditional currency and is produced on its own blockchain. It serves as a medium of transaction and a way to store value between two parties in order to conduct business together. Coins such as Bitcoin, Litecoin, Binance coin, etc. are examples. Tokens may be used to perform different operations much more than just making digital payments. It is built on top of the current blockchain system and utilized as a component of software. Even with actual assets, they are experimenting with Non-Fungible Tokens [NFT] [4].

Low associated costs and the most cost-effective transactions are also provided by cryptocurrencies. It could remain as useful instruments for executing the transition in new, open, and global digital economy [5]. The capacity to do business without depending on third-parties like bank or custodial payment services has led to the acceptance of bitcoin and other cryptocurrencies as payment for goods and services as of 2022. For their aforementioned purposes, they can also invest in and purchase bitcoins or other cryptocurrencies. [6].

1.1 Types of Cryptocurrencies

Cryptocurrencies come in a variety of forms, including Bitcoin, Ethereum, Tether, Binance currency, USD coin, XRP, Terra, Solana, Cardano, Dogecoin, Avalanche, and others. The explanation of a few cryptocurrencies.

1.1.1 Bitcoin

Bitcoin is the first decentralized cryptocurrency to use blockchain technology for making payments and digital transaction. It is regarded as the "Digital Gold" as well. Publicly ledger of all transactions made throughout bitcoin's history may be found on the blockchain. Peer-to-peer money transfers may be quicker and less expensive with a decentralized

currency than they would be with a centralized currency and a third-party organization [4]. Bitcoin has a number of benefits, including user privacy, open-source, great potential for return, and ease of availability. There are certain drawbacks, they are lack of government restrictions, volatility, and limited application [7].

1.1.2 Ethereum

The cryptocurrency used to support payments on the Ethereum platform is called ether. The blockchain-based Ethereum platform enables the development of contracts and other decentralized applications. It was introduced in 2015 and is now, by market value, the second-largest digital currency after bitcoin. Both the money and a sandbox for software development are called Ethereum. The Ethereum application is powered by ether or another cryptographic token unique to the platform [8]. The benefits of Ethereum are mostly related to its efficacy, scalability, large network size, and exclusive focus on open-source and secure transactions. The challenges include the use of a challenging programming language, scaling issues, and a lack of growth potential when compared to other cryptocurrencies [9].

1.1.3 Tether

Tether is a balanced cryptocurrency backed by US dollars. Its purpose is to bring together the advantages of digital currency. As a blockchain-enabled platform, Tether was launched in 2014 to ease the process of spending money online. Tether is the third-largest cryptocurrency by market valuation as of July 8, 2022. The benefits include quick withdrawals and deposits, no transaction fees, security on par with the blockchain, and complete enclosure. The drawbacks occur as a result of doubtful effort and ambiguity, which lead to widespread suspicion of market manipulation [10].

1.1.4 Binance Coin

On the Binance cryptocurrency exchange platform, Binance Coin is accessible together with other trading digital coins. It is a type of money that also makes it possible to create tokens that can be used to pay Binance exchange fees and power the DEX (Decentralized Exchange), which the company uses to enhance the application development process. Based on trade volumes, it remains among the exchanges that are most often utilized worldwide. Binance exchange is simpler and well-liked. The drawbacks include being a regular target of cyberattacks, intense competition from other existing smart contracts and cryptocurrencies [11].

1.1.5 Ripple XRP

XRP is the native coin for the XRP ledger, which Ripple created in 2012 as a payment mechanism. It employs the XRP Ledger Consensus Protocol, an agreement and validation method that does not rely on proof-of-work. To obtain the transaction and update the ledger version, where the servers send transaction representatives to validators who have agreed to work in the servers. The servers analyze the transactions and decide to approve it for ledger entry. The benefits of XRP include speed and affordability with the use of the payment network by financial institutions, and its utilization as a bridge currency [12].

Table 1. Types of Cryptocurrency Pros and Cons

Types	Value	Value (in INR)	Pros	Cons
BitCoin [7]	1 BTC	15,40,485.95 INR (value changes daily)	<ul style="list-style-type: none"> *User privacy and openness. *Offers a strong possibility for return. *Ease of access and liquidity. 	<ul style="list-style-type: none"> *Volatility *Restricted usage *Irreversible *No government regulations.
Ethereum [9]	1 ETH	1,30,405.39 INR (value changes daily)	<ul style="list-style-type: none"> *Effectiveness *Huge network size. *Focus on open source. *Interoperability. *Private Transactions obtained. 	<ul style="list-style-type: none"> *Makes use of difficult programming languages. *Investing in Ethereum has not potential to grow more than other cryptocurrencies. *Scaling problems, etc.
Tether [10]	1 USDT	79.67 INR (value changes daily)	<ul style="list-style-type: none"> *Withdrawals and deposits are finished in a short time. *There are no transaction fees. *The value is daily disclosed and is entirely transparent. 	<ul style="list-style-type: none"> *Gave rise to widespread suspicious about market manipulation. *The outcome of the FUD effort is unclear.
Binance Coin [11]	1 BNB	23,267.35 INR (value changes daily)	<ul style="list-style-type: none"> *One of the finest utility tokens. *Uses special burndown procedures. *Serves as a coupon for a discount. *Binance exchange is quite well-liked. 	<ul style="list-style-type: none"> *It frequently becomes the target of cyberattacks. *Binance runs a CEX exchange in a DEX environment. *Strong rivalry with other cryptocurrencies for smart contracts.

Ripple XRP [12]	1 XRP	27.99 INR (value daily changes)	<ul style="list-style-type: none"> *Quick and Affordable. *Financial organizations utilizing this payment network. *Utilized by consumers and small company owners. *For cross-border money transactions, it serves as a bridge currency. 	<ul style="list-style-type: none"> *Purchasing XRP in the US is challenging. *Due to its ownership by a private firm and SEC litigation, it has generated controversy. *One may argue that its consensus protocol is less secure. *A large number of Ripple's financial partners utilise RippleNet exclusively rather than its XRP coin.
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Figure 1. Different types of Cryptocurrencies

2. Acceptance and Utilization in Companies

Different businesses are using and supporting cryptocurrencies in a variety of methods for purchasing and selling as a result of their worth and growth. It discuss how several businesses, including Microsoft, Amazon, Paypal, Overstock, and various banks, use the digital currency.

As is well known, Satoshi Nakamoto created the first cryptocurrency, Bitcoin. In 2014, Microsoft became one of the first companies to accept bitcoin payments for games, applications, as well as other digital content on platforms including Windows Phone and Xbox. When at end of 2014, in December, Microsoft started to take bitcoin, three months following Paypal did so in September. Instead of attracting customers, Paypal wanted to attract companies to its platform. Overstock adopted bitcoin before Microsoft and Paypal. Due to the online retailer's significant investment in blockchain technology, CNN reported in

2018 that Overstock is essentially a cryptocurrency corporation. The very first retailer to accept bitcoin as payment was Overstock. Other businesses, like Whole Foods, Starbucks, New Egg, and Etsy, use bitcoins in various ways [13].

The Ethereum platform is a suitable and sensible option for companies. It has smart contract features and is open-source. Programmer Vitalik Buterin created Ethereum in 2013 [15]. JP Morgan was the one who created and tested the digital US dollar coin. The instantaneous and private transmission of tokenized money is what the Ethereum platform seeks to accomplish. JPM coins are the name of the cryptographic token that drives the network and expedites customer payments.

After agreeing to include it as an offer for its Amazon Managed Blockchain, Amazon Web Services (AWS) has designated the Ethereum platform the free shared blockchain standard. Its goal is to assist companies who wish to integrate blockchain technology in their operations. On top of the Ethereum network, Microsoft created Azure, its cloud storage platform. Global corporate operations may greatly benefit from the blockchain-based services' ability to link and integrate a variety of tools and services in one location. [16].

A stablecoin with asset backing is called Tether. Craig Sellars and Brock Pierce founded Tether Limited Inc. to market it in 2014 [17]. One of the websites where anyone may use their digital wallet to pay is Travala.com. It enables the use of Tether tokens to pay for lodging, rental homes akin to Airbnb, and travel. The provider of a comprehensive range of hosting goods and services is Snel.com. Tether (USDT) is one of the numerous digital assets that it accepts as well as other cryptocurrencies for payment. Finding cheap flight tickets is made possible by Alternative Airlines. Tether is among the cryptocurrencies that may be used by the firm to pay for tickets. Customers may therefore easily search tickets and make payments using crypto tokens. Companies like STAX, Time, Paxful, Coinsbee, and others that use Tether as a payment service [18].

The biggest cryptocurrency exchange in the world is called Binance. Changpeng Zhao created it in 2017, and it was incorporated in the Cayman Islands [19]. Since 2020, Starbucks has started accepting cryptocurrency applications. Customers may thus refill their Starbucks card with Binance Coin or another cryptocurrency to increase their range of available payment methods. The first significant mobile provider to embrace cryptocurrencies in 2019, particularly Binance Coin is used in AT&T. Customers can thus use payment alternatives based on coins or tokens to pay their bills. Additionally, a variety of businesses use the Binance currency for their demands in the commercial sector [20].

A US-based technology firm called Ripple Labs Inc. developed the real-time gross settlements, currency exchange, and remittance network known as Ripple XRP. It was created by Arthur Britto, David Schwartz, and Ryan Fugger, and it made its premiere in 2005. In addition to supporting tokens that represent currencies, it was introduced in 2012 with a distributed open-source protocol [21]. The financial services company Cullix offers credit and payment options. It was one of the initial businesses to have Ripple as a trusted partner. It joins RippleNet in 2017, tested XRP, and went into business in 2018. The exchange that supports Bitcoin, Ethereum, and XRP was founded by SBI Holdings, a Japanese financial services corporation. It intends to include XRP to enable payment providers to use its virtual currency conversion platform when converting XRP into fiat money. Similar financial institutions and other businesses are exchanging funds using Ripple XRP. [22].

Table 2. Companies that accept or using the Cryptocurrencies

Cryptocurrency	Developed by	Software Used	Using or Accepting companies	Years
Bitcoin	Satoshi Nakamoto	Free and open-source software.	Microsoft, Paypal, Overstock, Whole foods, Etsy, Starbucks, New egg, Home depot, Rakuten, Twitch [13]	<p>*In 2011 and 2012, anonymous markets like Silk Road were the first venues to use Bitcoin.</p> <p>*A University of Cambridge survey found that between 2.9 and 5.8 million different individuals regularly use bitcoin wallets.</p> <p>*Software updates for separated witnesses were also authorised for 2017–2019.</p> <p>*Bitcoin fell below \$4,000 from 2020 to the present during a widespread market sell-off; but, following trading, it is presently over \$10,000. [14]</p>
Ethereum	Vitalik Buterin.	EVM 1 bytecode.	JP Morgan, Amazon, Microsoft Azure [16]	<p>*A new framework with a more powerful scripting language—a Found the way programming language—was developed to produce Ethereum. In January 2014, Ethereum was unveiled at the North American Bitcoin Conference.</p> <p>*On July 30, 2015, Frontier formally launched the Ethereum platform, and Ethereum produced its first block.</p> <p>*In March 2017, a group of blockchain startups, academics, and companies unveiled the Enterprise Ethereum Alliance.</p> <p>*Ether was the second-largest cryptocurrency in January 2018 behind bitcoin. [15]</p>

Tether	Craig Sellars, Brock Pierce.	Adobe Lightroom	Travala.com, STAX, Snel.com, Alternative airlines, Kiklabb, Time, Paxful, Vertis avitation, Coinsbee [18]	*Tether began trading on the platform of the crypto exchange Bitfinex in January 2015. *The number of tethers in circulation increased from roughly \$10 million to about \$2.8 billion between January 2017 and September 2018. *Tether overtook bitcoin in 2019 as the cryptocurrency with the biggest weekly and monthly trading volume. [17]
Binance Coin	Changpeng Zhao	Horizon Software	Overstock, Paypal, Microsoft, AT&T, Starbucks, Travala. [20]	*With a market value of \$1.3 million, Binance was the biggest cryptocurrency exchange in January 2018. *Through August 2018, Binance funded \$32 million for a stablecoin initiative alongside three other major exchanges. *The Malta Financial Services Authority (MFSA) announced publicly that Binance is a cryptocurrency firm "based in Malta" on February 21, 2020. *On June 13, 2022, Binance made the announcement that customers will no longer be able to take out their Bitcoin holdings. [19]
Ripple XRP	Arthur Britto, David Schwartz, Ryan Fugger	Ripple's open-source blockchain platform	Cuallix, SBI holdings, Euro Exim bank, Money gram, Western Union, Transpaygo, Viamericas. [22]	*In order to offer safe payment choices, the financial service ripple was introduced in 2005. *In 2018, more than 100 banks had signed up, although the majority of them only used Ripple's XCurrent messaging technology and shunned XRP. *The protocol was able to enter the US banking institutions in 2014, raising worries about security and a lack of oversight. [21]

3. Conclusion and Future Enhancement

Even though cryptocurrency is an interesting and efficient digital technology, it still remains as a financial experiment. However, due to various security and privacy issues, several countries have completely banned cryptocurrencies. It is a risky yet extremely worthwhile investment. Cryptocurrencies will be used more often if they have the required trustworthiness. In this article, the types, advantages, and disadvantages of cryptocurrencies are discussed. Understanding the prices of the various cryptocurrencies used in this study explains why so many businesses use or accept them.

The world will be divided when it comes to cryptocurrencies. Bill Gates, Al Gore, and Richard Branson are among those who believe cryptocurrencies are superior to traditional currencies. On the other hand, those who oppose it include Warren Buffet, Paul Krugman, and Robert Shiller. In the future, there will be conflict between regulations and confidentiality. Since a number of cryptocurrencies have been linked to terrorist activities, the government may wish to regulate their use. The world will begin to accept cryptocurrencies as a form of payment when they account for 25% of international currencies by the year 2030. It will be more widely recognized by businesses and customers, and because of its volatility, prices will continue to fluctuate as they have in previous years.

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