

ABSTRACT

This work aims to enhance and tried to analyze and predict the price of a Bitcoin by taking some parameters into consideration. After a huge research taking all the parameters which affect the bitcoin value and identified daily changes in the bitcoin market. In this work all the data consists of different features over the past few year's daily records. This project is started by gaining all the information that all are needed to predict the bitcoin price. All the information was collected from the past few years and implemented the data into this project. In this work Support Vector Machine (SVM) algorithm is used as it gives much more accuracy better than previous algorithms. This study predicts sign of change in the price of bitcoin to the investors so that they can invest in this easily and also for the new-comers to this market or business.

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CHAPTER 1

INTRODUCTION

1.1 What Is Bitcoin?

Bitcoin is an open-source, peer-to-peer digital currency. Among many other things, what makes Bitcoin unique is that it is the world's first completely decentralized digital-payments system. This may sound complicated, but the underlying concepts are not difficult to understand. Crypto-currencies, such as Bitcoin, are one of the most controversial and complex technological innovations in today's financial system. From the past few years bitcoin is one of the trending in the market more than the stocks. The value of a bitcoin (or BTC) has grown and fluctuated greatly, from pennies in its early days to more than \$260 at its peak in April 2013. The current market capitalization of the bitcoin economy is estimated to be more than \$1 billion.



Fig 1.1 Bitcoin

1.2 Overview:

A cryptocurrency is a medium of exchange (currency) that is digital in form, non-governmental, and relies on cryptography for its security (Investopedia, 2018). It is the latter component of the definition that gives cryptocurrency its name. The vast majority of currency in the world comes in the form of exchangeable units that are issued and have their value controlled by governments. Nations will either allow their currency to float freely on the market, where the value derives in part from supply and demand, and is backed by the ability of that state to raise revenues. These are considered to be the strongest currencies. Other currencies have values that are fixed by the state – as a medium of exchange those official values may or may not reflect the ability of the state to raise funds, but the value is enforceable by law regardless.

The rapid development of digital currencies during the last decade is one of the most controversial and ambiguous innovations in the modern global economy. Rising technology changes the structure of economies, financial markets and payment methods. The world's financial markets have become more digital than ever before and cashless society is around the corner. Today's technology enables people to create their own money (digital cryptocurrency) and the functions of the central banks, as lenders of last resorts, are discussed and questioned. Bitcoin, as a financial phenomenon, as



Fig 1.2 Bitcoin Graph

well as other cryptocurrencies, are in fact data treated like money. Users (called “miners”) send and receive these cryptocurrencies (data) electronically from their computers in peer-to-peer network systems to pay for things, if other parties are willing to accept such payments. Market capitalization and the number of miners of 2957 crypto-currencies reached \$221 billion (Bitcoin \$147) and 42 million in 2019.

The price of Bitcoin has drastically increased from \$0.0008 to \$10,168 per single coin from being launched in January 2009 to February 2020. Hence, first and foremost, the Bitcoin and other cryptocurrencies have become extremely popular due to increasing number of their users and their huge gains. On the other hand, Bitcoin’s and other cryptocurrencies’ prices-series, similar to other financial assets-series, exhibit chaotic fluctuations. Because of asymmetric information problems in financial markets, increasing economic-political uncertainties and changing behaviors of miners may make the prices of cryptocurrencies not easily predictable for investors. Cryptocurrencies’ forecasting difficulties may well be higher than those of other conventional assets; although they are so popular for investors, very little is known about them, about how they work and how they are created (mined), since they are

not physical currencies. Accordingly, accurately forecasting their prices may minimize potential losses-risks for users.

This market is characterized by high volatility, no closed trading periods, relatively smaller capitalization, and high market data availability . The financial feasibility of the cryptocurrency market in relation to other markets has been documented and the algorithms upon which the cryptocurrencies operate have been validated in other fields as well . The cryptocurrency market seems to behave independently from the other financial markets , but there is a strongly influenced by Asian economies . Part of the appeal behind this market is that the technology used for mining cryptocurrency provides feasible alternative to more traditional markets such as gold . These characteristics have attracted a considerable amount of capital, however up to now there are few studies that have attempted to create profitable trading strategies in the cryptocurrency market. Another point of interest in the cryptocurrency market is the large-scale of available public sentiment data, particularly from social networks. This data can presumably be used to infer future human behavior, and therefore could be used to develop advantageous trading strategies as has been shown in recent attempts to detect speculative bubbles in the cryptocurrency market using sentiment analysis.

The complexity of the task can be attributed to the multiple factors and uncertainties that interact in the markets including economic and political conditions, as well as human behavior. Being able to consistently predict the market price movements is quite difficult, but not impossible. According to academic research, movements in the market prices are not random, but behave in a highly non-linear and dynamic way. Previous studies have also shown that it is not necessary to be able to foretell the exact value of the future price in order to make profit in financial predictions. In reality, predicting the market direction as compared to its value can result in higher profits

1.3 Applications:

Lower Transaction Costs Because there is no third-party intermediary, Bitcoin transactions are substantially cheaper and quicker than traditional payment networks. And because transactions are cheaper, Bitcoin makes micropayments and other innovations possible. Additionally, Bitcoin holds much promise as a way to lower transaction costs for small businesses and global remittances, alleviate global poverty by improving access to capital, protect individuals against capital controls and censorship, ensure financial privacy for oppressed groups, and spur innovation (within and on top of the Bitcoin protocol). On the other hand, Bitcoin's decentralized nature also presents opportunities for crime. The challenge, then, is to develop processes that diminish the opportunities for criminality while maintaining the benefits that Bitcoin can provide.

Since Bitcoin facilitates direct transactions without a third party, it removes costly charges that accompany credit card transactions. The Founders Fund, the venture capital fund headed by Peter Thiel of PayPal and Facebook fame, recently invested \$3 million in the payment-processing company BitPay because of the service's ability to lower the costs of doing online commerce across borders. In fact, small businesses have already started to accept bitcoin as a way to avoid the costs of doing business with credit card companies. Others have adopted the currency for its speed and efficiency in facilitating transactions. Bitcoin will likely continue to lower transaction costs for businesses that accept it as more people adopt the currency.

CHAPTER 2

LITERATURE SURVEY

2.1 Literature Review:

Bitcoin is currently a new technology and the world most expensive cryptocurrency thus there are some price prediction models available. Amjad et al. utilized the historical time series price data for price forecast and exchanging methodology [3] and Garcia et al. also appeared that the increments in opinion polarization and trade volume precede rising of Bitcoin prices [3]. Chen and Lazer [5] determined investment methodologies by observing and classifying the twitter feeds. Go et al. train the classifiers utilizing the dataset clarified by distant supervision and approve the classification performance [1]. Go et al. refer to the powerful paper by Pang et al. [8] where those analysts have set a standard for machine-learning based opinion analysis. Their approach is credited as one of the primary attempts at applying machine learning strategies to the issue of opinion analysis [10]. Some recent works focused on high-frequency trading and applying deep-learning techniques such as RNN for the prediction on time series data that have been tested dense, feed-forward networks as function model [10]. McNally [9] predicts the Bitcoin pricing process using machine learning techniques, such as recurrent neural networks (RNNs) and long short-term memory (LSTM) and compare results with those obtained using auto regressive integrated moving average (ARIMA) models. From [9] a comparison between multi-layer perceptron MLP and non-linear auto regressive exogenous (NARX) model is made. They conclude that MLP can also be used for stock market prediction even though it does not outperform the NARX model in price prediction. The authors made use of MATLAB's neural network toolbox to build and evaluate the performance of the network. Another paper [5] deals with daily time series data 10-minute and 10-second time-interval data. They have created three time-series data sets for 30 60 and 120 minutes followed by performing GLM/random forest on the datasets which produce three linear models. These three models are linearly combined