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Digital currency Market Prediction with Artificial Intelligence

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***Abstract*—This study explores completely about price analysis and predictions.AI is a popular application of machine learning and data science. Cryptocurrencies like bitcoin and Ethereum, have gained significant attention cryptocurrency market prices. The analysis focuses on the comparison of different AI algorithms, such as neural networks regression models, in predicting the prices of Bitcoin and Ethereum.The cryptocurrency prices highly volatile its wide range beyond historical data,such as market sentiment, news, social media data, on the accuracy of the predictions. The results show that AI algorithms can provide valuable insights for predicting cryptocurrency prices, and that combining multiple input features can improve it should be used in conjuction with other sources of information,the accuracy of the predictions.**

Keywords—Cryptocurrencies,Comparsion,Neuralnetwork,Regression,Ethereum,Conjuction,Volatile ,Insights.

1. INTRODUCTION

Cryptocurrency market price analysis using AI is a topic that involves applying artificial intelligence techniques, such as machine learning, neural networks, or natural language processing, to analyze the price movements and trends of various cryptocurrencies, such as Bitcoin, Ethereum, and the Ripple. AI can help traders and investors to make better decisions, optimize their strategies, and reduce risks in the volatile and complex crypto market. Which help to built a digital knowledge to invest in a right path for predicate the future which have a low loss rate and high profit rate for the investor and buyer. Here their were few steps for the detail information about the article and papers provided and mentioned below

- There are many articles and papers that provide an introduction to this topic. For example, you can check out these sources:
- Cryptocurrency Price Analysis with Artificial Intelligence[1], a paper that uses advanced artificial intelligence frameworks of fully connected Artificial Neural Network (ANN) and Long Short-Term Memory (LSTM) Recurrent Neural Network to analyse the price dynamics of Bitcoin, Etherum, and Ripple.
- How Artificial Intelligence is used in the cryptocurrency market?[2], a blog post that explains how AI can help with forecasting, trading, arbitrage, sentiment analysis, and regulation in the crypto market.

- Forecasting and trading cryptocurrencies with machine learning under different market conditions[3], a study that examines the predictability of three major cryptocurrencies—bitcoin, ethereum, and litecoin—and the profitability of trading strategies devised upon machine learning techniques (e.g., linear models, random forests, and support vector machines). . While an increasing number of people are making investments in Cryptocurrency, the majority of investors cannot get such profit for being inconsiderable to cryptocurrencies' dynamics and the critical factors that influence the trends of bitcoins. Therefore, raising people's awareness of vital factors can help us to be wise investors. Although market prediction is demanding for its complex nature the dynamics are predictable and understandable to some degree. For example, when there is a shortage of the bitcoin, its price will be increased by their sellers as investors who regard bitcoin as a profitable investment opportunity will have a strong desire to pay for bitcoin. Furthermore, the price of bitcoin may be easily influenced by some influential external factors such as political factors. 2 Although existing efforts on Cryptocurrency analysis and prediction is limited, a few studies have been aiming to understand the Cryptocurrency time series and build statistical models to reproduce and predict price dynamics. For example, Madan et al. collected bitcoins price with the time interval of 0.5, 1and 2 hours, and combined it with the blockchain network, the underlying technology of bitcoin. Their predictive model leveraging random forests and binomial logistic regression classifiers, and the precision of the model is around 55% in predicting bitcoin's price. Shah et al. used Bayesian regression and took advantages of high frequency (10-second) prices data of Bitcoin to improve investment strategy of bitcoin . Their models had also achieved great success. In an Multi-Layer Perceptron (MLP) based prediction model was presented to forecast the next day price of bitcoin by using two sets of input: the first type of inputs: the opening, minimum, maximum and closing price and the second set of input, e to analyse and predict the trends of traditional financial markets especially the stock market however, predicting cryptocurrencies market prices is still at an early stage. Compared to these stock price prediction models, traditional time series methods are not very useful as cryptocurrencies are not precisely the same with stocks but can be deemed as a complementary good of existing currency system with sharp fluctuations features. Therefore, it is urgently needed to understand the dynamics of cryptocurrencies better and establish a suitable predictive modelling framework. In this study, we hypothesis that time series of cryptocurrencies exhibits a clear internal memory, which could be used to help the memorybased time series model to works more appropriately if the length of internal memory could be quantified. We aim to use two artificial intelligence modelling frameworks to understand and predict the most popular cryptocurrencies price dynamics, including Bitcoin, Ethereum, and Ripple.

2.LITERATURE REVIEW

1. Using the Bitcoin Transaction Graph to Predict the Price of Bitcoin AUTHORS: Greaves, A., & Au, B. Bitcoin is the world's leading cryptocurrency, allowing users to make transactions securely and anonymously over the Internet. In recent years, The Bitcoin the ecosystem has gained the attention of consumers, businesses, investors and speculators alike. While there has been significant research done to analyze the network topology of the Bitcoin network, limited research has been performed to analyze the network's influence on overall Bitcoin price. In this paper, we investigate the predictive power of blockchain network-based features on the future price of Bitcoin. As a result of blockchain-network based feature engineering and machine learning optimization, we obtain up-down Bitcoin price movement classification accuracy of roughly 55%. 2. Cryptocurrency Value Formation: An Empirical Analysis Leading to a Cost of Production Model for Valuing Bitcoin AUTHORS: Hayes, A. S. This paper aims to identify the likely source(s) of value that cryptocurrencies exhibit in the marketplace using cross sectional empirical data examining 66 of the most used such 'coins'. A regression model was estimated that points to three main drivers of cryptocurrency value: the difficulty in 'mining 'for coins; the rate of unit production; and the cryptographic algorithm employed. These amount to relative differences in the cost of production of one coin over another at the margin, holding all else equal. Bitcoin-denominated relative prices were used, avoiding much of the price volatility associated with the dollar exchange rate. The resulting regression model can be used to better understand the drivers of relative value observed in the emergent area of cryptocurrencies. 3. Economic prediction

using neural networks: the case of IBM daily stock returns AUTHORS: H. White A report is presented of some results of an ongoing project using neural-network modeling and learning techniques to search for and decode nonlinear regularities in asset price movements. The author focuses on the case of IBM common stock daily returns. Having to deal with the salient features of economic data highlights the role to be played by statistical inference and requires modifications to standard learning techniques which may prove useful in other contexts. 4 4. Designing a neural network for forecasting financial and economic time serie

3.METHODOLOGY

Mechanism of ConvNet

Firstly we need to understand the CNN classfication model, how it is training the dataset and giving the prediction of market price.

Steps Required:

STEP1: The first step to this project is to collect reliable data for training our deep learning model and we have preferred data that is provided in Django data science web site.

STEP2: Preprocessing the acquired data for preventing future run time exceptions while training the model.

STEP3: Divide the data into training and testing part. Now augmentation of data has to done to increase the size of the training data as the obtained data from Django is not enough for training the deep network model.

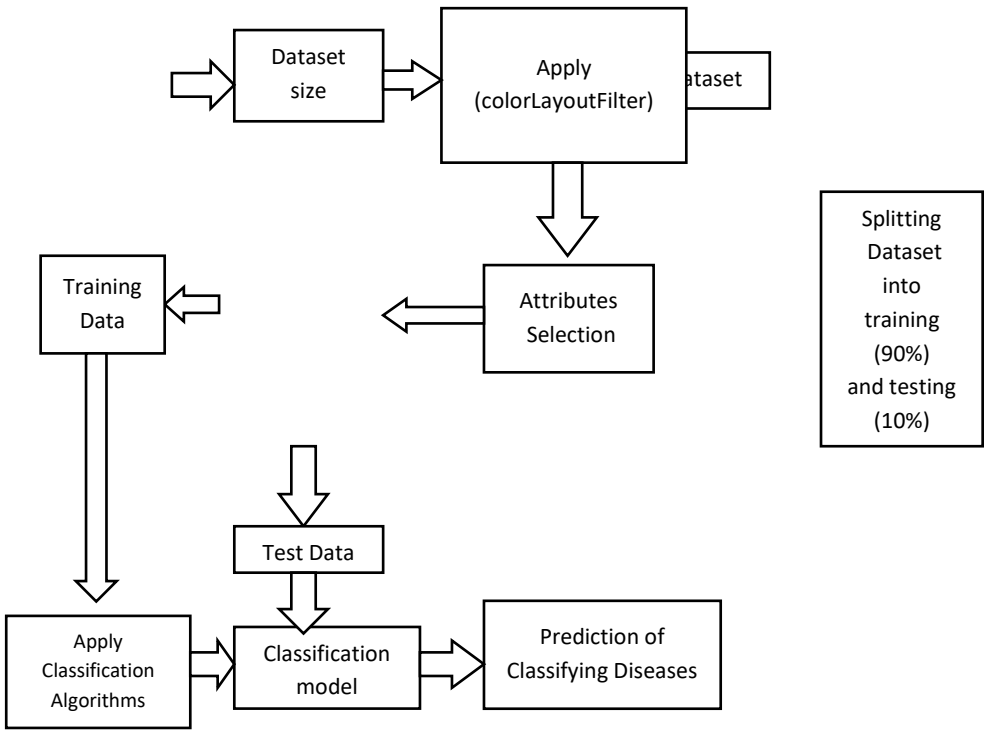
STEP4: Prepare a convolutional model to predict the required outputs. As this application is meant for commodity level devices, we preferred Mobile Net model to train on our dataset.

STEP5: Train the model and valuate it on the validation set and finally evaluate the model based on the learning curves obtained during training.

STEP6: Convert this model in TensorFlow is model to deploy it into the web application.

STEP7: Now finally, develop a web application that can take input as pervious data probabilities using is model, we include in it.

Fig 1: System Architecture



A system architecture or systems architecture is the conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system is organized in a way that supports reasoning about the structures and behaviors of the system.

In the methodology of this project, we have the following two modules in it.

User Module

Using this module user will register with application login with valid username and password and upload image to website and load trained CNN model and preprocess input image and give input to model and get predicted the market price as result. User can search for agent and send request for appointment and get confirmation from admin. User can use chat bot option to search for queries and get results from queries.

Admin Module

Using this module admin will register with application and view requests received from user and accept request.

Chat bot Module:

Dataset:

Text file with questions and answers are used as dataset in this project. Digital currency price related queries with queries and answers are given in text file which is prepared by taking data from website. Data set can be increased by adding more records to the txt files.

Pre-processing:

In this step required chat bot libraries are initialized and text data is taken as input to NLP module and preprocessing is performed. Data set question and answers are stored in database. While application I executed preprocessing is performed.

Chat Bot Web APP:

Flask framework is used to develop chat bot application which has input option from user and question posted by user is processed and verified with the answer which is trained using NLP model and result is displayed to user based in input question.

Development Process:

ChatBot is a library in python which generates a response to user input. It used a number of machine learning algorithms to generates a variety of responses. It makes it easier for the user to make a chatbot using the chatbot library for more accurate responses. The design of the chatbot is such that it allows the bot to interact in many languages which include Spanish, German, English, and a lot of regional languages. The Machine Learning Algorithms also make it easier for the bot to improve on its own with the user input.

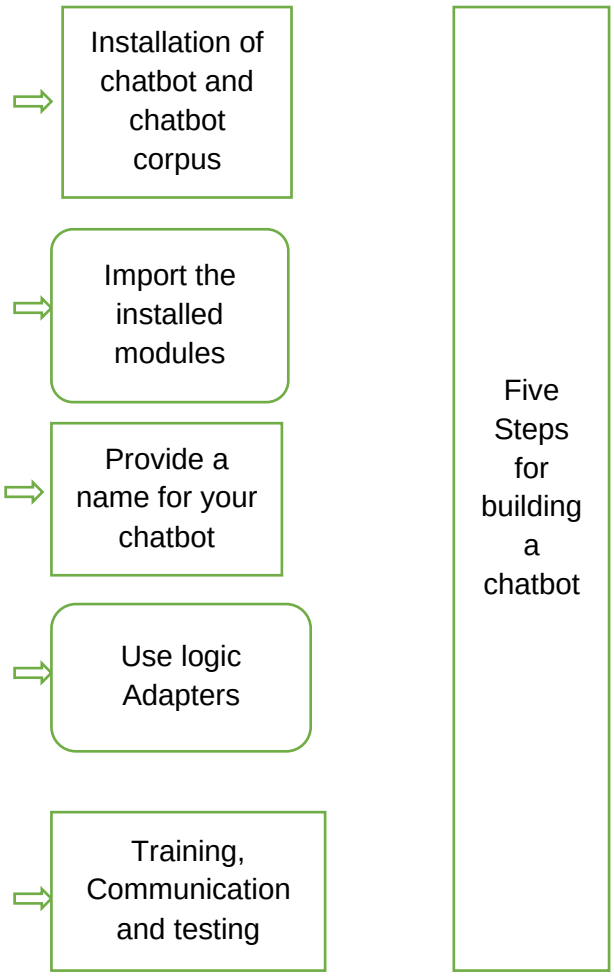


Fig 2: Building a chatbot

3. RESULTS

Initially, the user login the website. To optimises, we apply some image processing method by removing the background. The result is based on a pre-trained CNN model. The image is fed into our model and predicted market valuetype is generated as a result as in the figure

Fig 3: Market Price Prediction

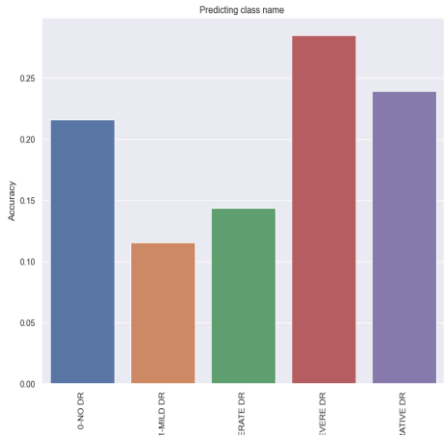


Fig 2: Accuracy

The graph shows the accuracy of the different of the market price prediction. The proposed system is able to classify the different types of price analysis with accuracy of about 90%.
The system consist ofChatbot where user can can get answers to the market prediction related queries. Thesystem also consistsof admin module where users can register appointment in the nearby location.

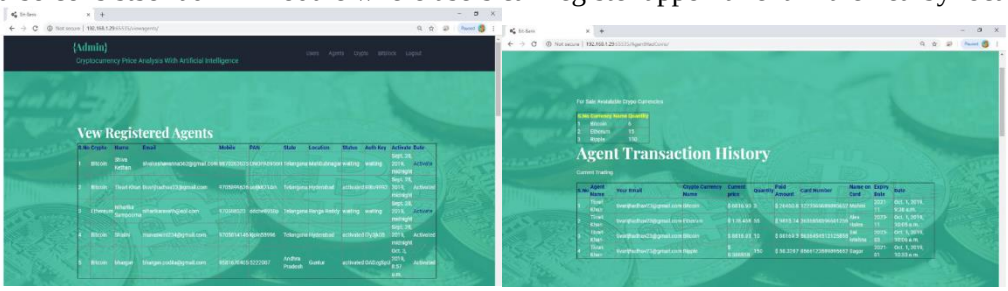


Fig 5: Chatbot

4. CONCLUSION

In this project, we design to make an easy interaction portal for digital market prediction with user friendly along with chat bot application. It can be used to help people from all over the world and can be used in doing some productive work. The tools used are free to use and are available for the user, hence, the system can be deployed free of cost. The application developed is light-weight and can be used in machines with low system specifications. It has also a simple user interface for the convenience of the user. The image processing and machine learning algorithms were successfully implemented.

The convolutional neural network-based system was implemented to classify the market prediction present in the input(either from a dataset or Webcam).. The proposed system with accuracy of about 90%.

5.ACKNOWLEDGEMENTS

Digital price prediction system using ConvNet will have a lot of uses in the future. It is estimated that 90% of the search fields will be enabled with this system. It helps to predict the value digital without any intermediate and help for the better communication. Even from the agent we can get the suggestions and help.

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