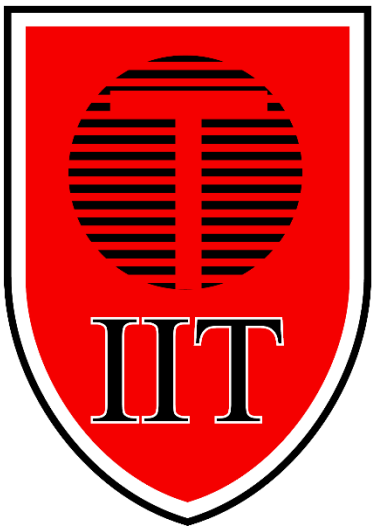

INFORMATICS INSTITUTE OF TECHNOLOGY

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Cryptocurrency Price Prediction System Using Twitter Sentiment Analysis

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Abstract

In the modern world online transaction has been very popular and common among people all around the globe since it is very fast, efficient and saves people's valuable time as they do not have to physically be anywhere to purchase the item that they want or desire. Since cryptocurrency has become well known and popular recently people are more inclined to use cryptocurrency over actual money since transactions are encrypted and safe from anyone who may try to steal sensitive information.

In time cryptocurrencies may well be commonly used by anyone around the world for fast transactions and would become part of the evolution of electronic trading. Therefore, cryptocurrency price fluctuation prediction could be very important for the people that currently already uses cryptocurrency or people who are willing to turn towards cryptocurrency because of all of the possible benefits that it may come with since very little research has been conducted on methods proposed to predict cryptocurrency price fluctuations.

There are many ways to come about predicting cryptocurrency price fluctuations but this research focuses on predicting cryptocurrency prices using Twitter sentiment analysis to analyze the sentiment of tweets from people around the world who share their thoughts on the current cryptocurrency value in the market and their opinion towards it and by using historical cryptocurrency price data to achieve a more accurate prediction result. There has only been done a handful of researches on this topic.

This thesis looks toward these public observations, by examining cryptocurrency related tweets for sentiment changes and historical cryptocurrency price data that could show a price change in the future. This is achieved by a technique for exclusively crediting the rise or fall dependent on the seriousness of the collected Twitter sentiment change over periods extending between maybe an hour to five hours, and after that shifting these predictions forward in time in separate timespans to show the relating cryptocurrency time intervals of these sentiment changes.

The prediction model assessment demonstrated that accumulating tweet sentiments over a half an hour period with four shifts forward, and a sentiment change brink of about 3%, yielded a 70% certainty.

Keywords: Natural Language Processing, Cryptocurrency, Price Prediction, Timeseries, Sentiment Analysis, Transaction, Twitter, Machine Learning