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An Analysis of Election Prediction Base on Various Machine Learning Model

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ABSTRACT

Today social media network has provided a huge user generated contents for research and analysis of any government policy, products, organization and any topics. Social media groups have many correlated users for sharing information. Research on these data will provide benefit to individuals, groups, organizations or parties. Election campaigning and outcomes has also been affected by it. Today social news can became agenda of election also. Political parties will uses SMN as a tool for election campaigning. As elections main concentration are youth, and mostly youth are on social network, election outcome will also be predicted by performing research and analysis on this.Worldwide election prediction can be performed by using various techniques like sentiment analysis, machine learning, deep learning etc. This paper present review of various researches performed on social media election prediction.

Keyword: Social media computing, Sentiment analysis, Machine learning, Opinion mining, prediction, classification.

Introduction

Election outcome prediction is a task performed not only for getting poll prediction but it is also important for making decision and policies for winning an election also. Now days, in whole world it is very important for a party to win an election that party should be connected with more and more peoples. SMN (Social Media Network) is a good source for developing network or group of peoples. These SMN will provide huge election related data. Users of SMNs are able to perform many operations like sharing, posts, like, tweet, retweets contents, posting comments or thoughts. That generates huge amount of user generated data. By analyzing this data a forecasting system can be developed for winning or loosing of election for a particular candidate or party.

Physical opinion poll about a candidate or party has constraint like survey conduction, cost, man power, accuracy, time etc. This can be overcome with opinion forecasting on SMN generated contents. It is cost effective and more accurate.Social media is a large source for user-generated content [1]. Social networking applications and their usage are increased very much [3]. UGC User Generated Content are rapidly produced by social media users in terms of their activities and opinions [4], which are available for research and analysis. Due to popularity of social groups and SMN political parties have forced to make them as compulsory part of election campaigning [2]. Even candidates of party can be decided by their social followers. Party will have an easy tool to share its ideology and policies to peoples easily.Leaders can decide their speech on the basis of filtered group of social media networks. Any information will make a trail from one user to another, and it will go and travel to many users and group for this. Twitter is a very common SMN. Research on twitter is available but work with multiple social media platforms is not available. Main aim of this paper is to represent work of election forecasting carried out on social media. Moreover, it also finds issues and challenges that need to be overcome.

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Literature Review

Research has suggested following data sources for election related data[17]:

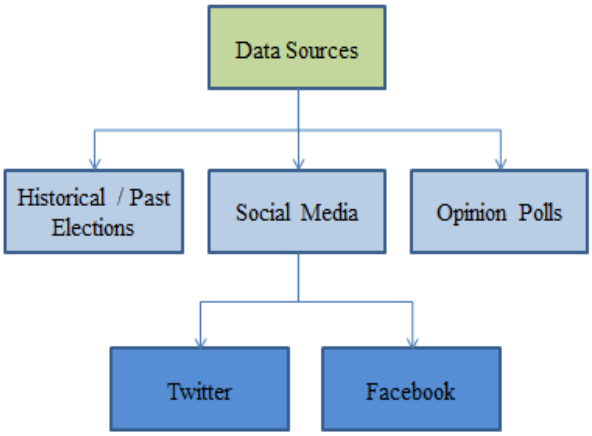

Fig 1: Election prediction data sources [17].

They [17] had also given some view about methods of election prediction:

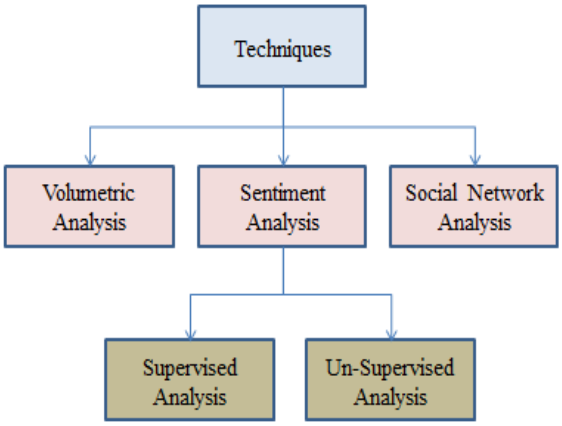

Fig 2: Election prediction methods [17]

The 2015 Finnish parliamentary election outcome has been predicted with degree of Facebook likes in [8]. Author found it very less accurate as compare to traditional poll result.The 2017 Punjab state election India has been predicted by [9]. Authors have used method to predict no of seats won by using polarity analysis. Marco et al [10] had applied multinomial naïve bayes model for classifying supportive, non-supportive or uncertain tweets. The author [11] has used Twitter Archiverfor tweets in Hindi language. They have predicted general state elections in 2016 by both supervised and unsupervised approaches. They utilized Dictionary Based, Naive Bayes and SVM. SVM provides78.4% accuracy.IOM-NN (Iterative Opinion Mining using Neural Networks)[12], have developed an incremental procedure based on neural networks for analyzing the posts published by social media users. Khatua et al [13] have predicted 2014 general assembly election. They had uses a model based on multinomial logit regression. Author in [15] had used NB classifier on twitter dataset for opinion mining. They have less accuracy because tweets of party members are included.Khan et al. [16] uses semantic analysis for finding strong supporter's network. They had removed fake supporter and applied SVM. It has two class classifications.

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Social Media Volumetric Components

Following are social media volumetric components:

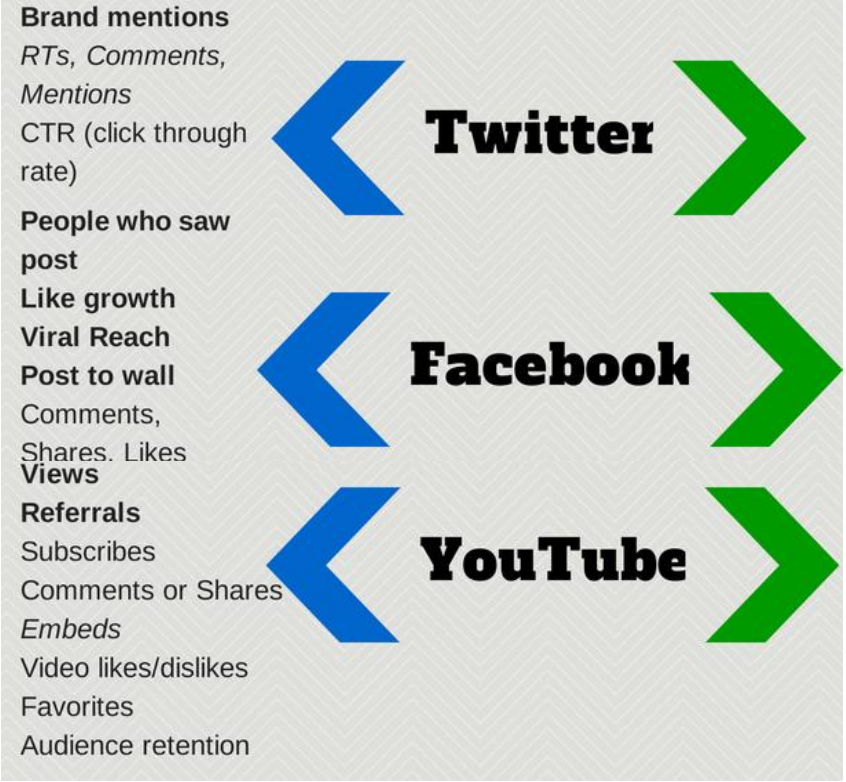

Fig 3: Social Media Volumetric Components [5]

Comparative study of some existing research is as follows:

Author	**Method Used**	**Dataset**	**Accuracy**
[11]	Dictionary Based, Naive Bayes and SVM	twitter	SVM (78.4%)
[12]	Neural Network with opinion mining	Twitter	94%
[17]	*KPI volumetric*	Facebook	NA
[18]	Social network analysistechniques ML, Partition clustering	Twitter	79.17%
[19]	Bag of wordsCrowdsourcingtechnique: web of trust(WOT)	Facebbok	84.13%
[20]	Fuzzy SVM	Facebook	88.2%
[21]	ML andtext mining techniques	Twitter	87%
[22]	NB and DT	Twitter	77%

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From the survey comparison of accuracy is shown below:

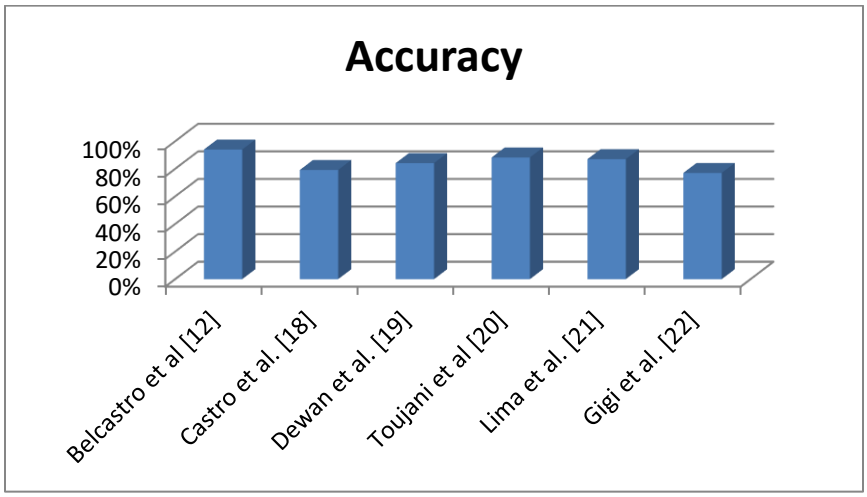

Fig 4: Comparative Accuracy chart

Conclusion

In literature mostly work has been done on twitter and with sentiment analysis. But it is important to include all social media indicators into the account and also use an efficient method for sentiment analysis. Many user are using facebook, instagram etc. Youtube also have huge network of users. So combining contents from these can make a difference in prediction. This research can also be found useful for other decision making activity like recommendation systems, pattern analysis, brand popularity etc.

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