An Algorithm for Mobile Computing Opinion Mining In Multilingual Forms By Voice and Text Processing

Nayan S. Patel*[1], Dr.Dipti B.Shah[2]

[1] Assistant Professor at M.Sc. (Information Technology) , B.N.Patel Institute of Paramedical And Science, [1]Sardar Patel University, Anand, Gujarat, India

[2] Director and Professor at G.H.Patel Post Graduate Department Of Computer Science & Technology, Sardar Patel University, V.V.Nagar, Gujarat, India

ABSTRACT

Human behaviour always keep concern what other's people think about on specific subject like any product, any political party, any scheme of government etc. it might be important in various decision making process. In the era of 4G/5G internet technology and high use of electronic devices, it is easy to express individual feelings over the cloud or World Wide Web. Due to high amount of unstructured information over the internet, it is very challenging for an individual to take correct decision in concern subject or domain. Opinion mining on internet is helpful to both the party i.e. domain user and domain or service provider. In opinion mining user can get the knowledge or idea of given domain review. On other side service provider can get proper analysis on given review and can get the feedback from general public. If review is negative then service provider may try to remove bottlenecks in a given domain and develop their functionality. In this paper a model of opinion mining using mobile computing is proposed and implemented. It takes opinion in multilingual form and mines the sentence level opinion and tells whether opinion is positive, negative or neutral.

Keywords: Opinion Mining, Supervised, Mobile Computing, Polarity, Sentiment, NLP

I. INTRODUCTION

There are about 650 million mobile phone users in India, and just over 300 million of them have a Smartphone, according to technology consultancy Counterpoint Research. Due to Very rapid advent of information technology recently the worlds becomes our close society. This phenomenon is due to the fact that nowadays people are more likely to share their emotions and opinions toward various topics. Thus, the amount of information on web sites that reflects the user's opinion has seen a remarkable growth in size. Hence people want a system that can identify and retrieve public opinions on their demand [1].

There are many Opinions are available on World Wide Web on different domain. For example I am want to buy a Laptop then I may go for the different opinions written on various E-Commerce web sites and refer that opinions of the users who already use it and then take a decision whether I have to buy that particular laptop or not[2].

There is a wide scope in given research may be classified in long term and short term research. Presently many researches had carried out on data mining, web mining, web analytics have become really high up. For any business sector to stay active, it has become necessary to make judicious decisions based on a tremendous amount of data from ample of sources. But the quantity and quality of data available from web sources such as blogs, social media and discussion forums are copious with sentiments, opinions therefore; current research is directed towards Opinion Mining. [3]

In our routine life very often for specific help or solution we go with what others people did or react in similar type of situation? But for this solution while user can searching from internet then person might be confused because there are lots of unstructured information is exist. Might be information is not available in summary form and finally that data is no longer use by actual user. Many a time user are not able to give their opinion due to illiteracy in English because many a time it might be possible that person can communicate only in his or her local language only. In this article the proposed work will try to remove given types of problems and implement mobile computing multilingual opinion mining algorithm.

II. Opinion Classification

In opinion mining, review is to be determined at three Levels [4]. These are:

[A] Document level classification.

[B] Sentence level classification.

[C] Aspect level classification

In document level classification all the words of document is mined and polarity is check whether document   is positive , negative or neutral. This works best when the document is written by single person or opinion holder or opinion is about single entity.

In Sentence level classification this process involves two steps:

Subjective classification in to one of two classes as objective and subjective

Sentiment classification of subjective sentence into three classes as positive, negative and neutral. Subjective sentence signifies personal feelings, sights, emotions or belief. Just knowing that sentence is positive or negative is not enough as subjective sentence may contain multiple opinions. So, this is an intermediate step that helps filter out sentences with no opinion [4].

In Aspect/Feature level classification it executes finer-grained analysis. Instead of looking at constructs like sentence or document or clause, aspect level looks at the opinion straight. It is based on idea that reviews consists of sentiments as (positive/negative) and Target. Without target opinion is of limited use. So, recognizing the importance of target in an opinion helps us to comprehend sentiment analysis better. [4]

III. Opinion Mining Model

Figure 1: Opinion mining Model

In this article Proposed opinion mining technique is implemented in which opinion mining using mobile computing is proposed and implemented. It takes opinion in multilingual form and mines the sentence level opinion and tells whether opinion is positive, negative or neutral. opinions is collected from general public with the help of people's smart phone either by voice or text input. It is to be processed with the word dictionary available in SQL tools. Web API and web service is constantly making connection with cloud that generates result for reviewer. This technique is very helpful for give summary to user from large information about particular topics and also user can submit opinion in local languages.

IV. Mobile Computing OM Algorithm and Implementation Using Supervised Term Rank Based Approach

Naive Bysian algorithm provides three methodologies among them one is machine learning algorithm for NLP are implemented, but it is base on bunch of mathematical formulas. Second one is semantic analysis pattern based in which relationship between the strings of the sentence are search so that it is been complex in implementation. Last one is the term counting based [5] in which the frequency of positive and frequency of negative words are extracted from the statement and if frequency of positive words are greater than frequency of negative

Words opinion is positive and vice versa [1].

Here we proposed model to implement opinion mining supervised term Rank based algorithm in which the words are given rank according to weight of the words, if corresponding words are found then rank will assigned to that word , which is retrieved from available dictionary. It means that how many words from the sentence belong to available knowledge dictionary and then overall rank is generated by combining of all words. So, steps for that are given in figure 2.
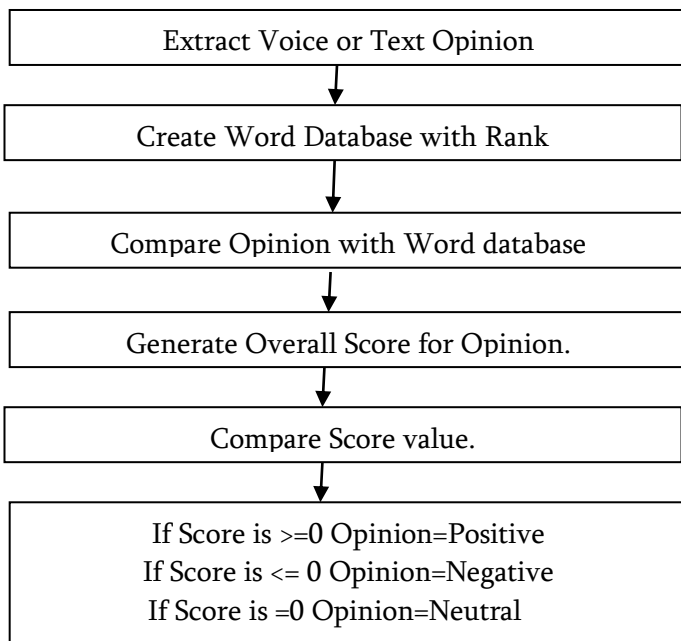
Extract Voice or Text Opinion

Create Word Database with Rank

Compare Opinion with Word database

Generate Overall Score for Opinion.

Compare Score value.

If Score is >=0 Opinion=Positive
If Score is <= 0 Opinion=Negative
If Score is =0 Opinion=Neutral

Figure 2: Mobile Computing OM Algorithm

In given Opinion Mining system opinions or reviews from general public are collected through mobile devices either by text input or by voice input in English, Guajarati, Hindi and Marathi languages.

Create knowledge dictionary i.e. word of database with specific rank according to natural language.

For example

Word is excellent rank=1, Very Excellent rank=+1 Bad=-1, very bad=-2 etc. Compare each word of sentence as per the rank given in knowledge dictionary i.e. Word database.

Generate accumulative score as per the comparisons of different words.

If generated score value is greater than equal to zero opinion is positive. Else if generated score value is less than equal to zero opinion is negative. Else if generated score value is equal to zero opinion is neutral. Let us understand given algorithm with two different examples.

Example: 1

PMKSY scheme is helpful for all the farmers.

Knowledge Extraction	Rank
helpful	+1
Overall Rank =1	
Polarity=Positive	

Example: 2

PMKSY scheme is very effective and helpful but it is little costly.

Knowledge Extraction	Rank
very effective	+2
effective	+1
helpful	+1
little	-1
costly	-1
Total Positive =+4	
Total Negative=-2	
Overall Rank==2	
Polarity=Positive	

V. Experimental Demonstration

Database of Opinion Statements

Figure 3: Database of Opinion Statement

Word database

Figure 4: Knowledge Database

Implementation of Mobile Computing Opinion Mining

Figure 5 : Splash Screen **Figure 6 :** Mining Menu
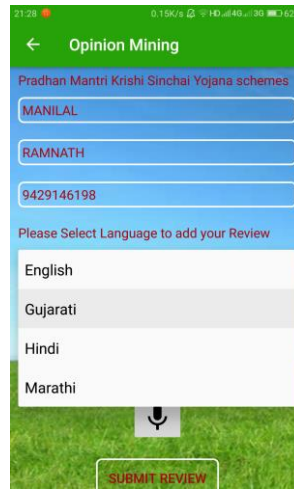

Figure 7

Multilingual Opinion
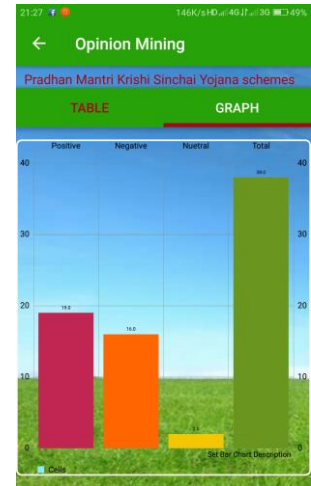
Figure 8

Opinion Submission
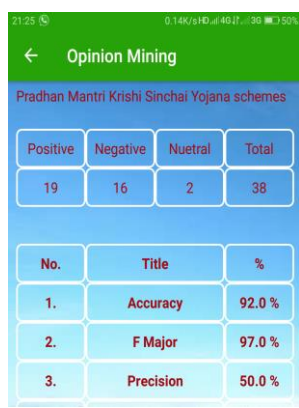

Figure 9

Opinion Result

Figure 10
Evaluation Parameters

VI. Research Applications

Given model have various applications. It is also very helpful for development of society, state, country and government. [2]

Following are major applications of given research.

✓ What general public think about government schemes?
✓ What is the public view about income tax policy?
✓ Why the rate of inflation has increase?
✓ Which social or E-Commerce websites are getting more popular among public?
✓ Who is a popular actor or actress among youth?
✓ Who is a strong candidate for the Parliament legislative or local election?

VII. CONCLUSION

Increasing use of smart phone, tablets with high speed internet connectivity peoples always concern what other people reviewed on different topics like government policies, income tax rate, inflation rate and opinions of various products or services etc. agriculture is a backbone of Indian economy. Two third of Indian population is working in farming profession. Since independent our past governments already launched plenty of agriculture schemes as well as budget for better development of farmers but still farmers are waiting for development at economical, social and physical level. Our given research is helpful to government to know what farmers are exactly want. And farmers also express their requirements. It is one effort for peoples of farming profession to improve their standard of living by increasing the advantages of various government schemes with help of digital India mission.

VIII. REFERENCES

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