

**PSYCHOLOGICAL DISORDER DETECTION USING NLP AND VOICE
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Abstract — Mental disorder leads to difficulties in occupational, educational, social and marital relations. This study objective to assess the prevalence and nature of mental disorders by attending the physicians. Failure to detect mental disorder denies patients effective treatment. So the most important objective of our projects is to analyses the symptoms of individuals and applies each permutation to the situation to detect the disordered people. In our project, the input will be given in the form of speech. The speech will be converted to text using Google API. Then by applying NLP to text, sentiment analysis will do using BDI questions from the person will be asked. The result generated will be stored. From that response whether the person is normal or in depressed state is find out. If the result generated are negative that is the person is found in depresses state, then we will suggest that person some measures to come out that state. The measure suggested can be like visiting a physician, doing exercise or doing things of interest.

Keywords - Beck Depression Inventory (BDI), Natural Language Processing(NLP), Depression, Machine Learning.

I.INTRODUCTION

Speech is most commonly used form of communication between humans. There are various spoken languages which are used throughout the world. The communication among the human being is mostly done by though the voice, therefore it is natural for people to expect speech interfaces with computer. Emotion is the one type of affect, other type of being mood, temperament and sensation. It have been widely studied in psychology and in behaviour sciences, as they are an very important element of human behavior. Now a days they have also attracted the attention of researchers of computer science, especially in the field of human computer interactions. Advancement in textual analysis have allowed the field of emotion detection to become a recent interest in computational linguistic. Emotion detection is the newer best technology of textual analysis and therefore, has weaker standard methods. Emotion can be conveyed as happiness, sadness, anger, disgust, fear, surprise and so forth. While board topic of emotion has been studied in psychology for decades, very small effort has been spent on attempting to detect emotion from text. In this work, we assume that emotion reaction of an input sentence is essentially represented by its word appearance.

Natural Language Processing (NLP): Natural Language is an approach of research and application that explores how computers can be used to understand and alter natural language text or speech to do useful things. It researchers try to collect knowledge on how human beings understand and use language so that particular tools and techniques can be developed to make computer systems understand and alter natural languages to perform the given work. The foundations lie in a number of rules, viz. computer and information sciences, linguistics, mathematics, electrical and electronic engineering, artificial intelligence and robotics, psychology, etc. Applications include a number of area of studies, such as machine translation, natural language text processing, user interfaces, multilingual and cross language information retrieval, speech recognition, artificial intelligence and expert systems, and so on.

Machine Learning Approaches:

Supervised Learning: Is the machine learning task of inferring a function from labeled training data. The training data consist of a set of training examples. In supervised learning, each example is a pair consisting of an input object and a desired output value. So In this system we provides the trained data sets in the form of emotions so that system will find the proper mental condition of the user.

Unsupervised Learning:

It is a type of machine learning. In unsupervised learning there is no any trained data set to compare with. It is without labeled training data. In unsupervised Learning we cannot predict on output for that we apply multiple algorithm to get output.

II.EXISTING SYSTEM

In BDI (Beck Depression Inventory) the question is in the form of multiple choices. In that system person will select only one option from the given four options. From the user answers, system find out the mental state of the person that is, the person is in depress state or not. BDI has become one of the most widely used instrument for accessing the intensity of depression in psychiatric diagnose patient and for detecting possible depression in normal population. The user can not give his own answer. He has limited Option i.e. in the form multiple choice which is given by the system to the user. User only selects the option among them so system cannot find the proper mental state of the user.

III.PROPOSED SYSTEM

In this project the user will give the answer of question in the form of speech. This speech is converted into text using Google API. Then by applying NLP to text, sentiment analysis will do using BDI questions. The question is present on system the person answer that question this answer is store in the system. Using Google API this speech is converted into text. According that answer the person is in depression or normal state is show.

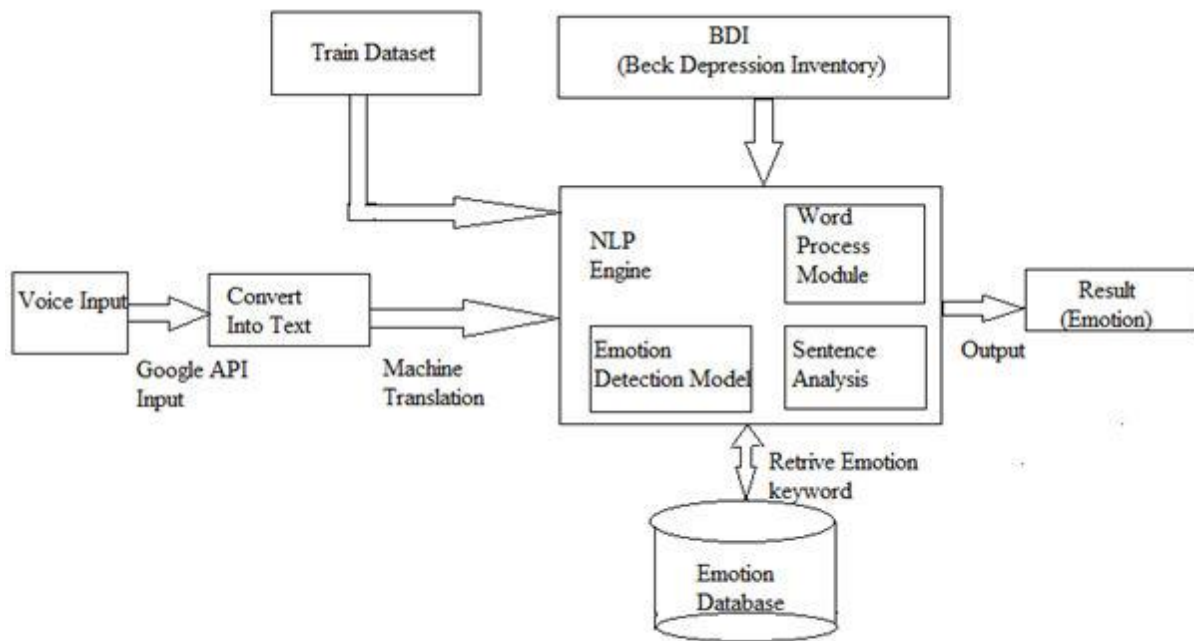


Fig. System Architecture

Word Process Module:

The Word-processing module consists of tokenization, Parts-of-speech tagging, negative sentence extracting, and searching keywords from positive sentence. This enables us to find emotion bearing words from a given sentence. [3]

Emotion Detection Module:

Emotion detection methodologies use the concepts and algorithm that are created for subjectivity and sentiment analysis.

Sentence Analysis:

In this sentence analysis module, our aim is to detect emotion from a sentence where there is no emotional keyword in the sentence. For this purpose, we analyzed different categories of sentence.

BDI:

BDI stands for Beck Depression Inventory. The Beck Depression Inventory (BDI) is a self-report questionnaire consisting of 21 question items, has been the most extensively used for depression assessment.

Train Dataset:

Training dataset is an important part of machine learning. After processing module using training dataset you test the model by making prediction against test set it is easy to determine whether the models guesses are correct.

Emotion Database:

Emotion database can store the emotion keyword which is used for train dataset by comparing the keyword for finding the emotion.

IV.ALGORITHM

Algorithm is step by step processed design to perform the procedure

Input: Sentence(input text)

Output: Emotion (positive=1,negative=-1,neutral=0)

Step 1: For each token in the document.

Step 2: Check If (word is present in the list) Then Retrieve polarity (POL)
and go to Step 4

Step 3: If (no polarity assigned to word)
Then fetch next token and go to Step 2

Step 4: word POL= (POL);

End For Loop and go to Step 6 when all tokens are processed.

Step 5: Adding the polarities values of the entire tokens.

Step 6: If (doc POL > zero)

Then

label the document as positive

Else If (doc POL<zero)

Then

label the document as negative

Else

classify the document as neutral

Step:7 stop.

V.RESULT SET

There some of our system which will show all output in our system. The result show in the form of emoji.

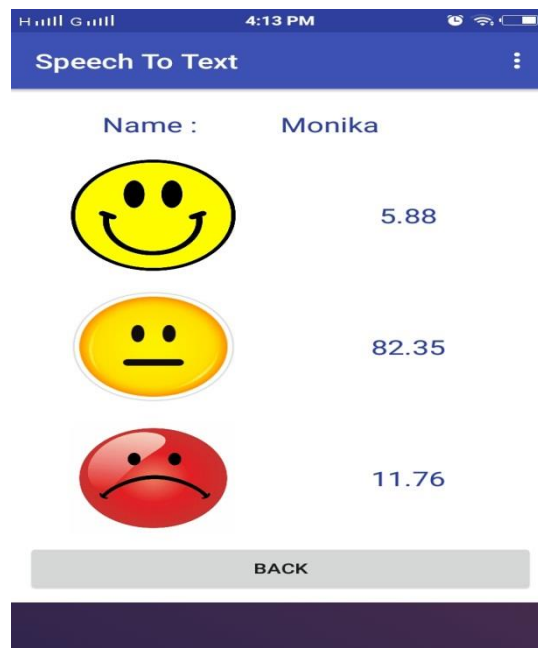


Fig. Final output

VI.CONCLUSION

In our project we detect emotion from text input. Experiments proved that human motion was deeply depended on the content word of the sentence. As we know, it is still difficult to do the semantic parsing with machine learning method. Never the less, some part of the semantic information and emotional keywords such as exclamatory keywords & direct

emotional keywords have been work out in the system. The result shows that we have got relatively good results for emotion detection from text input.

VII. REFERENCES

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