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CONTENT ANALYSIS OF MESSAGES IN SOCIAL NETWORKS IDENTIFICATION OF SUICIDAL TYPES

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ABSTRACT:

Suicidal Tendency or the intension to kill oneself or end one's life is a catastrophic situation which is mostly unknown by any person in the victim's life. Suicide has been an intractable public health problem despite advances in the diagnosis and treatment of major mental disorders. In many studies it is clearly evident that, victims tend to kill themselves either to end their pain or pressure or to have a sense of relief that they are not going to live in this world anymore. This project aims to propose a method that helps the family, friends or the close ones of the victim to immediately detect if the person has already started feeling the sense of depression. The main aim is to find a strong co-relation between components in the subsystem and compare the accuracies to build an alarming system. "Better late than never" the victim can be saved by the proposed method and immediate treatment can be started. Unlike the existing systems, this project aims to detect the suicidal tendencies in multiple aspects instead of focusing on a single perspective.

INTRODUCTION

This project aims to focus on the people who have an intension to kill themselves. In this consequence, multi-faceted method that can detect this tendency and intimate the family, friends or the close ones beforehand can prove to be a boon for the invention. This project tends to consider an electronic device particularly a mobile (as used by most of them) is the key element. This device is used to capture different elements like facial gestures, speech recognition and many more. A trivial concept of incorporating different aspects like: Facial Gestures, Voice Recognition and Messaging Patterns follow the bandwagon along with the technical biproducts of the project. Facial gestures include unhappy expressions like sad, dull, tired; voice patterns include low voices that sound dull are easy to

recognize that someone is unhappy; Texting patterns include unusual texting patterns that indicate lack of interest in doing activities.

- The objective of this system is that it is capable of detecting suicidal tendency in a specific person. Unlike other existing system this system can ensure the ability to focus on different technical aspects rather than single one.
- The project aims to find co-relation between the three components present below.
- Facial Gesture Detection – Human Computer Interaction
- Speech Recognition – Natural Language Processing
- Messaging Patterns – Text Tokenization through NL

LITERATURE SURVEY

1) Suicidal Tendency Detection: This paper was written by the Department of Information and Communication Technologies, Universitat Pompeu Fabra, Barcelona, Spain and it was published by IEEE in the year 2019. They have used the Convolutional Neural Network (CNN) in this project to get an accuracy of 77%. The drawback of this approach was that they have used image based predictive models For detecting depression and suicide.

2) Performance Evaluation of Different Machine Learning Techniques using Twitter Data for Identification of Suicidal Intent: This paper was written by Anirudh Ramachandran, Akshara Gadwe, Dishank Poddar, Saurabh Satavalekar and Sunita Sahu and was published by IEEE in 2020 at the International Conference on Electronics and Sustainable Communication Systems (ICESC). Research and Evaluation based on online behavior have been conducted repeatedly. Using machine learning, this online trail of data that a person leaves behind can be used to gain insights on the behavior and psychological status. In this paper, different machine learning techniques have been used, studied and gauged their effectiveness for suicidal tendency detection to prove that Machine Learning Algorithms like Logistic Regression can correctly identify residing Suicidal Tendency of a Twitter user. They have used algorithms such as Linear Regression, Logistic Regression, Naive Bayes , Random Forest, GBDT, XGBoost, MLFFNN on the twitter dataset to achieve an accuracy of 76.3%.

The only drawback of this approach is that it uses logistic regression which is a long process for detection of suicides

3) DEPRESSION AND SUICIDAL TENDENCY IDENTIFICATION: This paper was written by Seung Young Ryu ,Hyeongrae Lee,Dong-Kyun Lee AND Kyeongwoon Park Department of Mental Health Research ,National Center for Mental Health, Seoul, Republic of Korea and was published on 30th December 2019. This approach uses the Random Forest algorithm to get an accuracy of 85%.

EXISTING SYSTEM

Since suicide is not a decision made up in a single day, many researches had been done in the past on various aspects. While some of them included how suicides occur and others concluded with some methodologies on how to detect suicidal intension. Distinct approaches using Human Computer Interaction, Natural Language Processing and using Convolutional Neural Networks were highly popular. But these systems possessed a drawback that, it was not practically possible to indicate a clear demarcation in only one aspect of implementation. In course of time, numerous approaches have been proposed with the advancement in the technology which is to perform text mining and sentiment analysis on social media platforms like reddit and twitter.

PROPOSED SYSTEM

This project aims to propose a system that is capable of detecting suicidal tendency using multiple approaches. Three technologies namely Human Computer Interaction, Natural Language Processing and voice pattern analysis are taken into consideration to perform a detailed execution. Later a correlation matrix is proposed to be implemented that is able to find strong or weak correlations between the above three components.

WORKING

The method proposed in this project first identifies the suicidal keywords, and then we use these keywords to extract tweets from Twitter using Twitter Streaming Application Programming Interface (API).After that we pre-process the data or extract features from the text document.Then SVM and Decision Tree with three types of weight optimizers are imposed on the dataset and at last we determine the model efficiency on the basis of accuracy score, precision, recall and F1 scores.Tweets are retrieved from twitter data and

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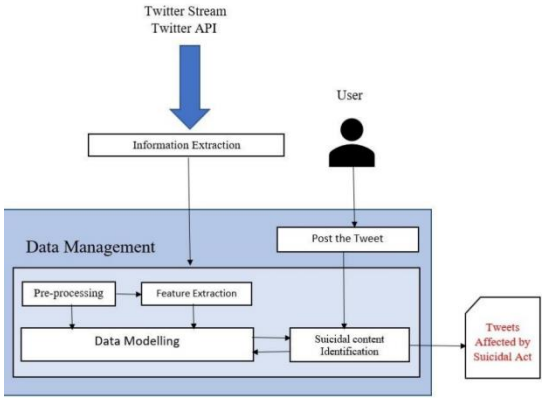
intensity of suicidal tendency is calculated based on the weightage given to the word. Among the two types of machine learning approach we followed supervised learning for this proposed method. A flowchart that represents the proposed model is as follows



Results of classification results using features based on tweets. When we use only features based on tweets, below table shows the accuracy, precision and recall, and Completion Speed of our model in recognizing suicidal posts on tweeter. A 10-fold cross validation was used in the experiments. Table shows that the Decision Tree classifier achieves the best accuracy of 97.89%, precision of 97.89%, recall 97.38% and Naïve Bayes classifier complete a speed of 5.35 second which is the fastest speed among the remaining algorithms.

Algorithms Implemented	Accuracy	precision	recall	Completion Speed (unit in second)
Support vector Machine	92.89%	93.53%	91.41%	1105.52
Decision Tree	97.89%	97.89%	97.38%	18.70
Naïve Bayes	93.29%	89.23%	89.04%	5.35

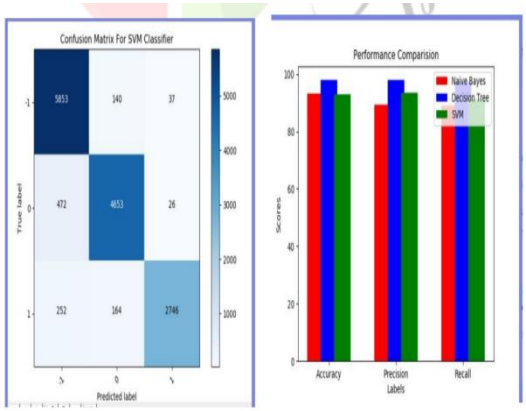


Fig.1. Output results.

CONCLUSION

Machine Learning applied to detect suicide intention and depression amongst individual is effective as traditional approaches are hindered by factors like face-to-face conversation and shyness to express themselves. In the future I would like to delve more into context analysis via the retweet history and given links to external sites. Even though ML seems to be a better method, yet it entails some shortcomings, like eventually having to use human intervention to approve the predictions by the ML model, it's limited to

detecting suicidal tendencies and depression and contextual analysis as the data collected doesn't come with prior background explanation. The amount of text keeps increasing with the popularization of social networking services. And suicide detection and prevention remain a crucial task in our modern society. It is therefore essential to develop new methods to detect online texts containing suicidal ideation in the hope that suicide can be prevented. In the project an automatic recognition of suicidal posts is presented using machine learning techniques As a future scope we can implement some more algorithms to improve the efficiency and quality of work and we can implement the same project on videos using image processing techniques.

REFERANCES

[1]. Hayes, L.M., 2013. Suicide prevention in correctional facilities: Reflections and next steps. International journal of law and psychiatry 36, 188–194

[2]. S. Lee et al., "Detection of a Suicide by Hanging Based on a 3-D Image Analysis," in IEEE Sensors Journal, vol. 14, no. 9, pp. 2934-2935, Sept. 2014. doi: 10.1109/JSEN.2014.2332070.

[3]. Calderon-Vilca, H. D., Wun-Rafael, W. I., & MirandaLoarte, R. (2017), "Simulation of suicide tendency by using machine learning", 2017 36th International Conference of the Chilean Computer Science Society (SCCC). doi:10.1109/sccc.2017.8405128.

[4]. Hu, Z., Hu, Y., Wu, B., & Liu, J. (2017), "Hand Pose Estimation with CNN-RNN", 2017 European Conference on Electrical Engineering and Computer Science (EECS). doi:10.1109/eecs.2017.91.

[5]. Kamel, A., Sheng, B., Yang, P., Li, P., Shen, R., & Feng, D. D. (2018), "Deep Convolutional Neural Networks for Human Action Recognition Using Depth Maps and Postures", IEEE Transactions on Systems, Man, and Cybernetics: Systems, pp.1–14. doi:10.1109/tsmc.2018.2850149.

[6]. Shotton, J., Sharp, T., Kipman, A., Fitzgibbon, A., Finocchio, M., Blake, A., Moore, R. (2013)," Real-time human pose recognition in parts from single depth images", Communications of the ACM, Vol.56(1), 116. doi:10.1145/2398356.2398381.

[7]. Hu, L., & Xu, J. (2017)," Body Joints Selection Convolutional Neural Networks for Skeletal Action Recognition", 2017 IEEE 29th

International Conference on Tools with Artificial Intelligence (ICTAI). doi:10.1109/ictai.2017.00109.

[8]. Kim, Y., Kim, M., Goo, J., & Kim, H. (2018), "Learning Self-Informed Feature Contribution for Deep Learning-Based Acoustic Modeling." IEEE/ACM Transactions on Audio, Speech, and Language Processing, Vol.26(11), 2204–2214. doi:10.1109/taslp.2018.2858923

[9]. Crombez, N., Caron, G., Funatomi, T., &Mukaigawa, Y. (2018), "Reliable Planar Object Pose Estimation in Light Fields From Best Subaperture Camera Pairs." IEEE Robotics and Automation Letters, Vol.3(4),pp.3561–3568. doi:10.1109/lra.2018.2853267.

[10]. Jianhong Wang,1 Tian Lan,, "Spatio-temporal Aware Non-negative Component Representation for Action Recognition ", IEEE Transactions On Parallel And Distributed Systems, Vol. 26, no. 9, pp. 2520-2533, 2015.