Connecting People to Avail the Resources During Crisis Through Twitter Using Machine Learning

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Abstract: *Although social media has become the most widely utilized and active form of communication, research on its usage in crisis management is still in its early stages. As a result, this research examines the rising body of knowledge on social media and crisis management. [1] Between October 2017 and January 2018, a review was conducted, which included locating and retrieving records from an electronic database. The outcomes of this study indicated that the rise of social media has altered the landscape of crisis communication by allowing for greater engagement. However, due to its nature, social media might also be used to spark a crisis. This means that the crisis can be both produced and disseminated through social media. Nonetheless, social media's promise as a crisis-resolution tool is undeniable. It has the capability of proving a claim, dispelling false rumors, or just demonstrating a fact. As a result, practitioners should understand how social media works and how to best use it to interact with their stakeholders. This study also includes other findings, limits, and useful suggestions for scholars and practitioners interested in learning more about the role of social media on crisis communication and management. As most of the crisis problem were reported via twitter. However, most of the problem reported and corresponding responses via twitter were not successfully exchanged between victim's and resource organization. As a result, most of the tweets were not getting help. Thus, we designed a platform where people can avail the resources of crisis through tweets matching concept using machine learning.*

Keywords: Crisis, Machine Learning, Twitter Dataset, SVM , RF, KNN

I. INTRODUCTION

The main purpose of crisis management is to figure out what tangible activities need to be taken before (prevention, preparedness), during (response), and after a crisis occurs (recovery and mitigation). In order to execute these jobs efficiently, it is beneficial to use data from numerous sources, including public witnesses to emergency situations. Emergency operations centers will be able to organize and execute rescue and response activities using this information. In recent years, a number of research projects have looked into the use of social media as a source of information for effective crisis management. People utilize social media (SM) to explain and respond to various situations they find themselves in, such as emergencies. As a result, using SM material to enhance crisis management is worthwhile, particularly in terms of revealing relevant and previously unknown details regarding crises in real time. As a result, using SM material to enhance crisis management is worthwhile, particularly in terms of revealing relevant and previously unknown details regarding crises in real time. Using Twitter and Machine Learning, we suggested a Social Media Analysis for Connecting People to Resources During a Crisis.

II. LITERATURE SURVEY

In 2) proposed concentrate on fostered an Explainable Sentiment Analysis (XSA) application for Twitter information, and proposes research suggestions zeroed in on assessing such application in a speculative emergency the board situation. Especially, they assess, through conversations and a reproduced client analyze, the XSA support for getting client's necessities, as well as if marketing experts would trust such an application for their dynamic cycles.

In 3) explored the COVID-19 data demic adverse consequence on the significant endeavors to overcome the pandemic through a clever huge scope Twitter-based study, which gave quantitative appraisal utilizing genuine tests mirroring the real conditions. The experimental investigation of 1 million COVID-19-related tweets having a place with 288K exceptional clients delineated the extreme effect of deluding individuals and spreading temperamental data.

4) to audit and investigations the relationship of web-based media-based emergency correspondence with regards to emergency informatics and its scientific categorization and the connected emergency correspondence hypothetical models to infer the difficulties and constraints. The consequence of the finding shows that partner association is an understudied field, while data dependability and handling for dynamic purposes, the more extensive use of online media destinations.

5) framework the goal was to consequently scratch news from English news sites and recognize debacle pertinent news utilizing normal language handling strategies and AI ideas, which can additionally be powerfully shown on the emergency the board sites. The total model was robotized and requires no physical work by any means. The design depended on Machine Learning rules that orders news scratched from top news sites utilizing a bug scrubber into two classes, one being dis-aster important information and other being fiasco insignificant information and at last showing the applicable catastrophe news on the emergency the board site.

6) To review and analyses the relationship of social media-based crisis communication in the context of crisis informatics and its taxonomy and the related crisis communication theoretical models to derive the challenges and limitations. The result of the finding shows that stakeholder interaction is an understudied field, while information reliability and processing for decision- making purposes, the wider application of social media sites.

7) This paper proposed a method to discover matches between problem reports and aid messages from tweets in large-scale disasters. Through a series of experiments, we demonstrated that the performance of the problem-aid matching can be improved with the usage of semantic orientation of excitation polarities,

8) study incorporates the techniques for online media information grouping and occasion location as well as spatial and worldly data extraction. Besides, a scientific categorization of the exploration aspects of online media information the executives and investigation for calamity the board was likewise proposed, which was then applied to a review of existing writing and to talk about the center benefits and detriments of the different philosophies.

III. PROBLEM DEFINITION

Because of the mass media's ever-expanding reach and influence in today's society, they have become an inescapable part of any social situation. Mass media enables information access for policymakers, managers, and citizens alike, as well as boosting the pace with which new information is received, accumulated, and disseminated, enhancing its role in disaster management. As a result, we need to create a system that uses tweets to assist individuals in acquiring supplies during a crisis.

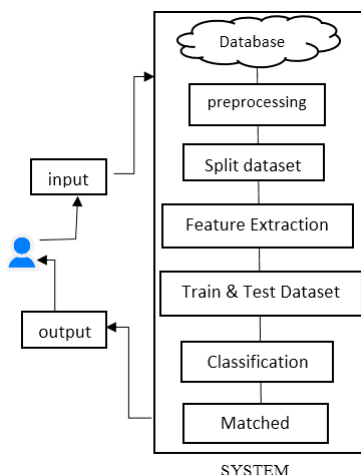## IV. IMPLEMENTATION DETAILS OF MODULE

Figure: System Architecture

The proposed system is web-based application build using php and css as front end and python for backend. The connectivity is done using MySQL database. This proposed system presents a comparison of machine learning algorithm: SVM, RF, KNN. For the implementation of the ML algorithms, the dataset was partitioned into the training set and testing set. The dataset is passed in pre-processing state where unwanted data or null values are removed. Later on, in next step the features are been extracted using various machine learning techniques such as support vector machine, KNN and Random Forest techniques. A comparison between all the 3 algorithms will be made. The algorithm that gives the best results will be supplied as a model to the website. The website will be made from a python framework, called flask. And it will host the database on Xampp, Python and its libraries. The process of the proposed system is as follows,

1. First the user registered in the website.
2. After registration, user login using email-id and password.
3. Then the home page of the website opens, in which there is Profile tab and the Resources tab.
4. In the profile tab user information is provided in which name ,id, email , address is given.
5. In the Resources tab users can find the resources they needed during the crisis. User have to give an input example :# Bed needed , #Oxygen etc.
6. After giving an input the system will find the resources an if resources are available , then name contact number and the address of the person who is providing the resources is shown.
7. Along with that email containing resources detail is send to the user through the system.

V. CONCLUSION

The main aim of this project was to design and implement an application to avail resources during crises using machine learning methods and performance analysis of the methods and it has been achieved successfully. The proposed system presents he matches between problems and aid problems through tweets in large scale disasters or crises. The proposed approach used various classifications and ensemble learning methods in which Support Vector Machine(SVM), K-Nearest Neighbor (KNN) and Random Forest classifiers accuracy has been achieved. This project will be advantageous to reduce fatalities by providing basic Necessities such as food, shelter and medicines, it will also provide a particular resource needed according to the crises and reduce death.

REFERENCES

[1]. Douglas Cirqueria and Gultekin Cakir , "Explainable Sentiment Analysis Application for Social Media Crisis Management in Retail",2020
[2]. Azzam Mourad , Ali Srour and Mohamad Arafeh, "Critical Impact of Social Networks Infodemic on Defeating Coronavirus COVID-19 Pandemic: Twitter-Based Study and Research Directions",Transaction on Network and Service Management, IEEE 2020
[3]. Umar Ali Bukar and Fatimah Sidi, "Crisis Informatics in the Context of Social Media Crisis Communication: Theoretical Models, Taxonomy, and Open Issues", IEEE Access 2020
[4]. Jayashree Domala and Vinit Masrani, "Automated Identification of Disaster News for Crisis Management using Machine Learning and Natural Language Processing", International Conference on Electronics and Sustainable Communication System ,IEEE 2020
[5]. Tejas Shah, Zhenyu Wen and Divya Pullarkatt, "Use of Social Media Data in Disaster Management: A Survey", AI and IoT technologies in smart cities, MDPI 2020
[6]. Vedant Dhurve, Krutika Hedaoo, Himanshu Itankar, Jayesh Lanjewar , "Survey on Content Based Disaster Management Using Social Media", International Journal of Scientific Research & Engineering Trends , 2021
[7]. Anita Saroj and Sukomal Pal, "Use of social media in crisis management: A survey", Elsevier 2020
[8]. Christian Reuter and Amanda Lee Hunges, "Social Media in Crisis Management: An Evaluation and Analysis of Crisis Informatics Research", Research Article 2018