Blockchain-Based Event Detection and Trust Verification Using Natural Language Processing and Machine Learning

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ABSTRACT:
Information sharing is one of the huge topics in social media platform regarding the daily news related to events or disasters happens in nature or its human-made. The automatic urgent need identification and sharing posts and information delivery with a short response are essential tasks in this area. The key goal of this research is developing a solution for management of disasters and emergency response using social media platforms as a core component. This process focuses on text analysis techniques to improve the process of authorities in terms of emergency response and filter the information using the automatically gathered information to support the relief efforts. Specifically, we used state-of-art Machine Learning (ML), Deep Learning (DL), and Natural Language Processing (NLP) based on supervised and unsupervised learning using social media datasets to extract real-time content related to the emergency events to comfort the fast response in a critical situation. Similarly, the blockchain framework used in this process for trust verification of the detected events and eliminating the single authority on the system. The main reason of using the integrated system is to improve the system security and transparency to avoid sharing the wrong information related to an event in social media.

I. INTRODUCTION:

Disasters are part of the daily news in social media during the past few years. There is various type of disasters such as earthquake, flood, typhoon, pandemics of diseases and similarly, human-made disasters, e.g., incidents of terrorism and industrial accidents. The number of social media networks and their activity increasing with a high-speed day by day and daily information sharing and user-generated contents is passing hand by hand between millions of internet users. The user-generated content mainly focuses on the daily events and news, which are the current discussed topics in the real world. Internet platforms consider a powerful communication environment between people for information exchanging in a large variety of daily events. The use of social networking and information sharing in an emergency type of events and dangerous disasters is the research challenge for event detection and tracking it in the early stage. Recently, the extensive connection and increase of social media platforms give the opportunity for the management of crises based on crowdsourcing. One of the famous tools of crowd-sourcing is Ushahidi [5], which visualize the reports of crowd-sourced it's a perfect example for improving the awareness of various social networks. There are various ways to share information in recent developments, e.g., national security agencies, media outlets, civil defense, etc. The social media potentiality caught the attention through the crisis for higher management quality. The capability of the limited generalization reason is the level of micro-blogging, which is a changeable topic in terms of abbreviations, informal language, limitation of characters, etc. The recent novel approach proposed by Kruspe et al. regarding the Twitter detection based on clustering method and event detection proposed by Fedoryszak et al.based on full Twitter firehose demonstrating the contextual information value by aggregating and sentiment the microblog messages.

What is Blockchain?

- Blockchain is a continuous sequential chain of blocks containing information built according to certain rules.
- Blockchain is a distributed database where storage devices are not connected to a common server. This database stores an ever-growing list of ordered records called blocks. Each block contains a timestamp and a link to the previous block.
- Blockchain is a promising technology and is becoming predominant for solving many problems in the field related to security under the control of public and private sectors.

II.   EXISTING SYSTEM :

- Most of the discussed contents are related to a visual display of crisis-related information in social media based on the thematic, temporal, and spatial aspects for awareness of the situation.
- The main elements show the various computations between capabilities e.g content extraction regarding special criteria and using Natural Language Processing (NLP) techniques, applying Named Entity Recognition (NER) and other concepts.
- Some of the social media platforms point to making actionable reports for the relief activity and supporting disaster response. To do this, creating a report requires tagging the pre-defined categories in cloud-source.
- Similarly, there is a lack of related documents to extract the information for creating a report for a possible response.
- The centralised control on the application can violate the Right-to Speech or may support wrong messages.

Disadvantages :
- One hand control over the application
- Fake messages circulates easily
- Hard to believe the real messages

III.   PROPOSED SYSTEM :

- The main focus of this system is creating a blockchain and AI based environment for the management of the crisis in social media using social media analytics.
- The key point of the developed this process activates the authority of the related disaster management for integrating and internet-based data access based on applying semantic analysis for action generating and content responses.

- The collected results can be used to monitor the related emergency and management of disasters, early warning, risk mitigation, and assessments.
- This architecture has four main components: event identification, automatic reasoning, incident monitoring and block chain.
- The event identification uses real-time data from social networks. Automatic reasoning extracts the information and knowledge from accessible data using intelligent techniques.
- Incident monitoring, processes the knowledge-based professional emergency using the sensory interfaces and blockchain framework analyse the security and transparency of system and

similarly the proof-of-authority for having the secure and stable system based on trust.

Advantages :
- No centralized control
- Blockchain ensures security and integrity
- AI to decide the message category

IV.   OBJECTIVES :

- During the emergency or disaster situation fake news may spread in the social media platform.
- Single authority control on the social media platform.
- Right information may not be believed by most of the users.

The main concept of this research is to extract the right information which is sharing in social media during crisis by using the recent technologies which gives us the trustworthy and secure information to avoid fake contents and fake users.

V.   FEATURES :

- Event detection.
- Natural Language Processing to process the text data.
- Etherium Blockchain to store the records.
- Using ML and deep learning like Naive Bayes, K-Nearest Neighbour, Support Vector Machine, Logistic Regression, XGBoost, cnn to train the data.

VI.   CONCLUSION:

From this system we make people get knowledge about the daily news and crisis.This helps to give the society a better knowledge and

have great use of the social media platforms. Also it useful to detect fake news so that the circulation of fake news can be stopped and make people know the news which would be helpful . Blockchain helps in having the data security as well as the data is kept in nodes which will easy to fetch. Natural language processing helps in making the language easier so that the people can understand easily. At the end it is more beneficial for the society due to which no problems are caused and keeps the people updated.

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