

LITERATURE SURVEY

1)Project Title: Disaster Management Project Using Wireless Sensor Networks and artificial intelligence.

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Abstract: There are numerous projects dealing with disaster management and emergency response that use wireless sensor networks technologies. Indeed, WSNs offer a good alternative compared to traditional ad hoc networks. Air pollution monitoring, forest fire detection, landslide detection, natural disaster prevention, industrial sense and control applications, dangerous gas leakage, water level monitoring, vibration detection to prevent an earthquake, radiation monitoring are examples of the WSN applications related to disaster management. This paper presents an overview of the recent projects using WSN to collect data in disaster areas.

Drawbacks: A big disadvantage of AI is that it cannot learn to think outside the box. AI is capable of learning over time with pre-fed data and past experiences, but cannot be creative in its approach

2)Project Title: Natural Disaster Application on Big Data and Machine Learning

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Natural disasters are events that are difficult to avoid. There are several ways of reducing the risks of natural disasters. One of them is implementing disaster reduction programs. Big data, machine learning is mostly used. By utilizing this method, it facilitates tasks in visualizing, analyzing, and predicting natural

disaster. Here is, the use of big data, machine learning, and deep learning in 6 disaster management area. This 6-disaster management area includes early warning damage, damage assessment, monitoring, detection, forecasting , predicting, and postdisaster coordination, response, long-term risk assessment and reduction. To find out whether the previous research solved the problem in the prediction area and early detection we must know the data source used already has 5'v characteristics, namely Velocity, Volume, Value, Variety, and Veracity. The performance level of the model made is good or not from the level of accuracy, precision, recall, and the execution time. The propose of this study to give an insight and the use of big data, machine learning, and deep learning from 6 disaster area which is early warning damage, damage assessment.

Merits: Big data in the evacuation process to plan accordingly during the time of disaster .

Demerits: Traditional storage can cost IoT money to store big data

3) Project Title: Automated Disaster Monitoring From Social Media Posts Using AI-Based Location Intelligence and Sentiment Analysis

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Abstract: Worldwide disasters like bushfires, earthquakes, floods, cyclones, and heatwaves have affected the lives of social media users in an unprecedented manner. They are constantly posting their level of negativity over the disaster situations at their location of interest. Understanding location-oriented sentiments about disaster situation is of prime importance for political leaders, and strategic decision-makers. To this end, we present a new fully automated algorithm based on artificial intelligence (AI) and natural

language processing (NLP), for extraction of location-oriented public sentiments on global disaster situation. We designed the proposed system to obtain exhaustive knowledge and insights on social media feeds related to disaster in 110 languages through AI- and NLP-based sentiment analysis, named entity recognition (NER), anomaly detection, regression, and Getis Ord Gi* algorithms. We deployed and tested this algorithm on live Twitter feeds from 28 September to 6 October 2021. Tweets with 67 515 entities in 39 different languages were processed during this period. Our novel algorithm extracted 9727 location entities with greater than 70% confidence from live Twitter feed and displayed the locations of possible disasters with disaster intelligence. The rates of average precision, recall, and F₁-Score were measured to be 0.93, 0.88, and 0.90, respectively. Overall, the fully automated disaster monitoring solution demonstrated 97% accuracy. To the best of our knowledge, this study is the first to report location intelligence with NER, sentiment analysis, regression and anomaly detection on social media messages related to disasters and has covered the largest set of languages.

Drawbacks:

1. Inaccuracy in classifying a disaster related tweet
2. Limited support of language
3. Limited support of disaster types
4. Inaccuracy in identifying disaster location

4)Project Title: The Use of Artificial Intelligence in Disaster Management

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Abstract: Whenever a disaster occurs, users in social media, sensors, cameras, satellites, and the like generate vast amounts of data. Emergency responders and victims use this data for situational awareness, decision-making, and safe evacuations. However, making sense of the generated information under time-bound situations is a challenging task as the amount of data can be significant, and there is a need for intelligent systems to analyze, process, and visualize it. With recent advancements in Artificial Intelligence (AI), numerous researchers have begun exploring AI, machine learning (ML), and deep learning (DL) techniques for big data analytics in managing disasters efficiently. This paper adopts a systematic literature approach to report on the application of AI, ML, and DL in disaster management. Through a systematic review process, we identified one relevant hundred publications. After that, we analyzed all the identified papers and concluded that most of the reviewed articles used AI, ML, and DL methods on social media data, satellite data, sensor data, and historical data for classification and prediction. The most common algorithms are support vector machines (SVM), Naïve Bayes (NB), Random Forest (RF), Convolutional Neural Networks (CNN), Artificial neural networks (ANN), Natural language processing techniques (NLP), Latent Dirichlet Allocation (LDA), K-nearest neighbor (KNN), and Logistic Regression (LR).

Drawbacks: 1) Converse the risk and its uncertainty.

2) The drawback of AI in disaster response is that it's very challenging to properly train the models to accurately interpret a disaster