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Understanding Social Media Citizens Pulse Are Emotional Detection Using Artificial Intelligence

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ABSTRACT: Over the past decade, smart city applications have gained significant attention in industrial informatics. However, little attention has been given to perceiving the emotions and perceptions of citizens who have a direct impact on smart city initiatives. In this article, we propose the use of publicly available abundant social media conversations that contain contextual information encompassing citizens' emotions and perceptions, which could be considered to provide the means to feel the "emotional pulse" of a city. We propose an automated AI-based observation framework to detect the emergence of public emotions and negativity in conversations. We evaluated the applicability of the framework using 29 928 social media conversations toward the much-debated topic of self-driving vehicles which will become increasingly relevant to smart cities. The patterns and transitions of citizens' collective emotions were modeled using the Natural Language Processing and Markov models while the negativity (toxicity) in conversations was evaluated using a deep learning based classifier. The framework could be adopted by industry leaders and government officials for smart observation of citizen opinions to improve security, communication, and policymaking.

I. INTRODUCTION

As a result, the concept of "smart cities" is based on the development of sophisticated, automated, and networked intelligent industrial applications. There has been a lot of focus on smart applications in the context of a smart city, but little attention has been made to the fundamental thing that keeps a city going, its resident. It is critical to use artificial intelligence (AI) to comprehend the emotions and perceptions of people toward industrial applications as intelligent industrialisation progresses toward what has been dubbed the "fourth industrial revolution." This recognition of the citizens' viewpoint may be seen even in cognitive automation, where it is said that many smart programmes depend on the subjective desires of their users.

The use of sensors offers privacy and administrative issues when it comes to continuous monitoring, despite efforts to quantify individuals' emotional responses using physical sensors. The views and emotional responses of residents, which continually affect smart city efforts, cannot be sensed by such physical sensors. Despite this, people use social media every day to voice their thoughts, insights, and impressions. Using publicly accessible data sources such as social media, it is possible to develop smart observation systems that allow one to sense the "emotional pulse" of a city via the collective feelings expressed by inhabitants. When individuals' emotions, sentiments, and ideas are reflected in the huge volumes of data created by social media, it becomes an invaluable resource for policymakers. The quantity of data created on social media may be considered as a 'big data' source that captures the voice of people because of its exponential expansion. One way to get a feel for the emotional pulse of a country is to utilise social media platforms, which have vast reservoirs of user-generated data. Understanding how residents feel about the smart city environment and its applications is a goal of this research, which incorporates emotional pulse concepts. In order to build future breakthroughs and policies, it is critical to comprehend and 'sense' people' perceptions.

since all smart applications are designed around and with the objective of serving residents better. However, despite its relevance, the use of citizen opinion and emotional responses connected to smart city applications is now confined to sentiment and emotion extraction, and does not take into account the development and shift of emotional reactions via social media data. First, we propose the first practical application of social media to capture the pulse of a smart city by building an AI-based emotion observation framework that uses free-flowing social media information to identify the emotional pulse of residents in a smart city setting. An emotional pulse of inhabitants may be monitored via social media interactions, allowing for an examination of public opinion and how it changes over time, in a smart city environment. Technology, policy, economics, governance, and human groups all play important roles in the creation and conception of smart cities. A better understanding of residents' perspectives on existing smart city efforts is critical

for politicians and industry leaders when establishing future plans.... Many definitions of smart cities emphasise citizen involvement, but little research has been done to examine the feasibility and application of this concept.

Smart solutions that monitor inhabitants' well-being in a smart city setting are also necessary because of the growth of social media material and the rise in security concerns. More than 100,000 Twitter accounts have been blocked for terrorist activities. In the last year, according to Reuters, demonstrating the need of an emotion surveillance system for a smart city environment even from a security standpoint. With this information, industry executives may better grasp the public's view and take preventative steps in the event that it is required. In a smart city, there have been many efforts to identify emotions from social media. On the basis of the locations derived from the post, Guthier et al. offer a strategy to identify and depict emotions from Twitter tweets. An effort to analyse sentiment in the context of smart cities has been made by who utilised an algorithm to categorise the sentiment of Twitter tweets for governance purposes.

II. LITERATURE SURVEY

1. Using Artificial Intelligence to Monitor the Emotional Pulse of Smart City Residents

Author: Mrs. B Ganga Bhavani , Dr T V JanardhanRao

Industrial informatics has been paying increasing attention to smart city applications during the last decade. However, individuals' emotions and impressions, which have a direct influence on smart city programmes, have gotten little attention. A city's 'emotional pulse' may be gauged via the use of publicly accessible, plentiful social media discussions that include contextual information about residents' feelings and perspectives. Emotions and negativity may be detected using an automated AI-based observation system. As self-driving cars become more prevalent in smart cities, we used 29,928 social media chats to gauge the framework's applicability. The NLP and Markov models were used to predict the patterns and transitions of citizens' collective emotions, and a deep learning-based classifier was used to assess the negativity (toxicity) in talks. In order to increase security, communication and policymaking, business executives as well as government authorities may use this framework.

2. Detecting Changes in Perceptions towards Smart City on Chinese Social Media: A Text Mining and Sentiment Analysis

Author: AoboYue, Chao Mao ,Linyan Chen

Examining the public's attention and comments on smart city topics in social media can help enable a full understanding of the development characteristics of smart cities, and provide a realistic reference for improving the level of public participation and citizens' sense of acquisition in smart city construction. Based on SinaWeibo, a well-known social media platform in China, over 230,000 public comments related to smart cities were extracted to analyze. Using LDA (Latent Dirichlet Assignment) and CNN-BiLSTM (Convolutional Neural Network and Bi-directional long and short memory) models, a topic mining and sentiment analysis model for user comments was constructed to study the current state of public perception of smart city concepts. The results demonstrate that public discussions on smart cities were macro-oriented, focusing on strategic layout and technical applications. As public awareness of smart cities deepens, topics about application scenarios and social services are gradually emphasized. The public's positive sentiment toward smart cities dominates and varies in sentiment intensity across years; the positive sentiment intensity of individual users on smart city ideas is significantly lower than that of official certified Weibo users, such as government departments and corporate organizations, which reveals the identity and temporal characteristics of public participation in cyberspace.

III. EXISTING SYSTEM

In Existing model, they made use of publicly available, abundant social media conversations that contain contextual information encompassing citizen's emotions and perceptions which could be considered to provide the means to feel the emotional pulse of a city. This framework is able to The patterns and transitions of citizens collective emotions were modeled using the NLP and Markov models while the negativity (toxicity) in conversations was evaluated using a deep learning-based classifier.

DISADVANTAGES

- extract data from multiple social media channels
- extract emotions from social media content using Natural Language Processing (NLP)
- model the transitions of emotions of the public via probabilistic models



- detect the level of toxicity using deep learning.

PROPOSED SYSTEM

In the recent years, Artificial Intelligence has begun to take over the technology industry. It gave us many solutions to the problems we face and increased higher efficiency to solutions that we overcame and yet to overcome. However, it still undergoes the process of perfection as it still copes up with the ability of learning and understanding of enabling itself to replicate into a human's intelligence. We proposed an AI-based emotion observation framework to analyze the people emotions. The proposed framework collects data from user. Emotional expressions are extracted from the collected feedback. A deep learning based multi-label classifier developed using layers of word embedding and convolutional networks.

ADVANTAGES

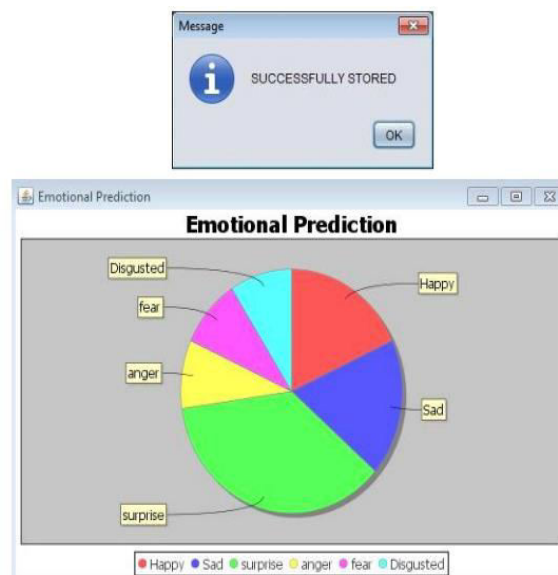
- It takes less time to analyze the emotions
- We used Optimization algorithm, so there is no data losses
- It does not have any privacy issues
- In this system, it predicts six types of emotions with percentage

Problem definition

When individuals' emotions, sentiments, and ideas are reflected in the huge volumes of data created by social media, it becomes an invaluable resource for policymakers. The quantity of data collected on social media may be considered as a "big data" source that captures the voice of people due to the exponential expansion of social media. As a nation's 'emotion pulse' is defined as the sum of its residents' feelings, it is possible to acquire insights about their well-being via the usage of social media. Research Contribution: In order to better understand how residents see the smart city environment and apps, we apply the notion of emotional pulse to the smart city setting. For the sake of better serving residents, it is critical to comprehend and 'sense' the perspective of citizens in order to build new technologies and policies in the future. However, despite its relevance, the use of citizen opinion and emotional responses connected to smart city applications is now confined to sentiment and emotion extraction, and does not take into account the development and shift of emotional reactions via social media data.

IV. RESULT

Using python programming and the various artificial intelligence technique the following results has been obtained Detailed overview has been presented in form of graph





V. CONCLUSION

In this project, we presented an AI-based emotion observation framework to monitor the emotions and perceptions of citizens. We propose an automated AI- based observation framework to detect the emergence of public emotions and negativity in conversations by using optimization algorithm. By developing and evaluating this AI framework, we enable the capture and representation of the emotional pulse of the city. We position this among pioneering studies to use AI to capture citizen's emotional pulse from digital data channels, thus create an overview of citizen's emotions related to smart city initiatives. The outcomes and the capability of using AI for understanding citizens' emotional pulse have the potential to inform strategy development and policymaking for industrial leaders as well as for elections, political campaigns, and governance.

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