Advanced Women Self Protecting System Based on Crime Datasets

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Abstract- *The safety and well-being of women in society are of utmost importance, necessitating innovative solutions to address emerging challenges. This project presents an "Advanced Women Self-Protecting System based on Crime Datasets," designed to empower women with enhanced tools and awareness for self-protection. The system leverages crime datasets, integrating advanced technologies to analyze and respond to potential threats effectively. The core functionality of the system relies on the comprehensive analysis of crime datasets to identify high-risk areas and common patterns of criminal activity. SVM algorithms are employed to predict potential danger zones and times, enabling the system to provide real-time alerts and personalized safety recommendations to women in those areas. A key feature of the system is its integration with wearable devices and mobile applications, creating a seamless interface for users to access safety information and emergency services. The system employs geospatial data to offer location-specific guidance, including alternative routes and safe zones, promoting informed decision-making in real-time. To increase the user's self-defense capabilities, the system incorporates educational modules and self-defense tutorials. Additionally, it enables users to share their real-time location with trusted contacts, creating a supportive network for rapid response in emergency situations.*

Keywords- Self-protection, Abuse and harassment, SVM (Support Vector Machine), Crime Prediction.

I. INTRODUCTION

There are certain types of harassment and violence that are very aggressive, including staring and passing comments, and these unacceptable practices are usually seen as a normal part of urban life. There have been several studies that have been conducted in cities across India, and women report similar types of sexual harassment and passing-off comments by other unknown people. [1].

Women have the right to the city, which means that they can go freely whenever they want, whether it be to an educational institute, or any other place women want to go. But women feel that they are unsafe in places like malls and shopping malls on their way to their job location because of the several unknown eyes body-shaming and harassing these women point Safety or lack of concrete consequences in the lives of women is the main reason for harassment of girls [2].

There are instances when the harassment of girls was done by their neighbors while they were on the way to school or there was a lack of safety that created a sense of fear in the minds of small girls who, throughout their lifetime, suffered due to that one instance that happened in their lives where they were forced to do something unacceptable or were sexually harassed by one of their own neighbors or any other unknown person [3].

Safest cities approach women's safety from the perspective of women's rights to affect the city without fear of violence or sexual harassment. Rather than imposing restrictions on women that society usually imposes, it is the duty of society to imprecise the need for protection of women and also recognize that women and girls also have the same right as men to be safe in the city. The analysis of the Twitter text collection also includes the names of people and women who stand up against sexual harassment and unethical behavior by men in Indian cities, which make them uncomfortable to walk freely [4].

The data set that was obtained through Twitter about the status of women's safety in Indian society was processed through machine learning algorithms for the purpose of smoothing the data by removing zero values. Using Laplace and Porter's theory, the developer method of analysis of the data was used to remove re-tweets and redundant data from the data set that was obtained so that a clear and original view of the safety status of women in Indian society could be obtained. This paper also focuses on how a sense of responsibility on the part of Indian society can be developed among the common Indian people, so that we should focus on the safety of women surrounding them [5].

II. LITERATURE SURVERY

Richa Pokhrel. et al., 2020 says that the “Women Self-Defense and Security System” project is to provide

security for human beings especially woman and children with a help of an advanced electronics, the equipment consists of GPS (Global Positioning System) and GSM module by which the geographical location can be tracked and can be sent. [6].

Sai Keerthana K. et al., 2018 proposed a Design of Smart Device with Android based Application for Self-defense and Self-protection. The model demonstrates the Security for women has become a major issue as the number of crimes over women and girls is increasing day-by-day. The voice recognition will happen when the girl is shouting. It will recognize the voice and send to Raspberry Pi kit through a wireless connection. [7].

Jennifer Ann Jus. et al., 2013 proposed a Comprehensive Literature Review of Sexual Assault states that the purpose of this project will be to conduct an extensive literature review regarding the prevalence of sexual assault as well as discuss the cultural factors that influence sexual assault in the United States. In addition, this review will explore the different types of sexual assault, the preventative strategies available, and investigate, specifically, the current status of women's self defense programs en route to promoting women's self-defense as a viable approach to minimizing America's sexual assault culture [8].

Mohamad Zikriya. et al., 2018 proposed a Smart Gadget for Women Safety using IoT- says that we know the present era is with equal rights, where in both men and women are taking equal responsibility in their respective works.Every single day women and young girls from all walks of life are being assaulted, molested, and raped. In critical situations the women will not feel insecure or helpless if they have some kind of safety device with them [9].

D. Suvarna Kumara. et al., 2014 proposed a Self Defence and Alert System for Individuals states that the Self defence and self protection are an important priority for women or Men. Some women find themselves at a greater risk for becoming the victim of either serious assault or murder, but it is more about a feeling of dominance from one person over another. Therefore, avoiding any violent attack is better that attempting to survive one [10].

III. PROPOSED SYSTEM

In the proposed system, a system for detecting users' psychological stress states from users 'invites, updates, events, status, etc., as well as users' social interactions, Employing real-world social media data as the basis. I studied the interconnection between users's psychological stress states and their social interaction behaviors. To fully leverage both content and social interaction information from users' tweets. We proposed a probabilistic language model that combines the content-base algorithm and the Q-gram technique. Further analysis of this model reveals that it detects stressed users. Based on this, the stress level of the user is displayed in his or her account. Moreover, according to the user's stress level, the user is redirected to different links to manage their stress. If the user proceeds to post or share negative feedback and comments, they will be given three alerts. During the fourth attempt, the user account will automatically be revoked. A key feature of the system is its integration with wearable devices and mobile applications, creating a seamless interface for users to access safety information and emergency services.

ARCHITECTURE DIAGRAM

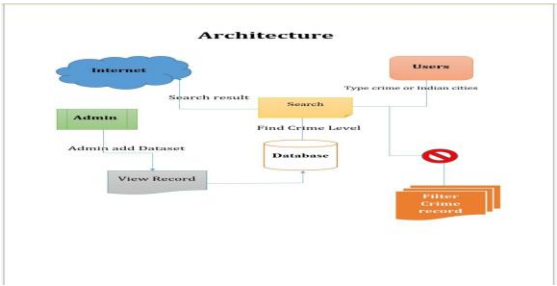

Figure 1: Proposed System architecture diagram

Fig 1, demonstrates the architecture diagram for the proposed system. This system works by allowing the admin and the user to login through credentials. After login, the admin can view the records such as user information, complainces, add crime data and display result which were stored in the database. Whereas the user after login can view the crime data based on the location, add complainces through the user home page.

Main Modules

1. Admin
2. User

1. Admin

The Admin login feature gives admin access to the crime dataset dashboard by providing valid login details, ensuring a secure login. After logging in, the administrator can use the "View User" function to get a comprehensive list of registered users, including important information such as usernames and emails, which facilitates effective user management. The "Add Crime dataset and View dataset " feature allows an admin to enter and update the crime information and allows the admin to view the datas which were entered by the user based on the location. Finally, the "Logout" function ensures a secure termination of the session

and protects against unauthorized access to the control panel. Together, these features form a complete set of management tools to effectively manage and improve the data.

2. Register:

The User module consist of 4 sub-modules. The login feature gives user access to the crime dataset dashboard by providing valid login details, ensuring a secure login. If the user have'nt registered yet, the register sub-module allows the user to create a new account, where the registration module holds all the information related to user. It is responsible for tasks such as user authentication, storing user preferences. After logging in, the user can use the "Search cities" function to get a detailed crime data based on location.In addition the feature "Add Complainces" allows the user to add any crime data, which will be viewed by the admin and then displayed on the result module. Finally, the "Logout" function terminate the user's session and ensure that the user is no longer considered authenticated.

IV. RESULT AND DISCUSSION

Figure 2: Home Page

In figure 2, it includes the admin module, user module and the registration page. After logging in, they access respective functionalities through the home page.

Figure 3: Admin Login Form

Figure 3, demonstrates the admin login form which manages the authentication process. This involves validating the provided credentials, such as a username and password against stored user data. The portal's admin login page serves as a secure door for authorized persons to get to and oversee the data.

Figure 4: Admin Home Page

Figure 4, demonstrates the admin home page. The admin's home page has view user, view compliances, dataset, search history, results sub-modules, where the admin can view user data, complaince, search history(user),result and dataset.

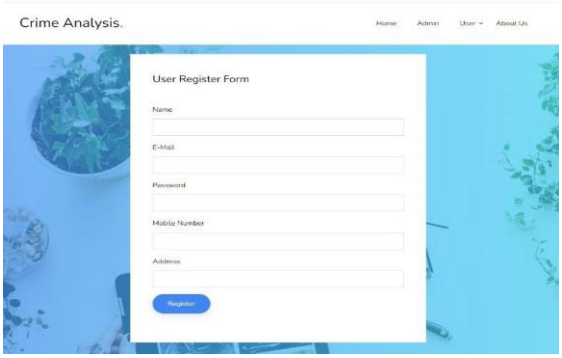

Figure 5: User Register Form

Figure 5, demonstrates the user register form. The Registration Module holds all the information related to registration. It is responsible for tasks such as user authentication, storing user preferences.It generally contains the basic information about the user such as name, E-mail, password, address and mobile number.

Figure 6: Complaint Form

Figure 6, demonstrates the Complaint Form, which allows the user's to register a complaint regarding the issues.

Figure 7: Search Module

Figure 7, demonstrates the search module, which allows user to get crime data based on the location.

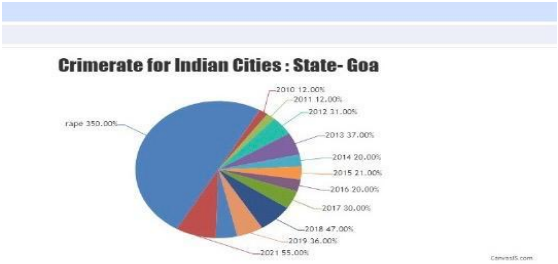

Figure 8: Result

Figure 8, demonstrates the result module, which will display the crime data's based on the location searched by the user it gives a brief pie-chart explaination regading the crimes in a particular region over the years.

V. CONCLUSION

Throughout the research paper we have discussed about various machine learning algorithms that can help us to organize and analyze the huge amount of Twitter data obtained including millions of tweets and text messages shared every day. These machine learning algorithms are very effective and useful when it comes to analyzing of large amount of data including the SVM algorithm and linear algebraic Factor Model approaches which help to further categorize the data into meaningful groups. If we run the program in various times we may get different results at every instance with a small variance, based on the tweets we fetch. We ran the program for three times and these results are the average of the consecutive outputs. If the neutral tweets are significantly high, means that people have a lower interest in the topic and are not willing to haves a positive/negative side on it. This is also important to mention that depends on the data of the experiment we may get different results as people's opinion may change depending on the circumstances for example rape news it becomes the most trending news of the year in 2017. For some queries, the neutral tweets are more than 60% which clearly shows the limitation of the views. By above analysis that we have done, it can be clearly stated that Chennai is the safest city whereas Delhi is the unsafe city. Support vector machines is yet another form of machine learning algorithm that is very popular in extracting Useful information from the Twitter and get an idea about the status of women safety in Indian cities.

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