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DETECTION OF CHILD PREDATOR'S CYBER HARASSERS ON SOCIAL MEDIA

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ABSTRACT

Professional psychologists need to understand the dangers of online sexual harassment and how to protect young people from sex predators using the internet. Although the net has several positive aspects, one in all the foremost pernicious aspects is its potential use for on-line sexual postulation. The internet shows a medium that allows sex predators to enter numerous children in a relatively anonymous environment. The main objective of our project is to detect child predator base on comments and post of social media account and send predator record to cyber cell admin. A recent national survey indicated that about one in five youth are solicited for sex over the internet annually (Finkelhor, Mitchell, & Wolak, 2000; Mitchell, Finkelhor, & Wolak, 2001). This project report presents our current development to enable the creation of the system. As a result, with the developed system, child predator accounts detection any report to admin for further action.

1. INTRODUCTION

Child predator detection system on social media is a web-based application this project aims to detect child predator comments and post on social media like Facebook, Instagram etc. and send report to cyber cell admin. To develop a well-designed database to store all comments and post of social online contact of children in pedophiles is a rapidly growing problem on social media. As of march 2014, the national society for the hindrance of cruelty to kids (NSPCC), reported that i) 12-tone system of 11-16 years old within the kingdom have received unwanted sexual messages; and ii) 8% of 11-16 years olds in the UK have received requests to send or respond to a sexual message. The detection of kids cyber sexual-offenders is so a crucial issue that must be addressed. Kids in their teens have begun to use social media as their main means that of communication. Moreover, a recent study of cognition, adolescents and mobile phones (scamp) has revealed that 70% of 11-12 years old in the UK now own a mobile phone rising to 90% by age 14. A common attack of pedophiles is the so-called online child grooming, where adults eventually exchange sexually explicit content through social media outlets. Such grooming consists of building a trust- relationship with a minor, which finally leads into convincing a child to meet them in person. Previous research on detecting cyber pedophilia online, including the efforts of the first international sexual predator identification competition. In Greek language, pedophilia is an expression for love (philia) of young children. Pedophilia is an expression that shows fantasies, sexual arousal, and sexual interests in children. The important characteristic of this definition of pedophilia is age, as pedophiles intend to have a sexual relationship with minors. It should be noted that a predator approaches the victim to build not only sexual but also emotional relationship, and the tactics used by child offenders for abusing the children are not the same.

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So, finding sexual predators is a complicated task, and consequently, the number of children is affected by this predatory behavior is increasing as children have access to the internet through cellphones easily, and the internet provides a good opportunity for predators to cover their real identity using the anonymity characteristics of the internet.

Fig 1.1 Children interacting with social media

Craven defined the grooming as "a process by which a person prepares a child, significant adults and the environment for the abuse of this child." Grooming has specific stages including gaining access to a child, gaining compliance, and maintaining the child's secrecy to avoid disclosure. This process serves to strengthen the offender's abusing pattern, as it may be used as a means of justifying or denying their actions. It affects the victim's life psychologically, physically, emotionally, behaviorally, and psycho-socially. Grooming detection is a multifaceted and complex problem due to its variation in duration, type, and intensity depending on the perpetrator characteristics and behavior; identifying where and when the grooming process begins and ends might be impossible. The need for sexual predator detection has increased by the development of the internet and online social networks. This development made the world more dangerous for children, as parents can hardly monitor their online activities.

Consequently, protecting the children in an online world is a big issue. Social media has aroused harms such as addiction, depression, political polarization, and various types of cyber- criminal acts like sexual abuse of children. It is common to engage in various kinds of social media activities while it is easy to access the internet through smartphones. This makes it easy to have social interactions between children and adults, and therefore, it brings many risks for children in online communications. Predators try to gain the confidence of their victims in social media and then abuse them. For this reason, the detection of online sexual predators has gained interest of many researchers.

Online conversations are more challenging to be processed by NLP as in most cases, they do not follow the standard grammar of writing and have a lot of slang words that might not be defined in the traditional languages. Besides, online chats are short, and they do not provide as much information as static texts such as books. Little work has been done in processing online conversation and specifically sexual predator detection in chat rooms. Egan showed that finding the certain emotions in text could be helpful for predator detection

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in social media the contact duration, and the location similarity.

During the last decade, more attention has been given to face the cyber-pedophilia problem with different goals, including

- Identification of predatory chat lines;
- Classification of predatory chat conversations;
- Identification of the offender and the victim in a predatory conversation.

The Sexual Predator Identification competition was held in order to cope with these goals. Researchers proposed different methods to detect cyber-criminal activities. The competition included two parts, identifying predators, and predatory lines detection. The first part has two steps including predatory conversation detection and detecting the predators in predatory conversations. In this work, we focus on predatory conversation detection. The remainder of this paper is organized as follows.

One of the first attempts for identifying online sexual predators was performed by Pendar using K-Nearest Neighbors (K-NN) and Support Vector Machine (SVM). He recognized the sexual predators.

Using SVM tried to identify sexual predators in a set of suspicious chats conversations. They assumed that words used in online child abuse cases are different from general conversations, and also believed that predators use the same approach to catch their victims. Clearly, analyzing informal writings is more challenging than formal ones. Another crucial challenge in cyber pedophilia detection is collecting relevant data. There are two different types of online text chat with sexual content.

1) Conversation between a sexual predator and the minor.
2) Conversation between two consenting adults.

The fact is that chat providers do not make online conversations publicly available, as it requires the informed agreement of the participants, so access to this type of data is difficult while significant privacy and legal issues need to be resolved.

2. LITERATURE SURVEY

Muhamad Ali, Partick Bours. "Ensemble technique for sexual predator identification".

They study a good technique for sexual predator identification.

Cyber grooming may be a compelling drawback worldwide today and plenty of reports powerfully instructed that it becomes terribly imperative to tackle this drawback to safeguard the kids from sexual exploitation. during this study, we have a tendency to propose a good technique for sexual predator identification in on-line chats supported two-stage classification. the aim of the primary stage is to tell apart predatory languages from the traditional ones whereas the second stage aims to inform apart between the predator user and therefore the victim at intervals one predatory conversation. Finally, some distinctive predators square measure derived from the second stage result. we have a tendency to investigate many machine learning classifiers as well as Naive Bayes, Support Vector Machine, Neural Network, provision Regression, Random Forest, K-Nearest Neighbours, and call Tree with Bag of Words options victimization many totally different term weight strategies for this task. we have a tendency to additionally projected 2 ensemble techniques to enhance the classification task.

Michael Ashcroft; Lisa Kaati; Maxime Meyer "A Step Towards sleuthing on-line Grooming

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-- characteristic Adults simulation to be Children" They enforced machine-controlled analysis of chat area language to discover and attainable tries of grooming online grooming may be a major drawback in today's society wherever additional and longer is spent on-line. To become friends and establish a relationship with their young victims in on-line communities, groomers typically faux to be kids. during this paper, we have a tendency to describe AN approach that may be wont to discover if AN adult is simulation to be a baby during a chat area language. The approach involves a 2-step method whereby authors square measure initial classified as being kids or adults, so every kid is being examined and false kids distinguished from real kids. Our results show that notwithstanding it's arduous to separate standard adults from kids in chat logs it's attainable to tell apart real kids from adult's simulation to be kids with a high accuracy. during this paper, we are going to discuss the accuracy of the strategies projected, additionally because the options that were vital in their success.

Patrick Bours, Halvor Kulsrud Detection of Cyber Grooming in on-line Conversation. They enforced system to discover on-line cyber grooming. during this paper, we are going to specialise in the detection of sexual predators in on-line chat conversations. we have a tendency to use three totally different approaches (message-based, author-based and conversation-based) combined with
five {different totally different completely different} classification algorithms and a pair of different options sets. the simplest results were obtained victimization either the author-based approach with the Neural Network classifier on the TF-IDF feature set, or the conversation-based approach victimization the Ridge or the Naïve Bayes classifier on the TF-IDF feature set. during this paper, for the primary time, we have a tendency to checked out however fast a predator may be detected, and located that in most cases 26-161 messages of a language were comfortable. This constitutes solely a little fraction of the complete conversations, showing that we will have AN early detection system of sexual predators rather than knowing looking back that a baby was the victim of a sexual predator.

Muhammad Ali Fauzi Apostle Bours during this study, we tend to propose a good technique for sexual predator identification in on-line chats supported two-stage classification. the aim of the primary stage is to tell apart predatory languages from the traditional ones whereas the second stage aims to inform apart between the predator user and therefore the victim at intervals one predatory conversation. Finally, some distinctive predators square measure derived from the second stage result. we have a tendency to investigate many machine learning classifiers as well as Naive Bayes, Support Vector Machine, Neural Network, provision Regression, Random Forest, K-Nearest Neighbors, and call Tree with Bag of Words options victimization many totally different term weight strategies for this task.

Stefan C. Dombrowski, John W. LeMasney, and Claude Elwood Shannon A. Dickson they study regarding skilled psychologist's ought to additional absolutely perceive the risks of on-line sexual solicitation and ways that during which to safeguard youth from sexual predators World Health Organization use the web. though the web has several positive aspects, one in every of the foremost pernicious aspects is its potential use for on-line sexual

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predation. the web represents a medium that permits sexual predators access to innumerable kids during a comparatively anonymous setting. this text reviews the overall ways of sexual perpetrators and their characteristics, additionally because the on-line ways and characteristics of the cyber sexual predator. data on a way to shield kids from this crime through a review of technological, psych instructional, and legal issues is provided. an outline of the relevant laws as they relate to on-line solicitation and active psychologists is additionally provided.

3. EXISTING SYSTEM

There exists various child predator detection system which are used in gaming, audio chat and in various online entertainment platform. While playing games or for using online audio chat there exists a child predator system which detects an online sexual harassment and prevent child from getting abused or getting harassed by sexual predator as this existing system is only used when the children are playing games on internet or doing any audio chats. As now we are in internet era various children are now days using social media platform for various social activities. They are mostly active on social media so to prevent child harassment we need a child predator detection system for social media.

In existing system use classification algorithm conversation-based approach using the Naive Bayes classifier on the TF-IDF feature set. In our system, we will implement only one algorithm for image and text classification. We will give more accuracy as compare to previous existing system because of The Support Vector Machine (SVM) is a supervised machine learning model that uses classification algorithms for two-group classification problems.

Disadvantages of Existed System

- Less accuracy.
- It takes much time to progress.
- Difficult to classify.
- It takes large time to find predator
- Difficult to identify errors.

Difficult to modify.

4. PROPOSED SYSTEM

In this project we are using various machine learning algorithms such as SVM, Random Forest, Naïve Bayes, K-Nearest Neighbors, and Decision Tree to predict child harasser's posts from social networks.

Using all algorithms, we will build train model with normal and harasser's word and messages and this train model will applied on new posts from users to predict whether new post is normal or contain harasser's stuff.

To distinguish the image from the text in our system, we will only utilize one image algorithm. Because the Vector Support Machine (SVM) is a learnt model of machine that uses splitting methods for two-team separation problems, it will offer greater accuracy in comparison to the current system. We will create a train model using regular and unusual phrases and sentences using an algorithm, and this train model will analyze incoming user postings to determine whether they are typical or contain abusive content.

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Advantages of Proposed System

- More accuracy.
- Easy to find out the predator rather than existing.
- Easy to classify.
- It takes less time to execute.
- Easy to rectify errors in this proposed system Easy to modify.

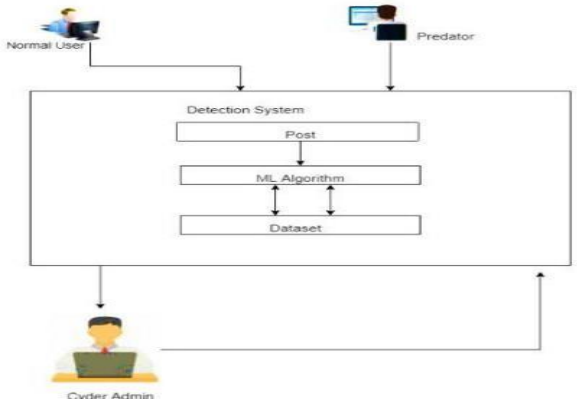

Fig: 1 A system architecture

A system architecture is the conceptual model that defines the structure, behaviour, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviours of the system. A system architecture can consist of system components and the sub-systems developed, that will work together to implement the overall system. There have been efforts to formalize languages to describe system architecture, collectively these are called architecture description languages.

5. RESULTS

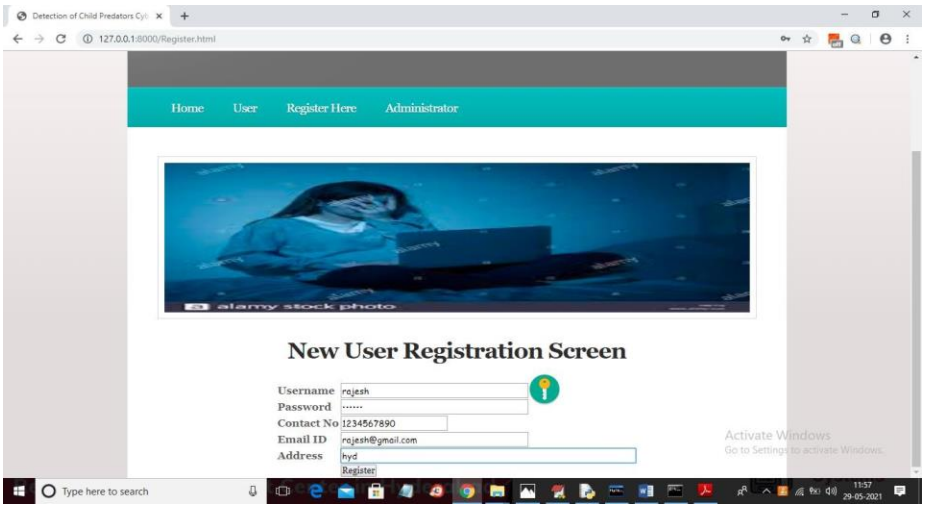

Fig 2 In above screen now click on 'Register' button to add details

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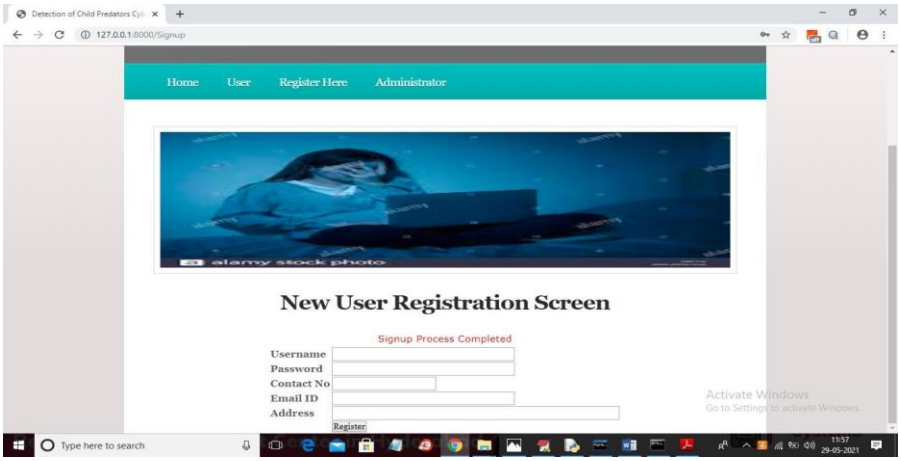

Fig .3 Sign up process completed. Now click on 'Administrator' link to login as admin view new user details.

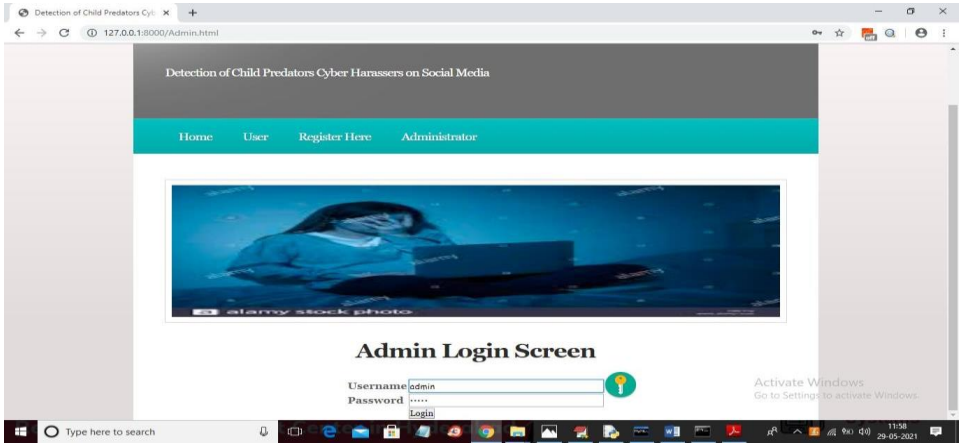

Fig .4 Login as 'admin' by giving username as and password as 'admin'. After login willget below screen.

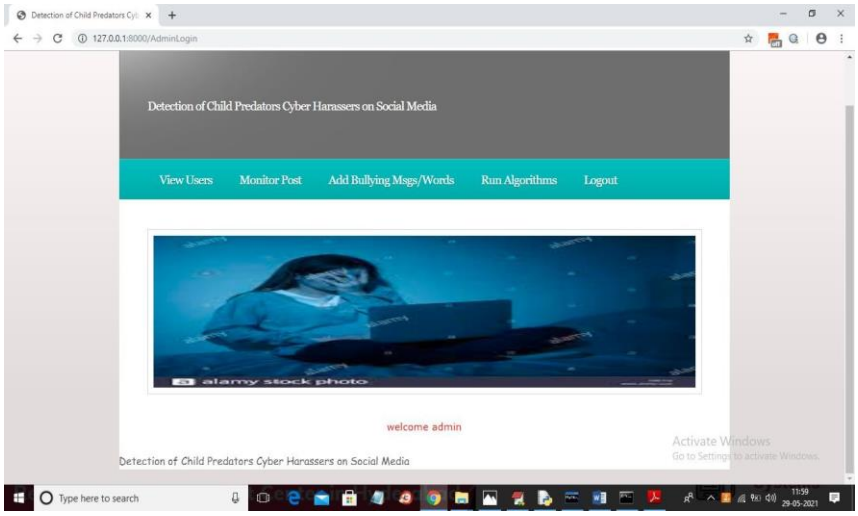

Fig .5 Now admin can click on 'View Users' link to view all users list.

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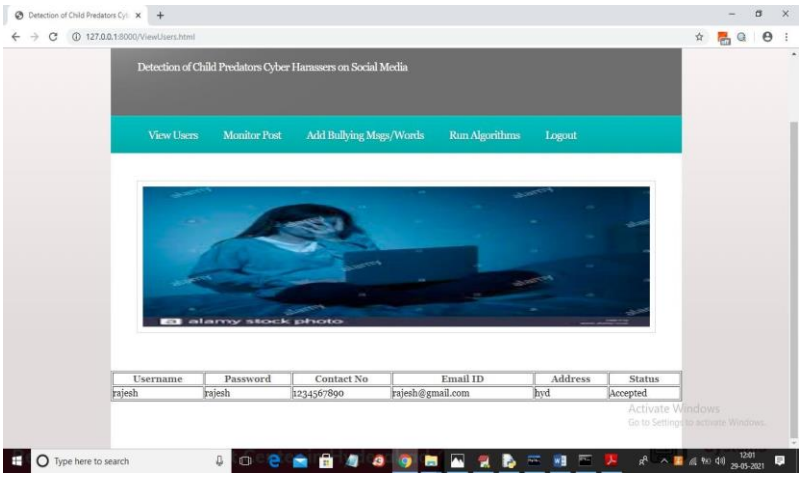

Fig .6 We can see 'Rajesh' account created. Now click on 'monitor post' to view all postfrom past users.

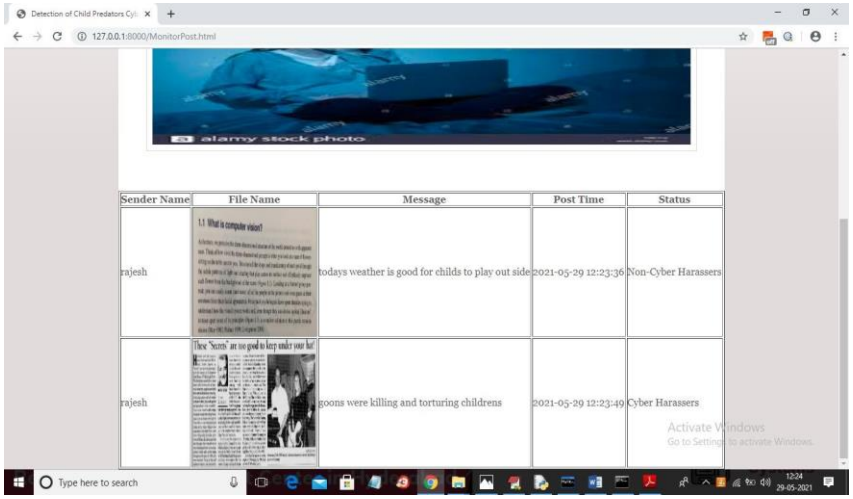

Fig .7 Admin adding one word as 'Cyber Bullying' and similarly he can add all possible bullying and non-bullying messages.

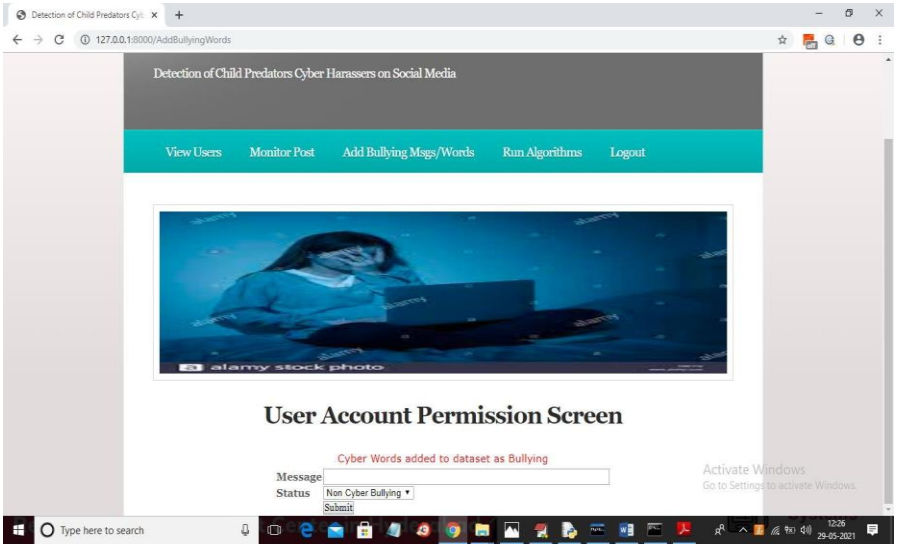

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Fig .8 Now admin can click on Run Algorithms' link to generate train model using entire dataset to predict user posts as normal or bullying/harasser's.

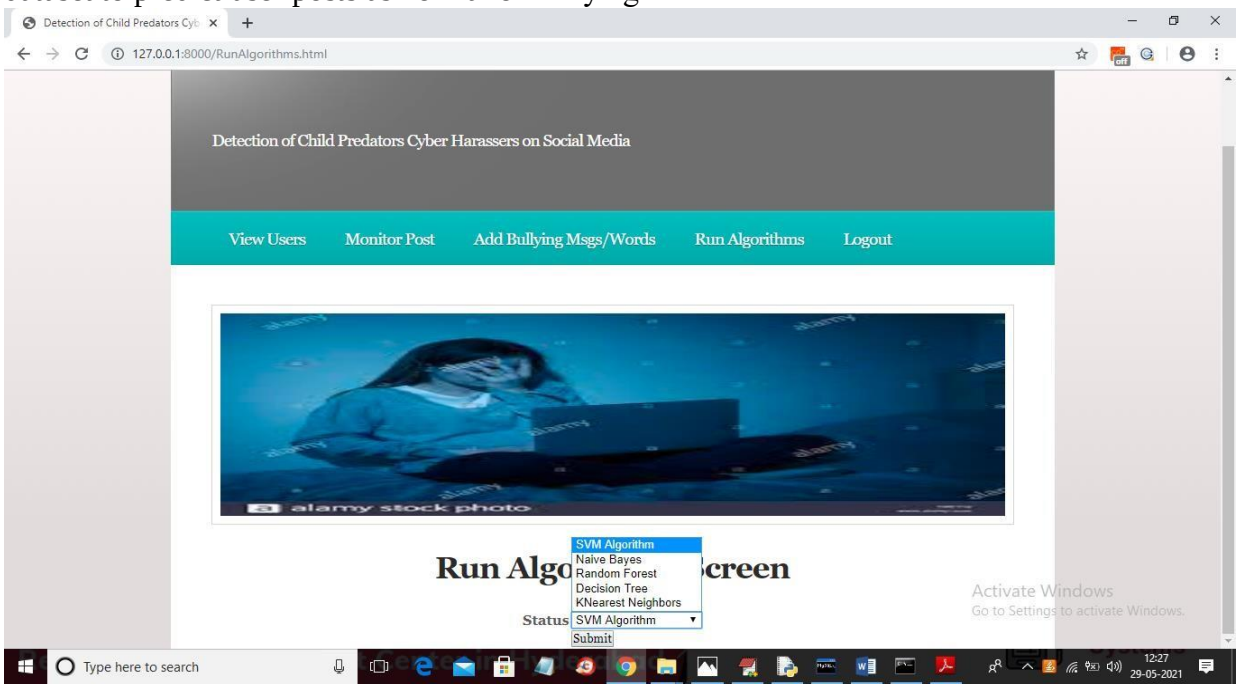

Fig .9 In above screen admin must select each algorithm and click on submit button to train model and we will get accuracy also for each algorithm.

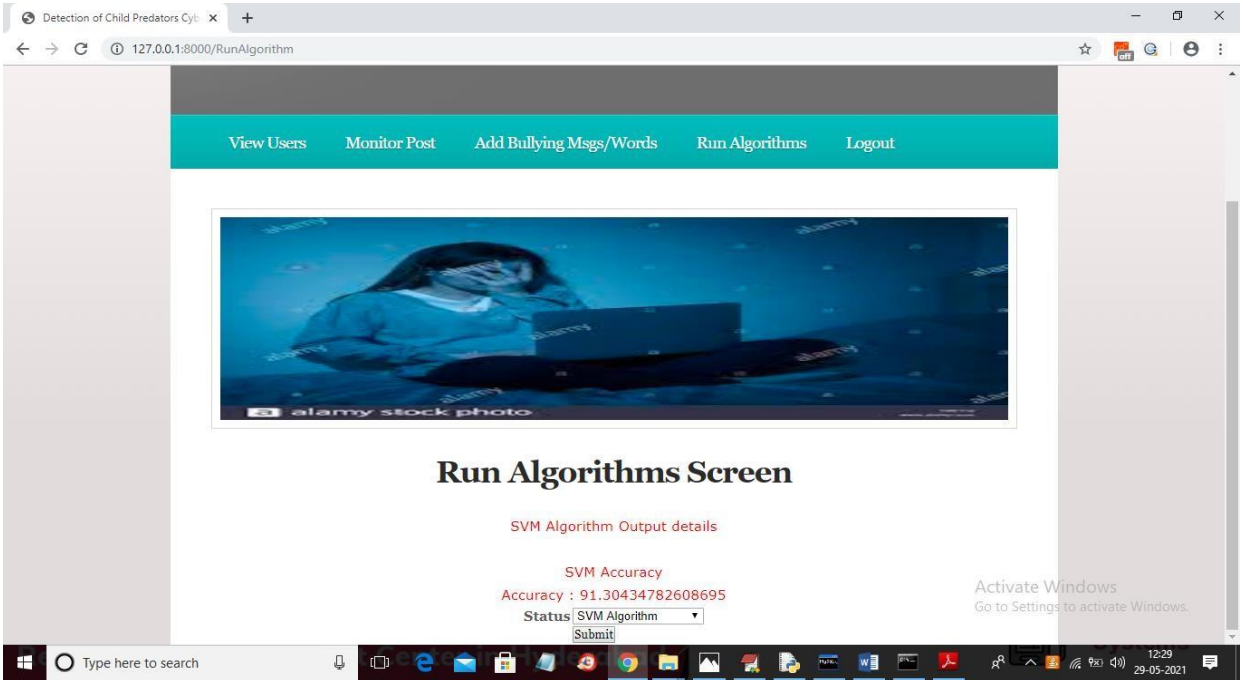

Fig .10 In above screen I ran SVM and got accuracy as 91. Similarly, you need to selectall algorithms one by one and run it.

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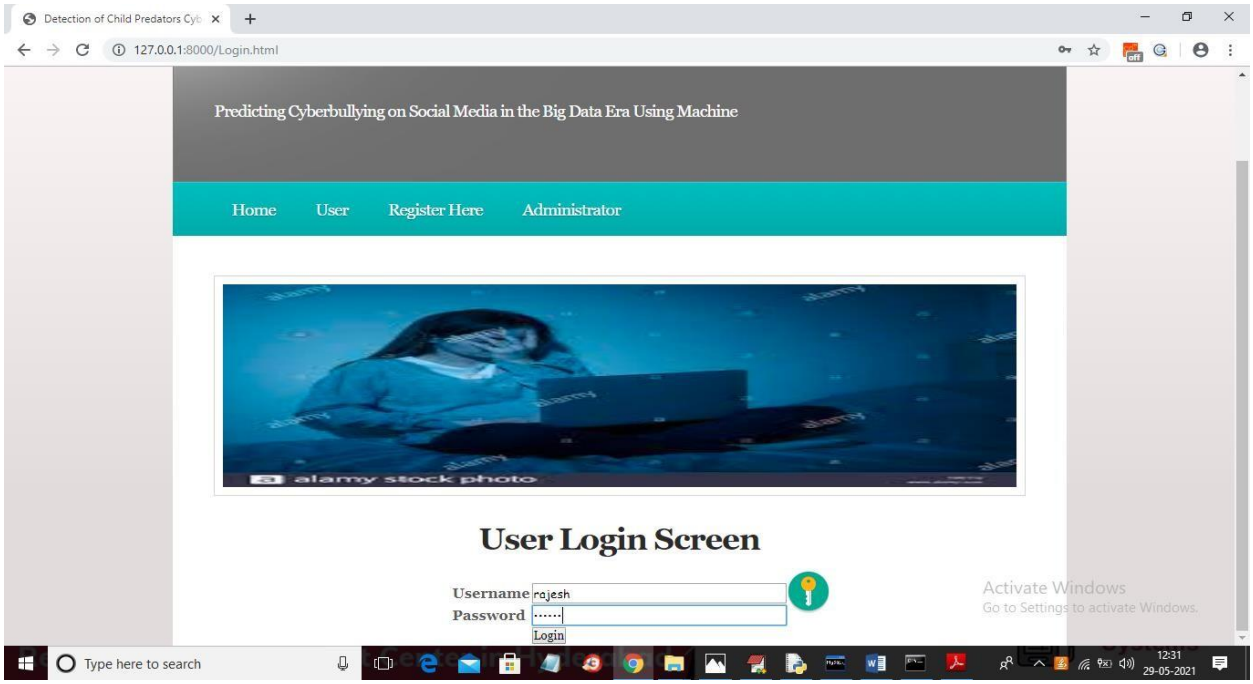

Fig .11 In above screen advance Random Forest algorithm gave 52% accuracy. Nowadmin logout and login as user to send posts.

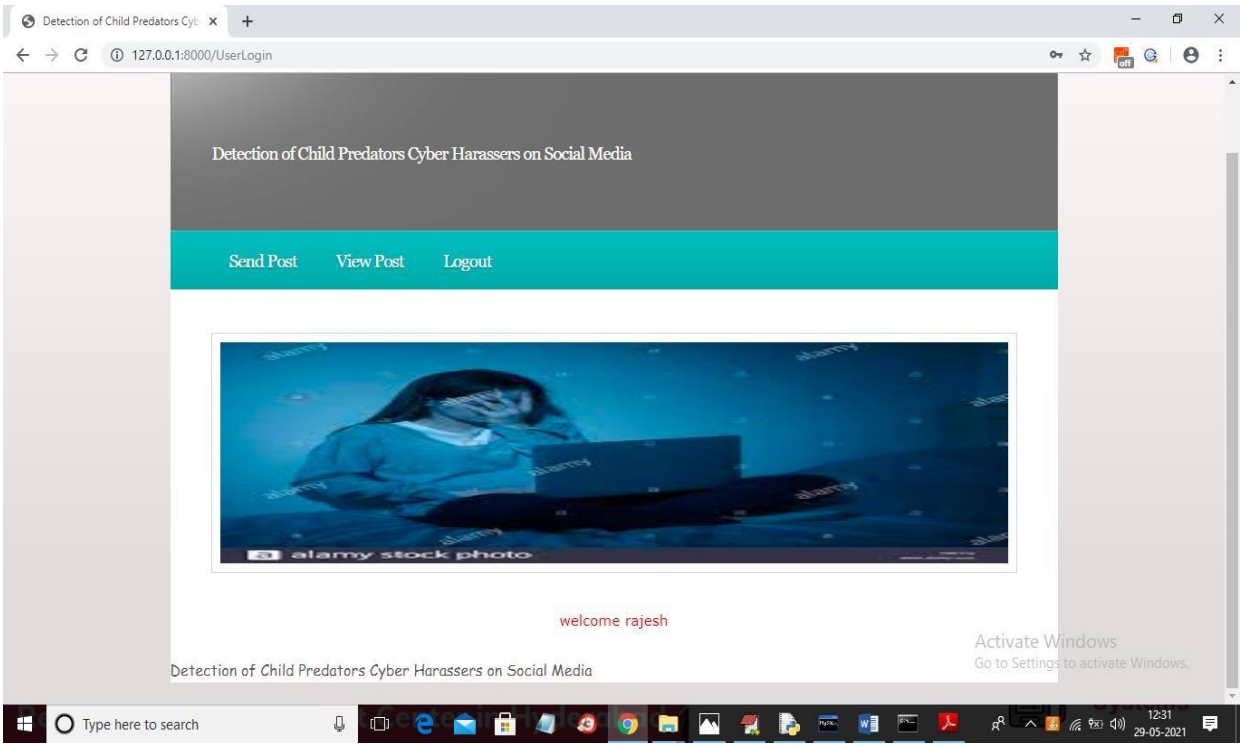

Fig .12 In the above screen click on send post link to get below screen.

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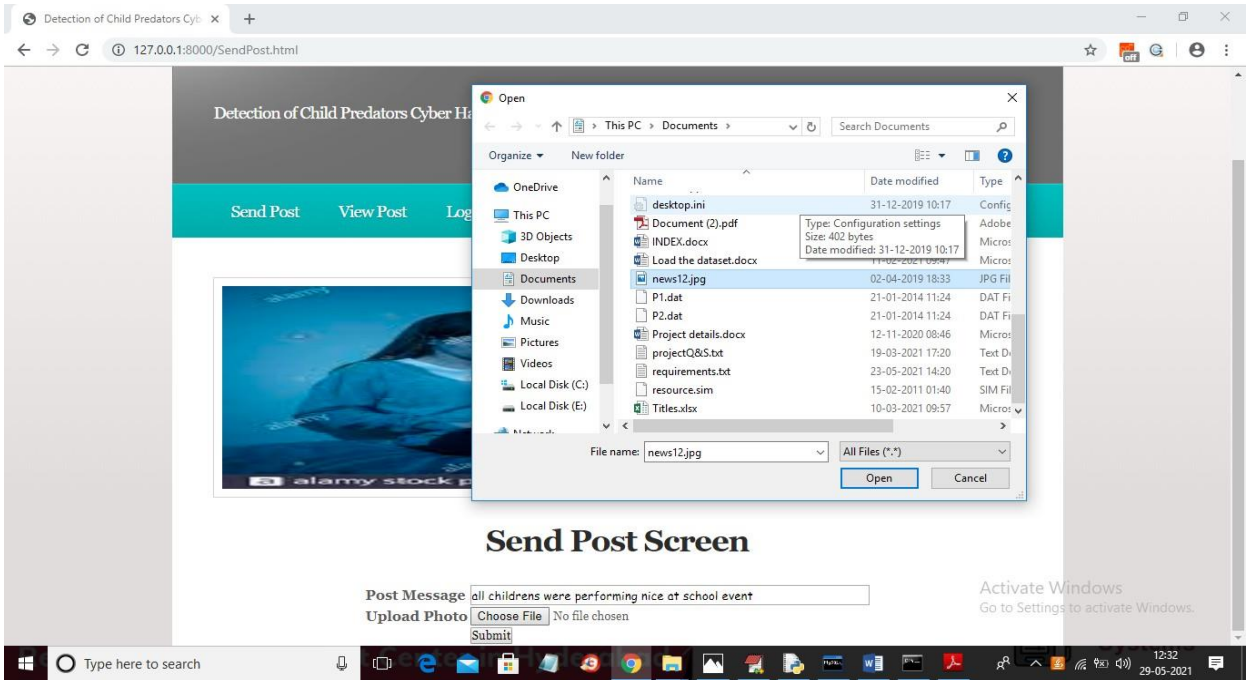

Fig .13 In above screen as post I added some messages and uploaded a photo also. After posting messages we will get below screen.

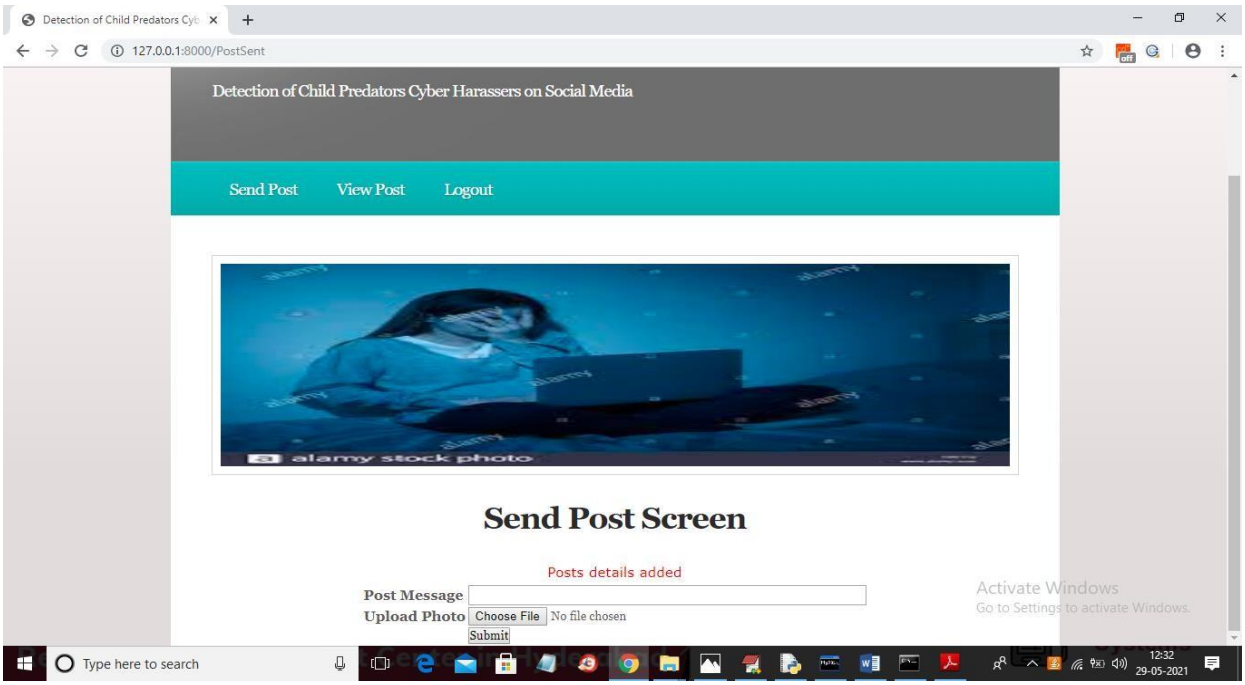

Fig .14 In above screen the post I added some messages and uploaded a photo also. After posting messages we will get below screen.

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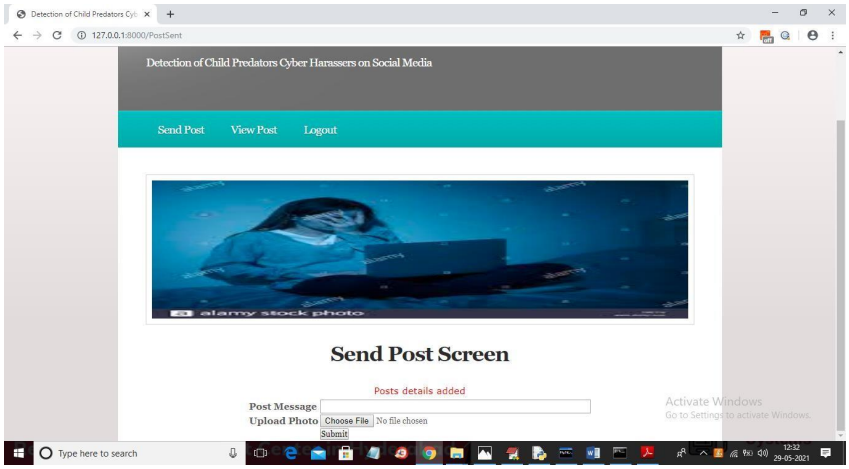

Fig .15 Now try another message.

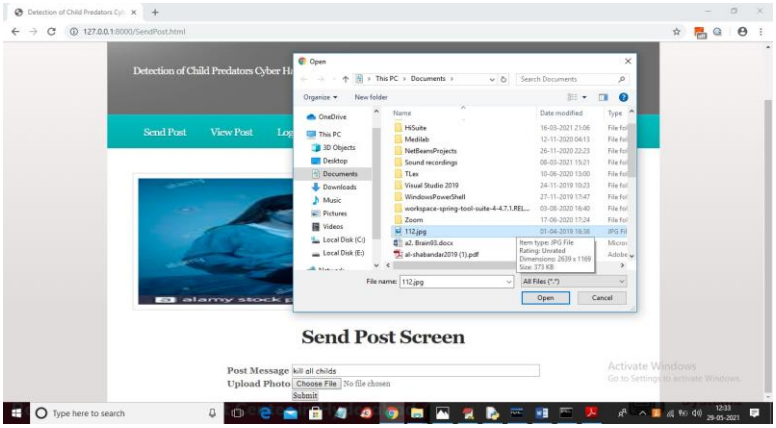

Fig .16 In above screen add another message and now click on view post link to get all posts sent by users.

6. CONCLUSION

The cost to youngsters and society of sexual commission is simply too nice to overlook the hazards of on-line solicitation. The aim of the groomer is to build a relationship with a child in order to gain access to that child. When grooming takes place, it is common that an adult groomer is pretending to be a child with common hobbies or interests to build a relationship that includes trust with the child. In this project, we detect predator of child for child safety. And send report to cyber admin for action.

Online dating risks are not disregarded because of the high costs to teenagers and the sex business. To be able to communicate with the child, the groom wants to make a connection with that child. When it comes to grooming, it is typical for the older son-in-law to act like a young person with comparable interests in order to establish a rapport based on trust and confidence. For safety, we notice a child abuser in this project. Send a report to the website administrator as well for consideration.

FUTURE SCOPE

Our goal is to advance our approaches by providing real-time identification of abusive behaviors with

the use of properly calibrated distributed stream and parallel processing engines. To do this, many computing systems and modelling methods could be used.

We can also launch an application for this website and can be used to prevent child abuses and harassments. People in all corners of the world are continuously exposed to a great number of crimes daily. With the emergence of new technologies and ways of communication, the scale and number of such crimes rise. While some offenses are vividly observable, others remain unseen by the general public due to their highly concealed nature. One such dangerous crime is sex trafficking that exposes millions of people around the world to forced sex labor.

Although it affects women, men, and minors, children are the most vulnerable population impacted by child predators' crimes and sex trafficking. Such a consideration is validated by the fact that children and adolescents are insecure about the right and wrong, they might be easily manipulated, and ultimately have their health, social identity, and psychological state impaired. Moreover, the high level of transparency of children online, as well as the availability of internet platforms for predators' activities, aggravates the scope of the crime. Therefore, it is vital to work on the effective ways of such crimes early recognition and addressing to protect children from sex trafficking.

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