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# Spam Detection Using Chatting Application

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**ABSTRACT:** With the increasing use of social media, there is also growth in the spam messages being sent on social media especially on chat applications. And there is no one to restrict this spam users. Some people also use this for illegal activities. This messages may be in the form of links, text messages or pictures. Some activities on social also include troll or sometimes some inappropriate content that one is not supposed to send in friendly and healthy environment. Somehow, there is need of restricting this messages and create healthy environment of chatting for all the age groups. In this project, android chatting is being developed in which spam messages will be identified and restricted from being sent using machine learning algorithms. And if message is proper then only it will get sent.

**KEYWORDS:** Machine learning, spam, troll, illegal

## I. INTRODUCTION

Spam messages may ranges from funny text message to deadly virus that may also corrupt the system. Spam messages can be of many types, also in many forms. It may be in text form or picture form or it can also contain the blacklisted links. Well, detecting spam message is not only motive of this project. Creating the chatting application on which, only appropriate and legal messages are sent that's what is needed at present times. Sometimes messages of false news get viral. Also the messages that does hurt someone feelings or destroy one's mental health are not accepted. Also now a days even the children use the mobile. Preventing them from seeing inappropriate content is important. Due to all such reasons the spam detection is important. This spam detection technique is being used in spam email detecting. But detecting whether the appropriate messages are being sent on social media is important. Basically after identification of such inappropriate message filtering will be done means simply the appropriate messages only will be sent. For this machine learning approach is preferred. There are some small algorithms that can be used here. When detecting text messages the first algorithm after splitting the message stop word removal. And then filtering is done using pattern based algorithm as it will just stop the message if some inappropriate word is present in the message. And for image filtering we have used Image API. This API makes use of machine learning technology and using it, it simply assign the tags to the images based on the content inside the images. So this tags will be checked with the words in the database of the words we have stored. Basically this words are indication of inappropriate content. Example, if the image gives the tags like gun and gun is the word we have stored in database. So Image will not be sent to another end. But is image tags are not matched with the words in the database then it's the indication that image is appropriate and safe to send to another end. Similarly for links we will take data from OWASP site which contains the data of spam/illegal sites. So this link will also get restricted from getting sent on this chat application. All these messages are end to end encrypted. After checking the content and before sending the message the messages are getting encrypted



and on firebase database one cannot see the message and they are stored in database in encrypted form persisting the user’s privacy.

**II. EXISTING SYSTEM**

In 2017 paper of Spam detection on social media text by author G.Jain, Manisha, B.Agarwals [1] said about spam detection on social media text, spam in the form of text messages has been detected in which machine learning technology was used. But limitation of this system was it detect spam for text messages only and not for images and URL’s that get sent on social media. In this paper support vector machine model is used for spam message classification. The training text messages are represented in the n-dimensional vector. In 2018 paper of Development of content based SMS classification application by Serkan Balli [2], it has presented the System which classifies the messages based on contents means the words that are getting used in the messages. But the drawback is it can be used on short text messages only.

**III. ARCHITECTURE**

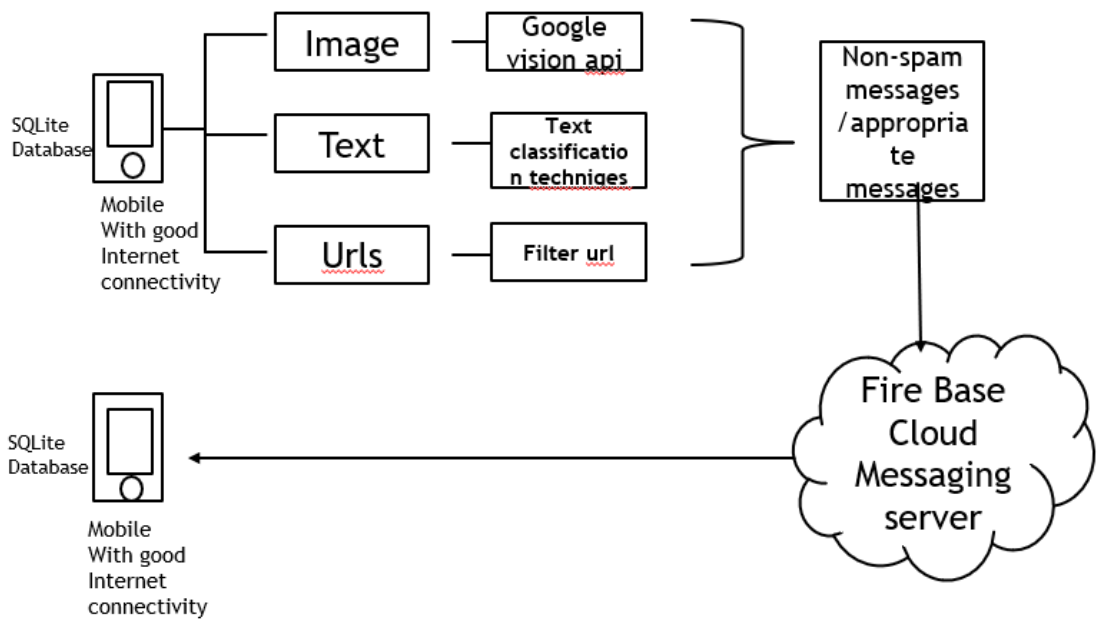


Figure 1 Architecture of spam detection using chatting application

Here, Fire base cloud messaging server is Google’s cloud-hosted database which is real time. Here all the data of registered users will be stored in real time database. And also the data of messages. But this messages will be stored in encrypted form to intact the user’s privacy. All the data is stored as JSON and is synchronised in real time. From there the message will be sent to the other end means the intended user at the other end.

**IV. METHODOLOGIES**

For text message filtering the first step for processing is

1. Stop word removal: Stop words are the frequently used word in sentence like preposition the articles (eg.as, are, the, of, an, a, this, that, if, he).Such words are removed for next step of processing text message as there is nothing inappropriate in this words. And to lower the processing time of next processing step. The algorithm is implemented as below given steps



**Step 1:** The message to be sent is tokenized. It means the message is separated into words and stored in array.

**Step 2:** Stop words list is created

**Step 3:** One stop word is taken and it is compared with every word in the array of message and if it matches that word is removed from array and comparison is continued for remaining words

**Step 4:** This is repeated for every stop word.

**Step 5:** Finally all the remaining words of array are combine and converted into string

2. Pattern matching: Pattern matching is basically string searching algorithm. In this we will have to search the inappropriate words in user's message. And if found restricting that message and also showing user using toast message that message you are trying to send is inappropriate.

**Step 1:** Take the word from the list of inappropriate words and check whether it is contained in the message string.

**Step 2:** If it contained that word restricting the message from sending and letting user know about it by shoeing toast message

**Step 3:** If not message will be encrypted and sent

3. Imagga: It is the API which will give the labels to the images and this labels are stored in array and every label is compared with the inappropriate database words stored. And if it matches then that image will be restricted from sending

The interface and result of chatting application for spam detection is shown in the below screenshot. It is showing that one will get the toast message saying message is inappropriate.

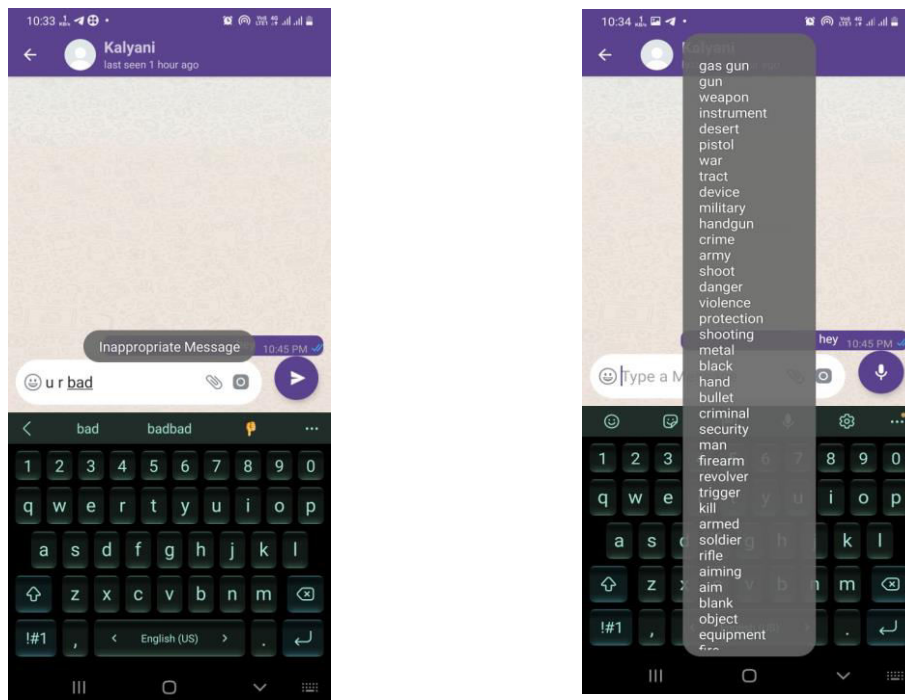


Figure 2 Output for spam words

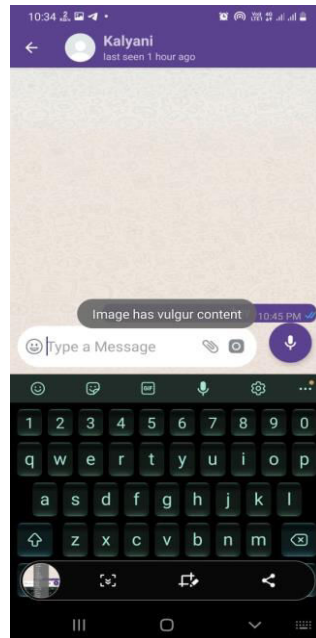


Figure 3 Output for spam image

## V. CONCLUSION

Spam is a serious issue that is not just annoying but also a security risk. Message containing inappropriate content is harmful for someone's security and sometimes may be mental health as well. Sometime contents are illegal that can be stopped and sometimes the contents are inappropriate for children. Also, some spammers send the messages saying some offer or lottery winning. Considering all this things this chatting application will create a safe environment for chatting for all the kinds of users. The descent content and security of user's will trust in user's mind. So, in all the ways this chatting application is secure.

## VI. FUTURE SCOPE

There are different aspect for future research. As a future work, group chatting feature will be added. By providing feature this in group chatting, spam or illegal or inappropriate messages will be restricted from getting sent to group of users at the same time.

## REFERENCES

- [1] Spam Detection on Social Media Text Article in INTERNATIONAL JOURNAL OF COMPUTER SCIENCES AND ENGINEERING, Author Gauri Jain, IBS Gurgaon
- [2] Development of content-based SMS classification application by Serkan Balli, Department of Information Systems Engineering, Faculty of Technology, Mugla Sitka Kocman University, 48000 Mugla, Turkey
- [3] Pattern Recognition and Machine Learning (Information Science and Statistics)
- [4] L. F. Cranor, & B. A. LaMacchia, "Spam!", Communications of the ACM, Vol 41, Issue 8, pp.74-83. 1998.
- [5] [3] G. Jain, & M. Sharma, "Social Media: A Review", In Information Systems Design and Intelligent Applications, Springer India, pp. 387-395. 2016
- [6] M. Nelson, "Spam Control: Problems and Opportunities", Ferris Research, India, pp.23-82, 2003. [4] G.V. Cormack, J.M.G. Hidalgo, E.P. Sanz, "Feature engineering for mobile (SMS) spam filtering", In Proceedings of the 30th annual international ACM SIGIR conference on Research and development in information retrieval, US, pp. 871-872, 2007.
- [7] Z. Yang, X. Nie, W. Xu, J. Guo, "An approach to spam detection by naive Bayes ensemble based on decision induction", In Sixth International Conference on Intellige



- [8] G.V. Cormack, J.M.G. Hidalgo, E.P. Sáenz, “Feature engineering for mobile (SMS) spam filtering”, In Proceedings of the 30th annual international ACM SIGIR conference on Research and development in information retrieval, US, pp. 871-872, 2007.
- [9] T. Kurt, C. Grier, J. Ma, V. Paxson, D. Song, “Design and evaluation of a real-time url spam filtering service”, In 2011 IEEE Symposium on Security and Privacy, USA, pp.447-462, 2011.
- [10] J. Kim, K. Chung, K. Choi, “Spam filtering with dynamically updated URL statistics”, IEEE Security & Privacy, Vol.4, Issue.5, pp.33-39, 2007
- [11] B. Agarwal, N. Mittal, “Prominent feature extraction for review analysis: an empirical study”, Journal of Experimental & Theoretical Artificial Intelligence, Vol.28, Issue.3, pp.485-498, 2016.
- [12] M. McCord, M. Chuah, “Spam detection on twitter using traditional classifiers”, In International Conference on Autonomic and Trusted Computing, Heidelberg, pp.175-186, 2011.
- [13] Nagwani, N.K.: ‘A Bi-level text classification approach for SMS spamfiltering and identifying priority messages’, Int. Arab J. Inf. Technol., 2017



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