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Human Feelings and Emotions Based Captcha Using Higher Human Recognition Abilities

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Abstract: *CAPTCHAs abbreviated as Complete Automated Public Turing test to notify Computers and Humans Apart, have been introduce to rise above such problems. CAPTCHA is an confirmation process that is based on top of challenge response test. CAPTCHA present a mechanism that protects the users start spam and password decryption by a easy test. In this paper, we used to present a better CAPTCHA, which is clear-cut for humans to use and complicated bots to crack. The intent of differentiate between human beings and machines has been raise due to the corrupted operations of automatic bots. CAPTCHA is defined as a computer program or framework planned to distinguish human from device input, in all-purpose as a way of conflicting spam and automated extraction of data from websites. In another way, different text and images based CAPTCHAs have been crack recently by the bots. Hence , this is an chance for the growth of new anti-automation methods. In this paper, we propose simple and effective human emotion CAPTCHAs, in other words CAPTCHAs based on human feelings. Here, we use checkboxes because they are really hard for bots to analyze; this not only increases the security but also the efficiency of the system. CAPTCHA is a technique over the fixed text recognition techniques are that it is language-independent, do not need text-entry (e.g. for a mobile device), we also discuss the pros and cons of different type of CAPTCHAs that are already available and how our new CAPTCHA can overcome the problems of the previous CAPTCHAs used.*

Keywords: *CAPTCHA, spam, bots, human feelings, checkbox, Security and human emotions.*

I. Introduction

CAPTCHA technology has an experiment called the Turing Test. the father of modern computing, is Alan Turing, proposed the test as a way to examine whether or not machines can think like humans. The typical examination is a game of imitation. The aim of Captcha test is to create a test to differentiate that human beings can pass but machines cannot pass. It is also important that the CAPTCHA application is able to present different CAPTCHAs to different users. As the usage of internet is increasing day-by-day, the necessity for the online services is also increasing but with the increase of web-services attacks by malicious automated programs (bots) is becoming a major problem. As several companies provide free e-mail services, so called boot's sign up for hundreds of accounts every minute. To protect e-mail addresses from scrappers, to prevent dictionary attacks, worms and spams and many such things we use CAPTCHA. CAPTCHA stands for Completely Automated Public Turing Test to tell Computers and Humans Apart. As the name suggest CAPTCHA is used to distinguish humans from computers or machines (bots). Usage of CAPTCHA not only deals with the security but also with the performance of the online services. In other words, CAPTCHA is a set of programs that is used to distinguish between human-beings and machines.

CAPTCHA is the test for distinguishing humans and computers are apart. The CAPTCHA can be classified into following categories:

a) Text Captcha
b) Audio Captcha
c) Video Captcha
d) Image Captcha
e) Puzzle Captcha

a) Text Captcha- It is simple and very effective method to implement. In Text based captcha the Number of characters and digits are very small so the problem occurs for user to identify the correct characters and digits. Text Captcha is easy to identify the character as well as digits through Optical Character Recognition (OCR).

b) Audio Captcha- It is based on the sound based system. It is used for blind people inorder to prove that they are not robot. It is being developed for visually disabled users. It usually contains downloadable audio-clips. In this type of A CAPTCHA should possess three main characteristics:

a) Should be easy for human users to pass.
b) Should be easy to generate and grade for tester machine.
c) Should be difficult for bots to pass the task.

There are different kinds of CAPTCHAs available in the market. Like, audio, video, text-based, image based challenges etc. These are proposed over the years to avoid the bots from acting like humans. A simple captcha model involved three features during the selection. They are given as following: To begin with, the request shouldn't trouble on only a particular space, however should cover a couple of territories to give customers choices. Likewise, the question space can be picked in light of existing parameters—for example, diversions related request can be shown for approving a recreations site, or shape or nourishment things included question used for also appropriate regions. This segment is straightforward, and additionally makes the possible number of answers unfathomable. This makes it more troublesome for an outside program to make deductions about the space the overview covers and find any conceivable response for the given problem. Furthermore, request are shown self-assertively and allow a settled number of tries for the correct answer. This option ensures that request isn't replicated among customers, making it extreme for an outside program to predict the question beforehand. The settled number of tries controls the check technique in a steady circumstance. Thirdly, address length is an imperative sensitivity toward customers. We played out a preliminary survey with a get-together of test customers to choose the reasonable question length and particular characterizations of request. Most customers picked the question that was one to two sentences and fit on one line of the screen. For the most part, if the question is long, customers are depleted taking note of it and look for a substitute question to proceed. Along these lines, an extraordinary number of requests are expected to mirror customers' cravings and give a framework that supports a simple to utilize approval replica. There are many scenarios where captcha come into purpose and they all can be basically categorized as three different cased. They are mathematical, inference, and logical questions.

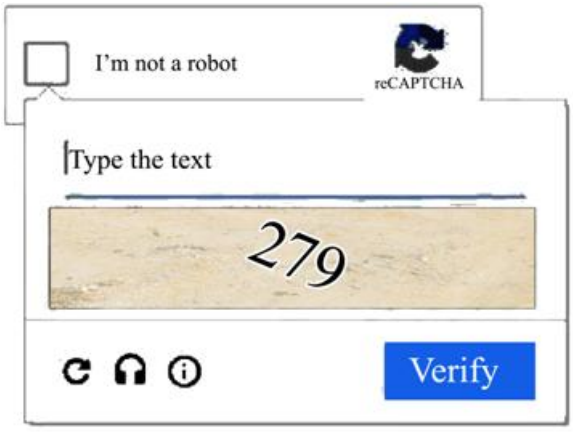

Figure 1.1 Text based CAPTCHA

The various tasks adapted, to access any website are visual puzzles, numerical puzzles, analytical ones that are interesting and simple to solve. The most used CAPTCHAs are the most secure ones. The following are some of the CAPTCHAs available in the market.ReCAPTCHA is one of the most popular ones. It is used by Google search engine and it works by a simple tick box to conform that "I`M NOT ROBOT". This can be accessed also by the people who are visually impaired as it consists of audio alternative. It checks the behavior of the user to conform users' presence, as in Fig 1. 2.

Nucaptcha is which tracks the users' behavior on the site and can tell if you're not human. Dis-advantages for this applies- what if a human who doesn`t act like other humans use? Sweet Captcha And Playthough is a method in which we match similar categories by dragging and dropping the required one. Biometric Security is the one which runs with the fingerprint, eye-scan, face-scan etc.

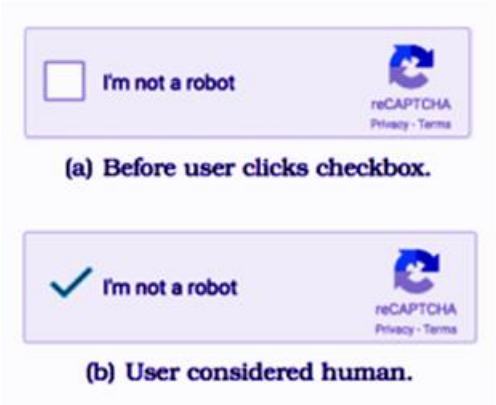

Figure 1.2 Recaptcha

These CAPTCHAs' are mostly used for the security purposes such as Protecting E-Ticketing, Web Registration, online polls, Spamming in blogs and even more. Besides elimination of conscious robots, captcha do fill a requirement. They are usually found during online activities, such as Form Submissions, Posting comments and Registration CompletionBest Methods like captcha used in current social media:

1.1 Automated And Manual Spam Detection
1.2 The Honey pot Method
1.3 Centralizing The User Base
1.4 Recording User Time Expenditure

1.1 Automated and Manual Spam Detection

This breaks down client submitted information and banner spam consequently. This occasionally introduces a captcha, however just when it's uncertain. Nevertheless, why not build up your own particular framework that is tuned to the mechanics of your site?Assuming liability and removing the burden from clients will enhance their communications with and impressions of your site. Physically directing substance is regularly surrendered worth making.

1.2 The Honey Pot Method

This proposes a shrewd strategy for distinguishing bots, utilizing a honey pot. The thought behind the honey pot technique is straightforward, site structures would incorporate an extra field that is covered up to clients. Spam robots handle and communicate with crude HTML as opposed to render the source code and thusly would not distinguish that the field is covered up. On the off chance that information is embedded into this "honey pot," the site overseer could be sure that it was not done by an honest to goodness client.The honey pot technique can be made more advanced by utilizing JavaScript and information hashing. These jumbling strategies are not hack-confirmation, but rather we can accept that robots are not sufficiently refined to enter the required data.JavaScript can be utilized to fill in concealed fields powerfully, which server-side approval can check for. Scratch media gives a case of this shrouded field arrangement, alongside an option CAPTCHA if JavaScript is crippled.Additional timestamp and session information checks can likewise be utilized to recognize robotized entries. A current examination on Stack Overflow gives numerous cases and thoughts regarding this, including the usage of Hash cash, which is accessible as a Word Press module. A jQuery tutorial clarifies a comparable technique and incorporates a fascinating thought.

The similarity proposes that, as with CAPTCHAs, the technique utilized does but rather stop interlopers the nearness of any obstacle by any stretch of the imagination. As said, spammers as of now have an excessive number of focuses to try hunting down a secondary passage.

1.3 Centralizing the User Base

With the ascent of the social web, numerous websites now permit clients to enroll and connect with each other. Distributing to an outsider website was generally done either by enrolling an undeniable record or by submitting absolutely secretly, both of which strategies leave the entryway open to spam. In 2008, Facebook declared Facebook Connect, which gives sites and their clients with an incorporated stage that addresses this and different concerns. Twitter stuck to this same pattern in 2009 with a comparable administration ("Sign in with Twitter"). Both of these administrations can be actualized on sites generally effectively, and they wipe out the requirement for enrollment and remark frames, which are open to robots.Such a large number of sites offer

interpersonal interaction coordination that administrations have flown up. This gives a disconnected umbrella answer for guarantee that sites are available through any record stage.Different administrations, for example, the commenting Discuss platform, permit client communication with inherent spam discovery and client sign-in.Not so much secrecy but rather more responsibility make clients mull over the substance they submit. It likewise empowers human spammers to be identified and prohibited rapidly crosswise over whole websites; expel one Facebook profile and the entire Facebook Connect system is protected from that record proprietor's devious deeds.Such administrations, obviously, incite warmed open deliberations about security, information assurance and so forth… yet that is for another article. As choices for averting spam without captchas while keeping up ease of use and openness, they have incredible potential.

1.4 Recording User Time Expenditure

Another somewhat straightforward strategy that can be actualized without irritating clients is to recognize clients and bots by measuring the time they take to round out a contact shape or form a remark. By evaluating the normal time spent on a remark, one could characterize certain tenets. For instance, if an accommodation takes under five seconds, which is essentially unimaginable for a human however simply enough time for a bot to carry out its occupation, you could request that the client attempt once more. This instructional exercise on a slight variety of this idea for jQuery is justified regardless of a look, since most clients have JavaScript empowered. The entire attempt depends on one critical supposition: spammers favor pursuing the least demanding targets and will leave a site untouched if their underlying Endeavour fails (despite the fact that this can never be ensured).However, there are additionally numerous disadvantages to utilizing captcha:

a. It can debase the client encounter if input mistakenly.
b. It can display openness issues for individuals with regards to decoding the codes.
c. It makes a security weapons contest: captcha advances progress to make it hard for bots, bots react. Real clients stall out in the middle.

1.5 Disadvantages of Recent Captchas

Text based CAPTCHAs are the conventional ones. There are algorithms present to crack these types of CAPTCHAs. Moreover they are increasingly difficult for humans. Modern optical character recognition (OCR) algorithms can identify up to 90%.Hence text based CAPTCHAs are not secure anymore. Fig 1 shows the example of text based captcha. In case of image based CAPTCHAs like reCAPTCHA, an image is presented and users are asked some specific questions related to the image. Image might have some different features as well, as in fig 3. OCR can't be used to break this captcha. But this type of captcha is not user-friendly for colour-blind people. Sometimes when repeated responses are required deformed images are shown, which a problem is also. The interactive features aren't suited for mobile devices. Sometimes abstract images might be understood differently by the same user at different timesIn case of audio based captcha, it reads aloud the distorted characters for the visually impaired. Such CAPTCHAs are usually included with text CAPTCHA. But the problem with the audio based CAPTCHAs is that they don't work for the hearing impaired people. As these are used as an add-on feature over text CAPTCHAs, OCR can still be used to recognize the characters. Video based CAPTCHAs are the ones in which a video is presented to the users and some questions are asked about the video. OCR can't be used to crack this kind of captcha. But High bandwidth requirement and might be perceived differently by different people.

Figure 1.3 Image based Letter CAPTCHA.

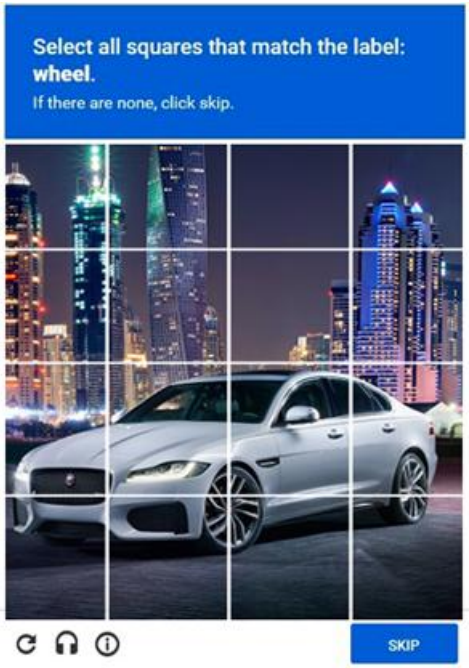

Figure 1.4 Image based Frame CAPTCHA.

II. Literature Survey

CAPTCHA based on human cognitive factor*:* Mohammad JabedMorshed Chowdhury [1], this paper tells about different types of CAPTCHAs used for enhancement of security and performance of social websites from bots. In order to enhance some of theadvantages by using these CAPTCHAs various ideas have been implemented to make these programs easy for users to solve. This paper shows new technique of providing 5 types of CAPTCHAs questions such as analytical, mathematical, general, text-based, and image-based. User can choose anyone of them to attempt which takes maximum of 10 minutes to solve. This is somewhat effective and user-friendly for the users. If more time than this is given it becomes a chance for a bot to crack it using artificial intelligence and pattern recognition. These questions are simple takes less time to solve for a user where he/she can have their own choice. They have implemented the interface with the results and analysis that how it works and it uses for detecting the bots easily. Survey has been done on this interface with 100 students and teachers from different departments of daffodil international university making an analysis out of that as 50 participants out of 100 are from technical who well supported the proposed system and other are non-technical where some of them are favour and some are not.

2.1 Human cognition based CAPTCHAS

Sanjib Kumar Saha, Abhijit Kumar Nag, and DipankarDasgupta: captchas must have automation, openness,usability and security. This paper comes up with a model which has three question categories-logical,inference and mathematical.

2.2 Algorithm To Break Visual CAPTCHA: Prof. (Mrs.) A.A. Chandavale, Prof.Dr.A.M. Sapkal and R.M.Jalnekar: CAPTCHAs are made in such a way that it is very hard for any automated script to crack them. This paper use an algorithm to crack visual CAPTCHA. The cracking of CAPTCHA gives strength of CAPTCHA which in turn helps to make more robust and secure CAPTCHA.

2.3 CAPTCHA Implementation Based on Moving Objects Recognition Problem: Jing-Song Cui, Jing-Ting Mei, Wu-Zhou Zhang, Xia Wang, Da Zhang: In this paper 3D animated based CAPTCHAs are implemented. This CAPTCHA cannot be cracked using image recognition and moving objects recognition in videos.

III. Proposed System

As the above defined CAPTCHAs we can have some disadvantages and as we can detect many drawbacks from these above mentioned characteristics. To resolve these at least to some extent we are discussing a new technique based on feelings in this paper. We use the simple fact "Humans can only understand feelings not bots". This gives an edge for the human-beings over bots. This may not solve the entire problem but it can be an efficient way to detect bots when compared to other techniques .It is also interesting for the users to solve the presented task without any frustrations.A simple question about feelings is asked to the user. He/she may have to choose one or more options from the given list. The question is a generalised one and it can be answered by the users easily. There may be more than one answer to the question. For example in fig 3.1, the question is "How do you feel when you get your favourite gift?" The options given are: happy, joy, cry, sad and sleepy. The correct answers are joy and happy. If the user chooses both the options then he/she can continue. If he/she chooses any one of the correct answers and nothing else, then the user is told to check for more options. If a wrong answer is chosen another captcha is shown.Sometimes, some users find it difficult to understand the words (feeling words) .so emoticons are used.This helps the user to understand the feeling easily. Colour blinded people, who cannot use image based CAPTCHAs find these CAPTCHAs easy to use. Like in image based CAPTCHAs, loads of images need not be stored in the database. Instead all we need is generalized questions.

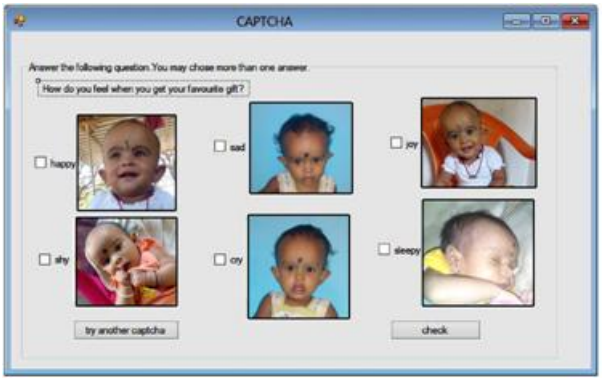

Figure 3.1 CAPTCHA based on human feelings.

We implemented our framework using C#.NET. Currently, the framework uses 10 questions that appear randomly to users. Figure 3 shows sample question. The questions are designed in such a way that there can be one or more possible answer/s. The question is designed in such way that it is general. Check boxes are used for more security, as bots find them difficult to analyze. It's assumed that a good number of questions will be available so that the chance of repeating questions for a user is statistically less. After the user enters the answer/s, it's compared with the stored result. Users have the flexibility to choose from a different set of questions by clicking the "try another" button as shown in Figure 3. This button will work for a limited number of tries (currently, three attempts are allowed). The number of attempts is maintained through a counter and is checked with the threshold value before the next click of the button.Facebook may soon ask you to "upload a photo of yourself that clearly shows your face," to prove you're not a bot. The company is using a new kind of captcha to verify whether a user is a real person. According to a screenshot of the identity test shared on Twitter on Tuesday and verified by Facebook, the prompt says: "Please upload a photo of yourself that clearly shows your face. We'll check it and then permanently delete it from our servers." The process is automated, including

identifying suspicious activity and checking the photo. To determine if the account is authentic, Facebook looks at whether the photo is unique

3.1 Drawbacks of different types of captcha

a) Text Captcha- In text images, user has some problem to identify the correct text or characters. Multiple fonts, Font size. Blurred Letters iv. Wave Motion. It can be easily identified by OCR techniques.
b) Audio Captcha- It is available in English therefore end user must have a comprehensive English vocabulary. Character that have similar sound.
c) Video Captcha- Due to large size of file, users face problem to download video and find correct captcha.
d) Puzzle Captcha- The task is not easy for users because puzzle based captcha take more time to solve the puzzle and identify actual arrangement of puzzles.

3.2 Applications of captcha

The various applications of Captcha are:

a) Registering the web forms
b) Online polling sites
c) E-banking
d) E-Ticketing
e) E-mail spam

IV. Conclusion

It appears to be clear, considering all of the merits and demerits of captcha, that the future rely in a system that is imperceptible to typical web purpose. The perfect captcha is far from perfect as a fulfillment in the current systems. If the spammers are completely not present to attack the system then, there will be no need to use the captcha to attack a shield. For present requirement, utilizing a CAPTCHA ought to be our final choice. Now while choosing the CAPTCHA also, we need to consider all the pros and cons of that particular CAPTCHA. Our Captcha model is not only easy and interesting for the users but also difficult for the bots to crack. But a question arises, "Do all humans feel the same way in a particular situation? "Well, the answer is no. So we ask generalized questions. Most humans answer in the expected way. If not, a different CAPTCHA appears. We assume that enough number of generalized questions can be made without repetition. This model can be used by color blinded people also. For them, this is better than image based CAPTCHAs. In this paper, the image based captcha improves the security. The Occluded image makes the difficult task for the user. Since image will appear as homomorphic images. To bring complexity for the user Shuffling chaotic encryption algorithm is being used. It overcomes the problem of several attacks. The image recognition is the task performed by the user. The recognized image is known only to the authenticated user. It provides the more challenging issue for spammer. Because of using Occluded image, it brings complexity for the spammer. Therefore, the spammer can be easily identified by the user.

References

[1]. Mohammad JabedMorshed Chowdhury And Narayan Ranjan Chakraborty, "CAPTCHA based on human cognitive factor", (IJACSA) International Journal of Advanced Computer Science and Applications, Vol. 4, No. 11, 2013.
[2]. Sanjib Kumar Saha, Abhijit Kumar Nag, and DipankarDasgupta, "Human-Cognition Based CAPTCHAs",IT Pro September/October 2015 Published by the IEEE Computer Society ,2015 IEEE.
[3]. A.A. Chandavale ,Prof.Dr.A.M. Sapkal and Dr.R.M.Jalnekar, "Algorithm To Break Visual CAPTCHA", Second International Conference on Emerging Trends in Engineering and Technology, ICETET-09.
[4]. Jing-Song Cui, Jing-Ting Mei, Wu-Zhou Zhang, Xia Wang, Da Zhang, "A CAPTCHA Implementation Based on Moving Objects Recognition Problem", International Conference on E-Business and E-Government, IEEE Computer Society ,2010.
[5]. Y. Xu, G. Reynaga, S. Chiasson, J-M. Frahm, F. Monrose, and P. van Oorschot,"Security Analysis and Related Usability of Motion-based CAPTCHAs: Decoding Codewords in Motion", IEEE transactions on dependable and secure computing,2013.
[6]. ShendePravin S., Prof.Bere S. S., "A Survey on: Efficient User Authentication using Captcha and Graphical Passwords", International Journal of Innovative Research in Computer and Communication Engineering,Vol. 3, Issue 11, November 2015.
[7]. S. Karthika and Dr. P. Devaki, "An Efficient User Authentication using Captcha and Graphical Passwords-A Survey", International Journal of Science and Research (IJSR), Volume 3 Issue 11, November 2014.
[8]. Inbaraj P and AbhinlalTP,"hall plan provisioning system for university examinations," International Innovative Research Journal of Engineering and Technology , June 2016.