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RESEARCH ARTICLE

CAPTCHA Problems on AI Based For Protection from Automated Hacking Tool

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Abstract- CAPTCHA is program that protects website from web-bots by generating test that computer cannot pass only human can pass. It is completely automated public Turing test to tell the computer and human apart. CAPTCHA is simple puzzle and display the word in distorted form and only human can understand it not any other automated tools can pass it. CAPTCHA as a graphical password called as CaRP. It address the number of security problem such as online guessing attack, relay attacks, shoulder-surfing attack. CaRP offers reasonable security and usability. CaRP address the well-known image hotspot problem in graphical password system such as Pass Point. We will work on AI based CAPTCHA which is based on some AI logic. By the use of neural logic randomly questions are generated and answers are generated according to questions. It is beneficial for people who can understand the questions but not any automated attacking tool can attack with them. We provide security to the system and are also used in various applications such as in military system, online polls, E-ticketing etc. Also it protects the data from spyware attacker.

Keywords: “CaRP”, “CAPTCHA”, “Security”, “RECAPTCHA”, “Spyware”.

I. INTRODUCTION

CAPTCHA which stands for Completely Automated public Turing test to tell the computer and Human Apart. It restricts various automated programs to sign-up E-mail accounts, cracking password, spam sending and privacy violation etc. CAPTCHA helps to prevent access of personal mail accounts by some un-authorized automated spamming programs. Over the past few years, an increasing number of public web services are to prevent exploitation by bots and automated scripts, user to solve a Turing test challenge before using the service. The challenges must be easy to generate but difficult for machines to solve. We provide best CAPTCHA for protection against spyware which is developed by using artificial intelligent programming which carries random questions which is easy to understand for people but not understandable for machine by the use of neural logic the randomly questions and answers of that questions is generates.

II. LITERATURE SURVEY

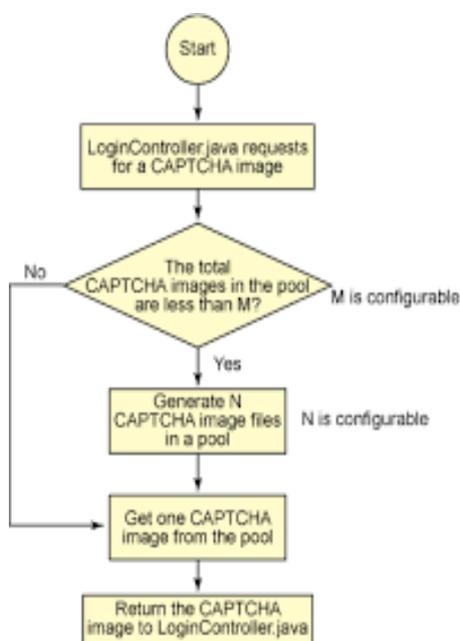


Fig.1 Flowchart of CAPTCHA

A. Types of CAPTCHA

1) Text-Based CAPTCHA

It represents in distortion form contains case-insensitive letters. Text-based CAPTCHA is deployed in famous web- sites, examples Yahoo, Hotmail, Gmail, YouTube etc. Gimpy, Baffle-Text and MSN-CAPTCHA are the types of Text-based CAPTCHA [8] [11].



Fig.2 Text-Based CAPTCHA

II) *Image-Based CAPTCHA*

In Image based CAPTCHAs are challenges that involve pictures or objects that have some sort of similarity that the users have to guess. They are visual puzzle. Computer generates the puzzles and grades the answers, but is itself unable to solve it. Image-based CAPTCHAs are tests in which the users have to choose those images that have some similar properties or objects.



Fig.3 Image-Based CAPTCHA

II) *Audio-Based CAPTCHA*

The program picks a word or a sequence of numbers at random, renders the words or the numbers into a sound clip and distorts the sound clip; then presents the distorted sound clip to the user and asks users to enter the contents [6].



Fig.4 Audio Based CAPTCHA

III) *Video-Based CAPTCHA*

A video taken from public database that have three words that describe that video as the video plays words may submit, i.e. the user doesn't have to wait for the video to finish before submitting these three words [4].



Fig.5 Video-Based CAPTCHA

III. RELATED RESEARCH WORK

Click Text

Click Text is a recognition-based CaRP scheme built on the top of text CAPTCHA. Its alphabet comprises characters without any visually-confusing characters. For example, Letter “O” and digit “0” may cause confusion in CaRP images, and thus one character should be excluded from the alphabet. A Click Text password is a sequence of characters in the alphabet e.g., $p = \text{“AB\#4CN87”}$, which is similar to a text password [2].

CaRP: An Overview

In CaRP, a new image is generated for every login attempt, even for the same user. CaRP uses an alphabet of visual objects (e.g., alphanumerical characters, similar animals) to generate a CaRP image, which is also a CAPTCHA challenge. A major difference between CaRP images and CAPTCHA images is that all visual objects in the alphabet should appear in a CaRP image to allow a user to input any password but not necessary in a CAPTCHA image [1] [7].

WHAT IS AI?

Artificial intelligence (AI) is the intelligence exhibited by machines or software. It is an academic field of study which studies the goal of create the intelligence. The goals of AI research include reasoning, knowledge, planning, learning, natural language processing , perception and the ability to move and manipulate the objects. General intelligence is still among the field's long term goals. Currently popular approaches include statistical methods, computational intelligence and traditional symbolic AI. There are a large number of tools used in AI, including versions of search and mathematical optimization, logic, methods based on probability and economics, and many others Some of the division is due to social and cultural factors: subfields have grown up around particular institutions and the work of individual researchers. AI research is also divided by several technical issues. Some subfields focus on the solution of specific problems. Others focus on one of several possible approaches or on the use of a particular tool or towards the accomplishment of particular applications [8] [9].

Neural network in AI

An artificial neural network is an interconnected group of nodes, akin to the vast network of neurons in a brain. Each circular node represents an artificial neuron and an arrow shows a connection from the output of one neuron to the input of another. Artificial neural networks are generally presented as systems of interconnected "neurons" which can compute values from inputs, and are Capable of machine learning as well as pattern recognition [5] [11].

B. Advantages of CAPTCHA

Text-based CAPTCHA: Text Based CAPTCHA is simple to implement so it is mostly used in website. Baffle Text based CAPTCHA is used for defect dictionary attack.

Image-Based CAPTCHA: There is no need of typing. Using image-Based CAPTCHA pattern recognition of image is difficult AI problem.

Video Based CAPTCHA: It cannot break using optical character recognition (OCR). It cannot effect by laundry attack. In some cases it provides greater security than Text-Based CAPTCHA and Image-Based CAPTCHA.

Audio-Based CAPTCHA: It is used for people that have visual impairment also friendly to people [4].

C. Disadvantages of CAPTCHA

Text-Based CAPTCHA: In that CAPTCHA's, user has faced some problems to enter the correct text or character or letter. Use of various lines, use of various shapes, use of multiple fonts and font sizes. This type of CAPTCHA is easily broken by OCR technique.

Image-Based CAPTCHA: The people that have color blindness face many problems. It can be identified by Random guessing attack or dictionary based attack. Large image database or servers required by these schemes to make the CAPTCHA.

Video-Based CAPTCHA: The size of files is large, so problem arises for users to download video and pass the CAPTCHA test.

Audio-Based CAPTCHA: System available in English so end users should have a comprehensive English vocabulary. Not working for dumb people or people that have low listening power [4] [12].

IV. CONCLUSION

In this paper we are going to design a framework which will protect data from spyware attackers and automated attacking or hacking tool which is malicious for our data. Here we are going to create CAPTCHA using AI which generates one own question and respective answers for that question will be given to the user for the tackle that AI problem is easy for human but very much difficult for machine to solve those question. Using this we are going to protect our system from different types of automated attack. Here our objective is to provide best CAPTCHA for protection against spyware is developed by using artificial intelligent programming which

carries random questions which is easy to understand solve by user but it is not understandable for machines which means spyware, bots or any machine tools that cannot solve this problem. Answer of AI problems is typed in textbox. These CAPTCHA this will produces best outcome from the above is unbreakable for machine hacking tools.

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