



OPEN ACCESS INTERNATIONAL JOURNAL OF SCIENCE & ENGINEERING

DIFFERENT TYPES OF CAPTCHA: A LITERATURE SURVEY

Vishal Shinde¹, Prof. Vijay Rathi²

Dept. Computer Engineering ,P.G.M.C.O.E Pune,India^{1 2}

vishalshinde900@gmail.com¹, vijay.o.rathi@gmail.com²

Abstract: CAPTCHA is an acronym for Completely Automated Public Turning Test to tell Computers and Humans Apart [1]. CAPTCHA is essentially utilized as security from these malevolent projects like Bot. Now a day's for web security we are utilizing distinctive sort of captcha. In this paper we portray all sort of captcha and furthermore depict their downsides all sort of captcha. We likewise portray utilization of captcha. Furthermore, survey paper of various kinds of Captcha.

Keywords – CAPTCHA, BOT, Turing Test, Security, HIP OCR

I INTRODUCTION

CAPTCHA was concocted in 2000 at Carnegie Mellon University by John Langford, Nicholas J. Hooper what's more, Luis Von Ahn [1]. CAPTCHA is an acronym for "completely Automated Public Turning Test to tell Humans and computer Apart" [2]. The advance of Web, Web security has turned into an essential issue. There are an excessive number of malevolent dangers over the Internet which may trade off your framework without any secure application which gives insurance against such dangers. One such danger is the Bot. A Bot is a malevolent program which has the ability to run mechanized errands over the system and in this manner making issue in the system[3]. CAPTCHA is one such shield which can be utilized as a insurance from these malignant projects like Bot.

A CAPTCHA may come in different structures like content based or picture based CAPTCHA. The Bot operation is like invert "TURING TEST" (given by Alan Turing)[2] where the program demonstrations like judge and the other individual acts like client. On the off chance that the client comes up short this test then he/she is thought to be a machine generally the client is considered to be a valid client or a person. CAPTCHA is a cautious framework that goes about as an instrument to check web Bots from abusing on the web benefits on the web including free email suppliers, wikis, web journals and so on. It is a HIP framework that is generally used to secure the web based applications. It is likewise called as a test reaction test which gives a test to the clients, when the client gives adjust reply he is considered as

human generally a web bot. CAPTCHA is a verification procedure in view of test reaction verification. CAPTCHA furnishes an instrument with the help of which a client's can secure themselves for spam and secret key decoding by taking a straightforward test. In this test a client will see either a picture or a content which are regularly misshaped. The client should enter the example precisely as appeared to him if the CAPTCH depends on content. In the event that the CAPTCHA depends on picture the client should enter the right name of the picture which accurately symbolizes

II CATEGORIES OF CAPTCHA

CAPTHCAs implies exhibiting a test reaction test to the clients or people. They are grouped in light of what is misshaped that is whether characters, digits, or pictures. A few kinds of CAPTHCAs are given underneath:

1. Text based CAPTHCAs
2. Image based CAPTHCAs
3. Audio based CAPTHCAs
4. Video based CAPTHCAs
5. Puzzle based CAPTHCAs

1. Text based CAPTHCAs : CAPTHCAs is an exceptionally easy to execute. It is exceptionally viable and requires a substantial inquiry bank. In Text based captcha the Number of classes of characters and digits are small so the issue happen for client to recognize the rectify characters and digits. The content based captcha is conceivable to recognize the character and digit through Optical character Recognition (OCR) strategy [2, 4]. In Text based CAPTHCAs straightforward made inquiries like as in view of number juggling condition some case are given underneath:

- A)What is Addition of two numbers ?
 - B)What is Subtraction of numbers ?
 - C)What object is in image ?
- Example of text based CAPTCHA :



Figure 1 Text Based Captcha (a)

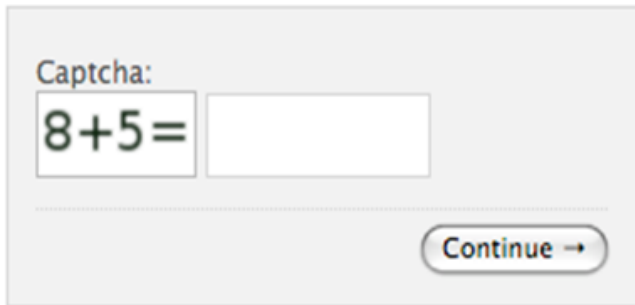


Figure 1 Text Based Captcha (b)

2. Image based CAPTCHAs : CAPTCHAs are challenge-tests in which the clients need to figure those pictures that have some comparability. For instance: visual riddles. In picture based CAPTCHAs client is required to character picture. The upside of picture based CAPTCHA is that example acknowledgment is hard AI issue and along these lines it is hard to break this test utilizing design acknowledgment system.

Example of image based CAPTCHA :

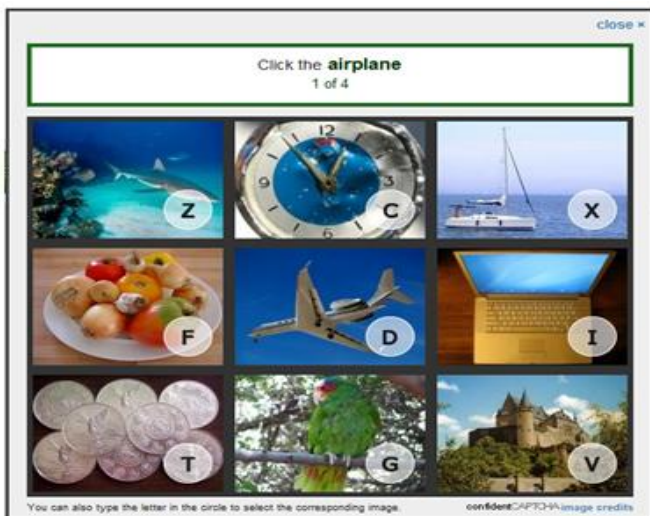


Figure 2 Images Based Captcha

3. Audio based CAPTCHAs : These CAPTCHAs depend on the sound-based frameworks. These CAPTCHAs are

produced for outwardly impaired clients. It contains downloadable sound clasps. In this kind of CAPTCHA, first the client tunes in and after that presents the talked word [2]. The principal sound-based framework name ECO was executed by the Nancy Chan an understudy from the City University in Hong Kong. The sound construct framework is based with respect to the contrast in the capacity between PC machines and people in perceiving talked dialect. The program picks a grouping of digits and words haphazardly and renders the words and number digits into sound clasps and contorts it. The twisted sound clasp is then displayed to the client to enter the correct word or number. The client is asked to enter the very same words as talked the sound clasp [6]. Case of sound based CAPTCHA are given beneath. Example of audio based CAPTCHA :

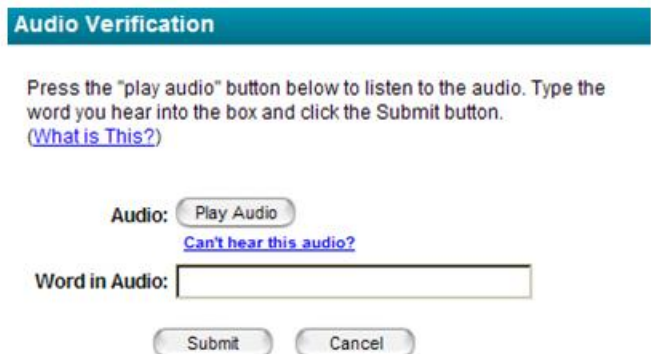


Figure 3 Audio Based Captcha

4. Video based CAPTCHA : Video CAPTCHA is a more current and less normally observed CAPTCHA framework. In video-based CAPTCHAs, three words (labels) are given to the client which portrays a video. The client's label must match to an arrangement of consequently produced ground truth labels at that point just the test is said to be passed. The term video CAPTCHA is utilized to any CAPTCHA that uses a video as its way to display data to a client [2, 6]. In spite of the fact that video CAPTCHA is constrained, both business and scholarly application do exist. Case of video based CAPTCHA are given underneath.

Example of video based CAPTCHA :



Figure 4 Video based CAPTCHA

5. Puzzle based CAPTCHAs :For the most part in puzzle based CAPTCHA a given picture is partitioned to lumps

[2,5]. A client should join these pieces in order to frame the entire picture same as the first one.

Example of Puzzle based CAPTCHA :

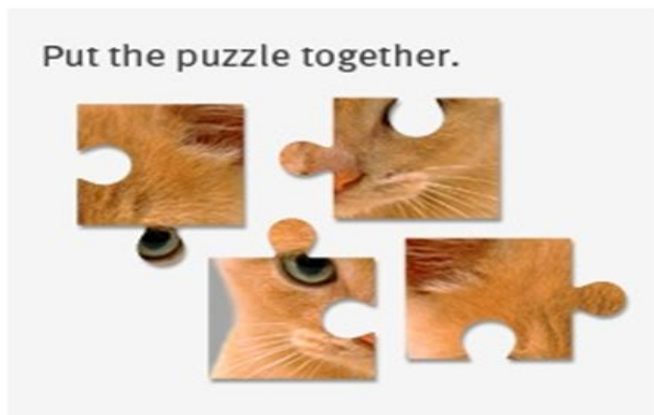


Figure 5 Puzzle Based Captcha

III LITERATURE SURVEY

I have considered the exploration papers identified with the distinctive sorts of captcha, as given beneath Wei-Bin Lee Che-Wei Fan et al. [1] In their exploration paper they have said another system for text based CAPTCHA in which a client can perceived the letter sets from a very contorted picture with the assistance of a tip. This system has been outlined such that it is extremely hard for a PC program to perceive the example of content yet, will be less demanding for a human to translate. In this component the content given to the client is the blend of upper case letters and lower case letters with high level of twisting. With every content a tip is given so a client can translate the content in light of that tip free of the degree of contortion. A client should distinguish each character, either in lower or capitalized, and to enter precisely the same stream of characters that has been appeared..

Baljit Singh Saini et al. [2] In this paper, they analyzes CAPTCHAs and its working and writing audit and they additionally portrays grouping of CAPTCHAs and its application regions and rules for creating a CAPTCHA. To actualize the CAPTCHA there are three strategies: Visual strategy, OCR (Optical Character Acknowledgment) and non OCR visual strategy. In this paper they are correlation sorts of CAPTCHAs. This paper gives a portrayal for different existing CAPTCHA plans with a writing review and gives a depiction to working of CAPTCHA. This is additionally depicts the grouping of different CAPTCHA plans. Lastly, the different utilizations of CAPTCHAs and examination between OCR what's more, NON-OCR based CAPTCHAs are likewise exhibited. Today different day by day exercises like stimulation, instruction, web based business and so forth are completed by utilizing the Internet. To perform such web exercises clients need to enroll in regards to the sites. In enrolling sites, a few gatecrashers compose pernicious

projects that waste the site assets by making programmed false enrolments that are called as bots. These false enrolments may hurtfully influence the working of sites. Thus, it ends up noticeably important to separate between human clients and Web bots (or PC programs) is known as CAPTCHA. CAPTCHA depends on recognizing the twisted content, the shade of picture, protest. This paper inspects CAPTCHAs and its working and writing Audit. This paper likewise gives characterization of CAPTCHAs, its application territories and rules for creating a CAPTCHA. There are three fundamental properties that CAPTCHAs must fulfill.

1. CAPTCHAs ought to be simple for human client pass.
2. It ought to be sufficiently adaptable with the goal that an analyzer machine effectively create and grade it.
3. Must be sufficiently hard for a bot to pass.

Xlao Ling-Zi et al. [3] In this paper they depict about CAPTCHA which depends on content. It has been generally utilized due to effectively open on the web. The CAPTCHA usage is extremely dangerous without cautious configuration .There are many assaults on content based CAPTCHA framework. A large portion of result from poor security and thoughtless configuration ignore. For this reason they plan great and well security to keep from assaults.

Chen-Chiung Hsieh et al. [4] In this paper they proposed an imaginative picture based CAPTCHA for recognizing human and PC by installing flexible characters in the pictures and in technique who they proposed it makes the characters undetectable via mechanized picture investigation innovations like scale-invariant component change while human can without much of a stretch recognize the area of the implanted characters . Their outlined component was proficient to evade such liberal of assaults. For in tests, 15 clients were welcome to test the framework and the achievement rate is 86%. On the off chance that wrong operations like clicking out of content boxes were rejected, the achievement rate came to 95%. Contrast the normal logging time and reCAPTCHA also, hi CAPTCHA, the proposed technique is quicker than these two strategies by 32 seconds and 115 seconds, separately. In this paper they proposed arbitrary number age module is utilized to choose picture and check characters for directing man machine recognizing. At that point shading, size, style, and edge variety are connected to the check characters. At last, the confirmation picture is produced.

S.Benson Edwin Raj et al. [7] Denial of Service is a basic risk to arrange security and is likewise considered to be a robotized arrange assault. To keep the framework from such sort of assaults the CAPTCHA shield must be actualized in the framework to recognize the distinction between the genuine client and the phony one. Nowadays OCR based CAPTCHAs are more powerless as there are an excessive

number of relationship calculation accessible in the Internet with the assistance of which these CAPTCHAs can without much of a stretch be broken. There is an approach to adapt to it and that is to make the CAPTCHA message more twisted, yet it has its own weakness as the client won't be agreeable to peruse such sort of CAPTCHAs. To conquer this issue another

CAPTCHA was presented called picture based or picture based or illustrations based CAPTCHA. This CAPTCHA in light of pictures has its own particular focal points as any pernicious program can't play out a division through edge location and thresholding, shape coordinating and irregular speculating. In the security examination process this system has indicated better outcomes.

Aditya Raj et al. [8] CAPTCHAs in light of OCR have been misused and are along these lines unreliable, while the CAPTCHAs in light of non-OCR are sheltered to use as they utilize normal aptitude of the individual's eye to distinguish the photo. They consolidated the idea of Sequencing in Picture CAPTCHA to manufacture another idea known as SPC. SPC age can be arranged in to two kinds – innate sequencing and non-inborn sequencing. The previous does not require labels while the last does. SPCs incorporate two levels of security, the first is the acknowledgment of items in pictures and the second one is to decide their coherent grouping.

Rich Gossweller et al. [5] Based on recognizing a picture's upright introduction another CAPTCHA system was presented. In this component the perplexing substance of a picture are broke down which is by and large an intense assignment for the machines to do yet a human eye can do it with no bother. The calculation utilized as a part of this system picks the pictures from the vault, more often than not from the query output, that can be naturally set upright effortlessly. They at that point apply a component which confirms that the rest of the pictures accompanies human conspicuous upright introduction. The most one of a kind component of this method is that it is dialect autonomous and does not require any content passage for the check of the client. Its execution is extremely fast in nature and there is full supply of pictures. They have performed many investigations to test the unbending nature of this component. JingSong Cui et al [9] In this exploration paper, another CAPTCHA has been specified which depends on moving question ID and following issues. It is alluded to natural movement vision demonstrate. In light of Edge Mutation an inventive Single-outline Zero-information manage is likewise put forward to the CAPTCHA age calculation. Simply after taking care of the moving item acknowledgment issue effectively an aggressor can get to the test benefit framework. These sort of vivified CAPTCHA are not just ready to check the assaults in light of static OCR innovation yet in addition

check the assaults against the moving item identification. Inside the examination paper they have specified three sorts of projects: the non-visual projects, the visual projects in view of OCR issues and visual projects in view of non-OCR issues. It most generally utilized and connected program is based on the visual projects in view of the visual projects based on OCR issues with the upside of usage what's more, operation. At whatever point a client makes a demand to the server, the server react to the client with a photo containing a string of arbitrary characters and numbers. The client needs to recognize the grouping of characters with a specific end goal to access the server assets.

IV RESULT

S.N O	TYPES OF CAPTCHA	LIMITATION
1.	Text based CAPTCHA	1.Simple captcha can be identified by OCR techniques. 2.complex captcha can be to difficult for user to understand due to i. Multiple fonts. ii. Font size iii. Wave motion
2.	Image based CAPTCHA	It is difficult for users to identify captcha who have low vision or
3.	Audio based CAPTCHA	1. It is accessible in English Hence end client must have a far reaching English vocabulary. 2. Character that have comparative sound.
4.	Video based CAPTCHA	Videos of large size that, users may face problem to download such videos
5.	Puzzle based CAPTCHA	User in puzzle based captcha takes more time to solve puzzle

V APPLICATION OF ALL TYPES OF CAPTCHA

- 1) Registering the web frames: There are many locales on the Web which give free enlistment to profit their administrations. Be that as it may, they are defenseless to web bots. It might come into the type of contents which can enlist a large number of email accounts on the web, consequently squandering the valuable space of web.
- 2) Online surveying destinations: These locales takes client's reaction or then again input as polls. To guarantee that lone human influences the reaction they to make utilization of CAPTCHA.
- 3) To evade web creeping: If a website wouldn't like to get listed by a web crawler then they can make utilization of CAPTCHA.
- 4) E-Ticketing.
- 5) Preventing Dictionary Attacks and E-mail spam.

VI CONCLUSION

In this paper, we have contemplated the various types of CAPTCHA have grown yet. A short review has been done on the CAPTCHA and rundown out the applications and downsides of various CAPTCHA in light of Text, Pictures, Audio, Video and Puzzles. In not so distant future, fundamental concentrate will be on to create CAPTCHA that give the straightforward entry to the client and largest amount of security by keeping the BOT assaults.

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