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## TITLE: IMAGE BASED CAPTCHA

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### Abstract

With data theft and computer breaks-ins becoming increasingly common, there is a great need for secondary authentication to reduce automated attacks while posing a minimal hindrance to legitimate users. CAPTCHA is one of the possible ways to classify human users and bots. CAPTCHAs are short for Completely Automated Public Turing test to tell Computer and Human Apart. The purpose of a CAPTCHA is to block unauthorized users. Image-based CAPTCHA is a security mechanism system designed to perform reverse Turing test, which is used to defend against malicious programs. IMAGE BASED CAPTCHA is widely used and builds up a high capacity to get no damage by the bots or unauthorized users. In this paper, we mainly made two contributions to CAPTCHA introducing a new system known as IMAGE-BASED CAPTCHA, a system which provides controlled distortions on a randomly chosen image for easy use and attack resistance mainly.

*Index Terms: CAPTCHA, image based CAPTCHAs, reverse turning test etc.*

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### 1. INTRODUCTION

A best way to tell humans and computers apart is by conducting a test. This test is called as Turing test in which human acts as a evaluator. If a Computer program is able to conduct Turing test and evaluate the result given by humans then it is known as CAPTCHA (Completely Automated Public Turing test to tell Computers and Humans Apart).

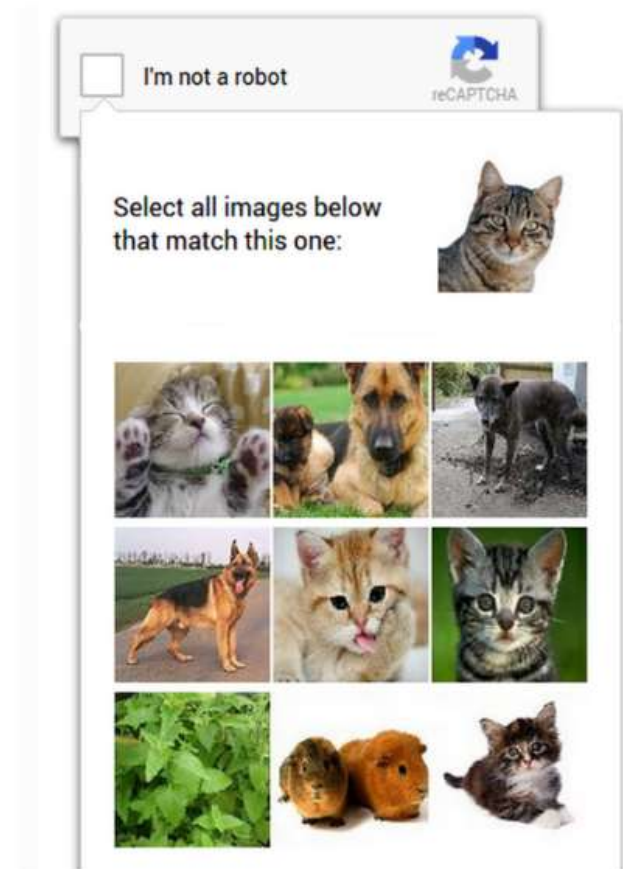
A CAPTCHA is a type of challenge-response test used to determine whether or not the user is human. This form of CAPTCHA has a system impulse the user to type the letters of a shown inappropriate manner image, sometimes with the combination of an altered sequence of images that appears on the screen. Because the test is administered by a computer, in comparison to the standard Turing test that is administered by a human, this specific technique is sometimes described as a reverse Turing test. This user identification procedure with image containing words has received many criticisms, from disabled people, and also other people who feel that their everyday work is slowed down by these difficult distorted words. In the past, Websites have often been attacked by malicious programs, hackers and viruses that register for service on a massive scale. Programs are written to automatically consume a large number of Web resources. To avoid this problem and/or error, researchers introduced an algorithm

to generate a semantically non-overlapping set of image choices while preventing at least attacks using the choices themselves. Because the location of the mouse-click on the composite image acts as additional user input, and together, it forms the two-step mechanism to reduce the rate of random attacks and saves it from bots.

By using a CAPTCHA it is much harder to automate such task: if the website can reliably detect that a computer program is using it and not a human, it can decide to deny its service to computer programs. The idea is to use a puzzle of different images, that only a human being can solve easily, but not automated programs. Thus human are able to solve it easily. The main objective of CAPTCHA is to ensure proper service to genuine, valid users while minimizing the attacks by bots. CAPTCHAs are being used for several services including web and financial services, and to provide security against malicious attacks for security purposes.

## 2. IMAGE BASED CAPTCHA

Due to explosive growth of internet, many bots use automated scripts to manipulate contents on websites to minimize such abuse researchers developed computer automated public Turing test to tell computer and human apart (CAPTCHA). Most implementation of CAPTCHAs consists of distorted images so that they can be solved only by human and unrecognisable to the bots. Earlier CAPTCHAs were very easy and state forwarded to solve so that unauthorized user used to hack that easily. As text CAPTCHAs generally lead to frustrating user work particularly on mobile devices image based CAPTCHA were developed for easy use by user.



**Fig-1: Image Based Captcha**

The above figure shows the best example of image based captcha. User can easily recognised the desired images given for the authentication.

As given above there are different images given an user need to select the appropriate choices of given instruction and select all the images until they are properly matched.

## 3. PROPOSED SYSTEM

Captcha is generated in DEV-SS. So when the developer s plug in, which has been installed by a customer in its website (WEB-SS) and invoked by a customer s user that opens the website in its browser (WEB-CS) needs to generate the captcha, it must request it from DEV-SS. The simplest solution would be the plug in to generate an iframe and just point its url in DEV-SS that returns the captcha html code.

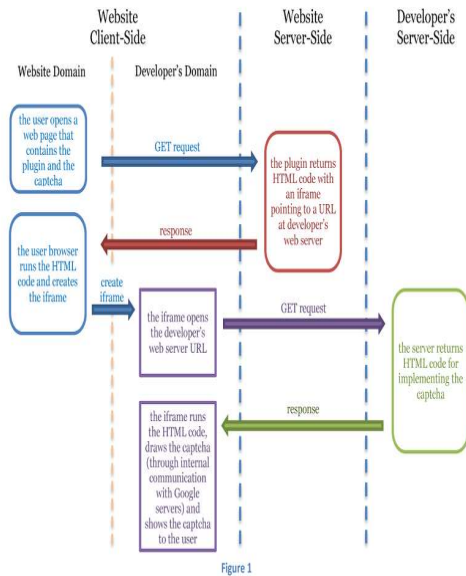
The below figure describes the whole cycle of form submission and interactions between the user, the web server and Google servers. The light grey interactions are done internally without any user intervention or programming from the developer. The client browser knows only the public key and response code. Even if some stole these data, it would not be possible to use them again. Google ensures that the combination of response code and secret key can only be verified once.

In addition, not all response codes can be combined with the secret key, only those that were generated from the website using the public key. If a hacker tried to generate response codes using a Google Recaptcha from its own website, this would not work. Notice that the web server performs its own verification of the captcha. It does not rely on client s verification, because this way it could be tricked

A final issue that must be resolved is captcha resizing. Sometimes, the new Google Recaptcha v2 displays additional information, like a gallery of images, prompting the user to select a specific pattern (e.g. select all images showing a beer). This additional visual information overlaps any other content and stays on top until the user makes a selection (or vanishes automatically after some seconds).

However, according to the aforementioned procedure, the captcha exists inside an iframe. Unfortunately iframes cannot resize to fit their contents (not in all cases, but for this definitely) and when the captcha needs to display additional visual information to the user, this information is cut and the user is not able to solve the captcha, so the whole procedure becomes useless.

To resolve this issue, the developer needs to add some extra\_provisions inside the iframe containing the captcha to detect when captcha resizes and through window messaging to notify the parent window (that owes the iframe) to resize the iframe, so that the whole captcha content is visible.



**Fig 2: System Architecture**

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## 4. ADVANTAGES

- It protects registration forms in websites from bots.
- It prevents spam comments so that only human being are capable of posting comments on websites.
- It makes online shopping more secure.
- It protects email accounts by malicious people.

## CONCLUSION

In this paper we have proposed image based CAPTCHA with the help of web development. Most of the websites require basic level of security code into their websites. so we present a safe CAPTCHA design framework based on the problems that we face while dealing with security issue due to unauthorized users. The implementation of this CAPTCHA is easy for the user.