



**JP INFOTECH**

SOFTWARE DEVELOPMENT & RESEARCH DIVISION

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## **EXTENDED MOBILE CAPTCHA IMPLEMENTATION**

### **ABSTRACT:**

A CAPTCHA is a type of challenge-response test used in computing as an attempt to ensure that the response is generated by a person. The process usually involves one computer (a server) asking a user to complete a simple test which the computer is able to generate and grade. Because other computers are assumed to be unable to solve the CAPTCHA, any user entering a correct solution is presumed to be human. Thus, it is sometimes described as a reverse Turing test, because it is administered by a machine and targeted at a human, in contrast to the standard Turing test that is typically administered by a human and targeted at a machine. A common type of CAPTCHA requires the user to type letters or digits from a distorted image that appears on the screen. Most interactive sites today are run by databases and become quickly clogged and sluggish when a database table exceeds capabilities the operating server can handle.

Standard CAPTCHA mechanisms don't work well on the mobile web. The goal of the Mobile CAPTCHA project is to embrace the limitations of mobile platforms to create a usable CAPTCHA mechanism that is also secure against bots. It is comparatively harder to automate data submission within native apps.



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This is due to the fact that you cannot just write an automated script to discover <form> elements within the *source code*.

We followed the IDEO's Brainstorming rules to come up with several potential designs for a mobile-friendly CAPTCHA mechanism, including arranging image fragments, shaking the phone in different patterns, a "Wheel of Fortune" interface, and a social network face recognition.

We observed users performing tasks where one of the steps was solving a CAPTCHA on a mobile phone, like signing up for a Gmail account or purchasing event tickets on ticketmaster.com. We came up with three design sketches based on these results.

The design used for our video prototype combines two existing image-recognition CAPTCHA mechanisms into a mobile form factor. First, users need to identify images from a specific category, then they need to trace an outline of the image on their touchscreen.

### **EXISTING SYSTEM:**

Standard CAPTCHA mechanisms don't work well on the mobile web. The goal of the Mobile CAPTCHA project is to embrace the limitations of mobile platforms to create a usable CAPTCHA mechanism that is also secure against



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bots. It is comparatively harder to automate data submission within native apps. This is due to the fact that you cannot just write an automated script to discover <form> elements within the *source code*.

### **DISADVANTAGES OF EXISTING SYSTEM:**

- Are not compatible with users with disabilities
- Time-consuming to decipher
- Technical difficulties with certain internet browsers
- May greatly enhance Artificial Intelligence

### **PROPOSED SYSTEM:**

An online test that humans but not computers are able to pass, used as a security measure and usually involving a visual-perception task: Site visitors must solve the “distorted text” CAPTCHA before posting comments. A type of test used to determine whether a request to a web site comes from a human or a computer program, typically by asking the user to perform some kind of image recognition task such as reading distorted text. The term was coined in 2000 by Luis von Ahn, Manuel Blum, Nicholas J. Hopper (all of Carnegie Mellon University) and John Langford (of IBM) as a contrived acronym for "Completely Automated Public Turing test to tell Computers and Humans Apart". CAPTCHA aims to prevent software tools from performing actions which might degrade the service, such as registering user accounts or automating the playing of a game.



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### **ADVANTAGES OF PROPOSED SYSTEM:**

- Distinguishes between a human and a machine
- Makes online polls more legitimate
- Reduces spam and viruses
- Makes online shopping safer
- Diminishes abuse of free email account services
- CAPTCHAs are used in attempts to prevent automated software from performing actions which degrade the quality of service of a given system, whether due to abuse or resource expenditure.
- When a user starts a registration process, the backend server starts a parallel process on the actual target website.
- When a Captcha is required by the target website, the image is then transferred and displayed as part of the “free” website registration process.
- Any parsing provided by the real user is then transferred as input to the target website.

### **MODULES:**

- ❖ Pre-processing: Removal of background clutter and noise
- ❖ Segmentation
- ❖ Classification



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### **MODULES DESCRIPTION:**

#### **Pre-processing: Removal of background clutter and noise.**

First preprocessing is needed to reduce the clutter to a level where k-means clustering can be applied. CAPTCHAs do not have to rely on difficult problems in artificial intelligence, although they can. Surely you've encountered today's ridiculous image Captcha routines, where they scramble a bunch of letters in a funny looking image, and then ask you – the human – to decipher and enter the text in a box, which is checked for a match before submission. Developing a CAPTCHA application isn't tremendously difficult, but it does involve text-graphics manipulation and requires your server to remember what the CAPTCHA is for your visitors session so they can match up the response with the original string.

#### **Segmentation:**

Splitting the image into regions which each contain a single character. The only step where humans still outperform computers is segmentation. If the background clutter consists of shapes similar to letter shapes, and the letters are connected by this clutter, the segmentation becomes nearly impossible with current software. Hence, an effective CAPTCHA should focus on the segmentation.



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Traditionally, defeating a CAPTCHA test requires two procedures: *segmentation* and *recognition*. Recent research shows that the problem of segmentation is much harder than recognition. In this paper, two new segmentation techniques called *projection* and *middle-axis point separation* are proposed for CAPTCHAs with line cluttering and character warping. we have done vertical segmentation using histogram.

### **Classification:**

Identifying the character in each region. For classification of the segmented numerals obtained, we have used support vector machines using individual pixels as feature vectors. After segmenting the numbers, we find the best fit rectangle for the numeral and then scale it to a prefixed resolution. The toughness of the separating numeral from clutter increases with the number of background lines. Each pixel of the image is analysed and its Manhattan distance from its neighbouring 8-pixels is computed. The binary-image filter aims at using the vacant space present around individual pixels to remove secluded pixels from the image obtained after color-based filtering. The resultant image from binary filter has many small connected components of clutters. Note that the pixel count of most of these noise patches is significantly less than the pixel count of the numerals.



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### **SYSTEM REQUIREMENTS:**

### **HARDWARE REQUIREMENTS:**

- System : Pentium IV 2.4 GHz.
- Hard Disk : 40 GB.
- Floppy Drive : 1.44 Mb.
- Monitor : 15 VGA Colour.
- Mouse : Logitech.
- Ram : 512 Mb.

### **SOFTWARE REQUIREMENTS:**

- Operating system : Windows XP.
- Coding Language : Java 1.6
- Tool Kit : Android 2.2
- IDE : Eclipse