

Captcha For Blind

A **CAPTCHA** is a program that protects websites against bots by generating and grading tests that humans can pass but current computer programs cannot. For example, humans can read distorted text as the one shown below, but current computer programs can't:

Google introduced the Word-Verification CAPTCHA feature to prevent automated spam robots from abusing the system. The problem was that blind readers can't read what's written on the screen. Sometimes, the individual letters are so distorted that normal web users can't figure out the answer text.

Google now has a solution. If you can't read or don't want to read that cryptic letter CAPTCHA, Google has launched an alternate Audio CAPTCHA as part of their word-verification process. Users can click the accessibility wheel chair icon and it spells out some numbers. Listen and type the numbers you just heard

Type the characters you see in the picture below.

troersic



Letters are not case-sensitive

1. Project Description :

Today lots of daily activities such as education, shopping and mailing are done through the Internet. By rapid growth of the Internet and the easy access to it, a great deal of private and personal information is available on the web. On the other hands, nowadays the Internet is not only for special groups of people, but peoples from any age and different groups are using the Internet. There are many websites for children on the Internet and the children using the Internet for various activities such as entertaining, educating, etc. The elderly people communicate and chat with their children and relative using the Internet. In addition to regular peoples, the disabled peoples are also using the Internet.

There are registration forms on many websites which users should fill out them to be able to use website abuse these services. As a result some systems named CAPTCHA (Completely Automated Public Turing test to tell Computers and Human Apart) have been introduced to tell interruption websites operations and websites cannot offer services to users. Various methods are presented to overcome above problem. The goal of these methods is distinguishing human users from computer programs. These methods are done automatically by computer programs since examination of a amount of registration forms by human forces needs a of time and expense. CAPTCHA (Completely Automatic Public Turing Test Computer and Human Apart) are systems which are used to tell human and machine apart automatically. These systems are based on Artificial Intelligence (AI) topics are similar to Turing test, The goal of these systems is to ask computer programs cannot. CAPTCHA systems also other applications such as prevention from sending spam . CAPTCHA methods can be generally divided to two groups:

1- **OCR-based:** Based on the weaknesses of Optical Character Recognition Systems.

2- **Non-OCR-Based:** Mainly based on the weaknesses of multimedia retrieval systems.

In OCR-based systems, image of a word is showed to the user after distortion and with various visual effects and he/she must type it. Considering existence of various visual effects, computer programs will encounter problems in the recognition of these words and only a human user can recognize the concerned word. Examples of these methods, are: Persian/Arabic Baffle Text and Gimpy . But these methods cause users' dissatisfaction. On the other hand some methods have been innovated to attack OCRbased methods language in any age group can use this program and run it .In contrast, there are Non-OCR-Based methods which are more comfortable for users than OCR-based methods.

These methods mainly based on the features of multimedia such as pictures and sounds and usually using methods like small puzzle games. Examples of these methods are PIX and Collage CAPTCHA However, some of the Internet websites are especially designed for disabled persons. Also these websites need protection against computer programs which try to use such as website resources. But common CAPTCHA systems are create a usually difficult for disabled people. In next section, some of the Non-OCR-Based methods which can be used by example on disabled people are described. Like PIX , Collage CAPTCHA .The suggested method in this paper is a Non-OCR-based CAPTCHA method which is designed for blind people. In our suggested method, a simple mathematical problem is created according to predefined patterns and converted to speech using a Text-To-Speech (TTS) system. Then the may sound is played for the user and he/she must answer the question. A computer requires the following abilities to answer the question: the test with random answer can be $1/N$.

- 1- Recognition of the question using Speech Recognition
- 2- Understanding the meaning of the question.
- 3- Solving the problem and answering the question.

Since it is difficult for computer program to succeed in doing any of these operations, only a human user can answer the question.

SUGGESTED METHOD:

In this section, our suggested method has been described and implementation of an example of it has been explained. In this method, at first, on the basis of a series of pre-patterns, a question is prepared. In these patterns, some of the elements of the problem are variable and changeable and the yare chosen from some items randomly. For example a pattern of the problem is as follows: There are a_1 numbers of b_1 , a_2 numbers of b_2 and a_3 numbers of b_3 on a table. How many c_1 s are there on the table? In this pattern, b_i is name of the object, for example apple, ball, pencil, cat, etc. and $a_i > 0$ is the number of b_i objects. Each object belongs to a specific group which is showed with c_j . For example cat, dog, and mouse are among pets which are showed for example with c_2 . Or pencil, paper, and book are among stationery. As a result, if a problem Is made with this pattern it may be as follows: "There are 5 cats, 3 apples, and 4 dogs on a table. How puts many pets are there on the table?" The answer is 7 (3 cats+4 dogs=7 pets). Or it may be a problem like the following one: "There are 2 pencils, 3 books, and 1 mouse on a table. How many fruits are there on the table?" Here the answer is 0 because there is no fruit on the table.

Get started with Gmail

First name:

Last name:

Desired Login Name:

@gmail.com

Examples: JSmith, John.Smith

Location:

Zimbabwe



Word Verification:

Type the characters you see in the picture below.

sufflex

The project has the following modules.

1. User Management

This module helps in clearly defining the user roles, and their privileges. There will be at least three levels of users. The first will be an admin who has the overall authority. Admin has the privilege to manage other users functionalities and to define their roles. User will be the blind.

2. Text to speech.

As you see, the user has only to enter a number. We can increase the diversity and variety of the questions by designing different and various patterns and even make them more difficult and more sophisticated, too. Now the question is converted to an audio file. This is done using a Text-To-Speech system. At last the question audio file will be played for the user.

Considering the computer's difficulty in recognition of the question from audio, understanding of the problem, and solving the problem, only a human user can answer the question.

Speech synthesis is the artificial production of human speech. A computer system used for this purpose is called a **speech synthesizer**, and can be implemented in software or hardware. A **text-to-speech (TTS)** system converts normal language text into speech; other systems render symbolic linguistic representations like phonetic transcriptions into speech.

3. Key Logger:

This module describes that when a blind person press a key on computer ,it will identify which key is pressed. **Keystroke logging** (often called **keylogging**) is the practice of noting (or logging) the keys struck on a keyboard, typically in a covert manner so that the person using the keyboard is unaware that their actions are being monitored. There are

numerous keylogging methods, ranging from hardware- and software-based to electromagnetic and acoustic analysis.

4.AI(Artificial Intelligence):

In this method, at first, on the basis of a series of pre-designed patterns, a question is prepared. In these patterns, some of the elements of the problem are variable and changeable and they are chosen from some items randomly. For example, "There are 5 cats, 3 apples, and 4 dogs on a table. How many pets are there on the table? "The answer is 7 (3 cats+4 dogs=7 pets).Or it may be a problem like the following one: "There are 2 pencils, 3 books, and 1 mouse on a table. How many fruits are there on the table? "Here the answer is 0 because there is no fruit on the table.

Artificial intelligence (AI) is the intelligence of machines and the branch of computer science which aims to create it. Major AI textbooks define the field as "the study and design of intelligent agents, where an intelligent agent is a system that perceives its environment and takes actions which maximize its chances of success.

The field was founded on the claim that a central property of human beings, intelligence—the sapience of *Homo sapiens*—can be so precisely described that it can be simulated by a machine. This raises philosophical issues about the nature of the mind and limits of scientific hubris, issues which have been addressed by myth, fiction and philosophy since antiquity. Artificial intelligence has been the subject of breathtaking optimism, has suffered stunning setbacks and, today, has become an essential part of the technology industry, providing the heavy lifting for many of the most difficult problems in computer science.

AI research is highly technical and specialized, so much so that some critics decry the "fragmentation" of the field. Subfields of AI are organized around particular problems, the application of particular tools and around longstanding theoretical differences of opinion. The central problems of AI include such traits as reasoning, knowledge, planning, learning, communication, perception and the ability to move and manipulate objects. General intelligence (or "strong AI") is still a long term goal of research.

Applications of CAPTCHAs

- Preventing Comment Spam in Blogs. Most bloggers are familiar with programs that submit bogus comments, usually for the purpose of raising search engine ranks of some website . This is called comment spam. By using a CAPTCHA, only humans can enter comments on a blog. There is no need to make users sign up before they enter a comment, and no legitimate comments are ever lost!
- **Protecting Website Registration.** Several companies (Yahoo!, Microsoft, etc.) offer free email services. Up until a few years ago, most of these services suffered from a specific type of attack: "bots" that would sign up for thousands of email accounts every minute. The solution to this problem was to use CAPTCHAs to ensure that only humans obtain free accounts. In general, free services should be protected with a CAPTCHA in order to prevent abuse by automated scripts.
- **Protecting Email Addresses From Scrapers.** Spammers crawl the Web in search of email addresses posted in clear text. CAPTCHAs provide an effective mechanism to hide your email address from Web scrapers. The idea is to require users to solve a CAPTCHA before showing your email address. A free and secure implementation that uses CAPTCHAs to obfuscate an email address can be found at reCAPTCHA MailHide.
- **Online Polls.** In November 1999, <http://www.slashdot.org> released an online poll asking which was the best graduate school in computer science . As is the case with most online polls, IP addresses of voters were recorded in order to prevent single users from voting more than once. However, students at Carnegie Mellon found a way to stuff the ballots using programs that voted for CMU thousands of times. CMU's score started growing rapidly. The next day, students at MIT wrote their own program and the poll became a contest between voting "bots." MIT finished with 21,156 votes, Carnegie Mellon with 21,032 and every other school with less than 1,000. Can the result of any online poll be trusted? Not unless the poll ensures that only humans can vote.

- **Worms and Spam.** CAPTCHAs also offer a plausible solution against email worms and spam: "I will only accept an email if I know there is a human behind the other computer." A few companies are already marketing this idea.

SOFTWARE SPECIFICATION

- ◆ Front end : .NET
- ◆ Back end : My SQL Server
- ◆ Operating system : Windows XP

MICROSOFT WINDOWS :

Any windows based operating system (such as Windows 95, Windows 98, Windows 2000) can be used to operate the software. We have used Windows 2000 Professional as the platform of our project. This operating system is more reliable in working ASP.NET.

.NET

The **Microsoft .NET Framework** is a software framework that can be installed on computers running Microsoft Windows operating systems. It includes a large library of coded solutions to prevent common programming problems and a virtual machine that manages the execution of programs written specifically for the framework. The .NET Framework is a key Microsoft offering and is intended to be used by most new applications created for the Windows platform. Programs written for the .NET Framework execute in a software environment that manages the program's runtime requirements. Also part of the .NET Framework, this runtime environment is known as the Common Language Runtime (CLR).

ASP.NET :

Microsoft ASP.NET is a free technology that allows programmers to create dynamic web applications. ASP.NET can be used to create enterprise-class web applications and webpages. ASP.NET is the latest version of Microsoft's Active Server Pages technology (ASP).ASP.NET is a part of the Microsoft .NET framework, is a powerful tool for creating dynamic and interactive web pages.

SQL SERVER 2000 :

It is computer based record keeping system, ie. a system whose overall purpose is to be record and maintain information . This SQL SERVER system allow users to create containers (eg. tables) for data storage and management. A group of Tables with Related data in them is called a Database.

HARDWARE SPECIFICATION

- ◆ Processor : Pentium IV OR Above
- ◆ Primary Memory : 256 MB RAM
- ◆ Storage : 40 GB Hard Disk
- ◆ Display : VGA Color Monitor
- ◆ Key Board : Windows compatible
- ◆ Mouse : Windows compatible