Comparison between CAPTCHA Techniques for Text based, Graphics based and Audio based methods.

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Abstract— CAPTCHAs are curtailed for Completely Automated Public Turing test to differentiate Computer and Humans One from the other. The objective of a CAPTCHA is not to permit frame entries from spam bots that is robotized scripts that get email addresses from freely accessible web shapes. CAPTCHAs are utilized in view of the truth that it is troublesome for the PCs to translate the content from such a wrong picture, though it is similarly simple for a human to interpret the content holed up behind the bends. Subsequently, the right answer to a CAPTCHA test is required to originate from a human and the client is permitted into the site. The CAPTCHA test recognizes which clients are unique individuals and which ones are PC programs. Hence, in this paper, we are having another strategy for CAPTCHA with much capable security wellbeing and comfort. Particularly, we concentrate on the human limits of phonemic reclamation and acknowledgment of looking like sounds, and acknowledge the capacities in the propose CAPTCHA. The proposed CAPTCHA makes apparatus assumption lumbering for bots, while giving simple acknowledgment for individuals.

Keywords— CAPTCHA, spam bots, phonemic restoration, security.

I. INTRODUCTION

CAPTCHA innovation has its establishment in an investigation called the Turing Test. Alan Turing, once in a while called the father of present day figuring, proposed the test as an approach to look at regardless of whether machines can think or seem to think like people. The great test is a round of impersonation. In this amusement, an investigator solicits two members an arrangement from inquiries. One of the members is a machine and the other is a human. The investigative specialist can't see or hear the members and has no chance to get of knowing which will be which. On the off chance that the examiner can't make sense of which member is a machine in view of the reactions, the machine breezes through the Turing Test. Obviously, with a CAPTCHA, the objective is to make a test that people can pass effortlessly however machines can't. It's likewise vital that the CAPTCHA application can display distinctive CAPTCHAs to various clients. In the event that a visual CAPTCHA introduced a static picture that was the same for each client, it wouldn't take much sooner than a spammer recognized the shape, deciphered the letters, and modified an application to sort in the right answer naturally. Be that as it may, not all CAPTCHAs depend on visual examples. Indeed, it's essential to have a contrasting option to a visual CAPTCHA. Something else, the Web website executive risks diversifying any Web client who has a visual hindrance. One other option to a visual test is a capable of being heard one. A sound CAPTCHA as a rule gives the client a progression of talked letters or numbers. It's not bizarre for the program to misshape the speaker's voice, and it's likewise regular for the program to incorporate foundation clamor in the recording. This impedes voice acknowledgment programs.

II. TYPES OF CAPTCHA

CAPTCHAs are classified based on what is distorted and presented as a challenge to the user. They are:

A. Text CAPTCHA

These are easy to execute. The least complex yet novel approach is to give the client a few inquiries which just a human client can settle. Cases of such inquiries are:

What is third letter in UNIVERSITY?

- Which of Yellow, Thursday and Richard is colour?
- If yesterday was a Sunday, what is today?

B. Graphic CAPTCHA

Realistic CAPTCHAs are difficulties that include pictures on the other hand protests that have some kind of comparability that the clients need to figure. They are visual riddles, like Mensa tests. PC produces the riddles and grades the appropriate responses, yet is itself not able to explainit.

C. Audio CAPTCHA

The last case we offer depends on sound. The program picks a word or an arrangement of numbers aimlessly, renders the word or the numbers into a sound clasp and mutilates the sound clasp; it then shows the twisted

sound clasp to the client and requests that clients enter its substance.

III. PRIMITIVE TECHNOLOGY

A. Speech Segmentation for CAPTCHA

Phonemic reclamation impact is a perceptual marvel where under specific conditions, sounds really missing from a discourse flag can be re-established by the cerebrum and may seem, by all accounts, to be listened. The impact happens while missing phonemes in a sound-related flag are supplanted with a veiling clamour, bringing about the mind filling in truant phonemes. The impact can be strong to the point that a few audience members may not see that there are phonemes missing. This impact is regularly seen in a discussion with overwhelming foundation commotion, making it hard to appropriately hear each phoneme being talked. Diverse components can change the quality of the impact, including age and gender.

B. Single Character Edit Method

The Single Character edit calculation (additionally called Edit-Distance) figures minimal number of alter operations that are important to adjust one string to get another string. The esteem shows the contrast between two strings. The esteem is the base number of systems in which a string changes into another string by embeddings, erasure or substitution of characters. For instance, when a string "test" is changed into another string "tent", the Levenshtein separation is one since the previous string is changed into the last one by one character change.

The algorithm of the single character edit calculation is also known as Levenshtein distance which is used for spell checkers, etc.

C. Homophones Encoding

Homophone Encoding aka Soundex is a hashing framework for English words. From an English word, you create a letter and three numbers that generally portray how given word sounds. Comparable sounding words will have comparative codes. In Soundex, comparative articulations are gotten from spelling, and the elocution is composed by one in order character and three numeric characters. The calculation of Soundex is as per the following.

1) Remove "a", "e", "i", "u", "o", "h", "y" and "w" except the initial character.

2) Replace consonants except the initial character with numeric numbers as follows; b, f, p, v = 1; c, g, j, k, q, s, x, z = 2; d, t = 3; l = 4; m, n = 5; r = 6.

3) Replace a sequence of the same numeric characters with one character of the same number.

4) Adjust the number to four-digits; when it is less than four, add zero; when it is more than four, remove final numbers.

For example of this method both "Cobert" and "Cupert" come back to main stream "C163" while "Cubin" yields "C150"

IV. RECOMMENDED METHOD

The issue of existing CAPTCHA calculations is that people can't read characters when the characters are unequivocally twisted keeping in mind the end goal to keep PCs from translating them as is said in presentation. Subsequently, in this paper, we propose another CAPTCHA with phonemic rebuilding impact and comparable sounds as an answer of the issue. To start with, we concentrate on the relationship between English words and phonemic reclamation impact. Incorrectly spelled words can be perused when articulation of the words is like that of the first words since letters in order are phonograms.

Thus, one might say that individuals can perceive words regardless of the possibility that they are marginally incorrectly spelled. A unique sentence is appeared in Figure 1(a). Words in the sentence are changed to different words with comparative articulation as appeared in Figure 1(b). People can perceive the first sentence from words with comparative articulation in the sentence, regardless of the possibility that spelling of the words is somewhat unique.

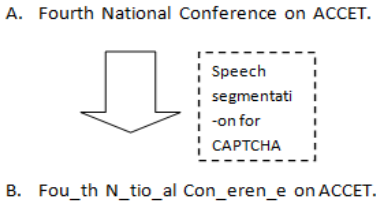

Fig 1 Change of sentence by the given method

V. PROCESSING IN RECOMMENDED METHOD

Flow of the proposed system is shown in Figure 2. English sentences are extracted from "Free ebooks" which provides many electronic books without charge in order to store the sentences in a database before questions of CAPTCHA are prepared since many English sentences required making questions of CAPTCHA in our proposal. In addition, words with pronunciation in an English dictionary are also stored in the database since the system has to obtain the pronunciation of each word in a sentence of CAPTCHA. Questions of CAPTCHA are generated with the sentences and pronunciation of words in the sentences. When an answer of a user is correct, the user is recognized as a human being.

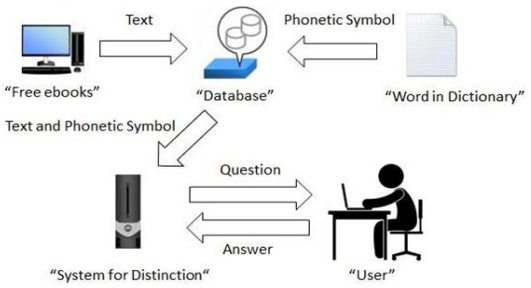

Fig 2 Flow of the proposed system

A. Replacement of Characters in Words with Similar Pronunciation

Words in a sentence are supplanted with different words with comparative elocution under the thought of phonetic images as appeared in Fig 3. Characters in a word are once supplanted with phonetic images, and afterward they are supplanted with different characters of comparable articulation. A case of a sentence which is modified by the proposed calculation is appeared in Fig 4. A sentence in Fig 4 (1) is changed to a sentence in Figure 4 (2).

1	one	/wʌn/	19	nineteen	/ˌnaɪnˈtiːn/
2	two	/tuː/	20	twenty	/ˈtwenti/
3	three	/θriː/	21	twenty-one	
4	four	/fɔː(r)/	22	twenty-two	
5	five	/faɪv/	30	thirty	/ˈθɜː(r)ti/
6	six	/sɪks/	40	forty	/ˈfɔː(r)ti/
7	seven	/ˈsev(ə)n/	50	fifty	/ˈfɪfti/
8	eight	/eɪt/	60	sixty	/ˈsɪksti/
9	nine	/naɪn/	70	seventy	/ˈsev(ə)nti/
10	ten	/ten/	80	eighty	/ˈeɪti/
11	eleven	/ɪˈlev(ə)n/	90	ninety	/ˈnaɪnti/
12	twelve	/twelv/	100	one / a hundred	/ˈhʌndrəd/
13	thirteen	/ˌθɜː(r)ˈtiːn/	101	one / a hundred and one	
14	fourteen	/ˌfɔː(r)ˈtiːn/	1,000	one / a thousand	/ˈθaʊzə(ə)nd/
15	fifteen	/ˌfɪfˈtiːn/	1,000,000	one / a million	/ˈmɪljən/
16	sixteen	/ˌsɪksˈtiːn/			
17	seventeen	/ˌsev(ə)nˈtiːn/			
18	eighteen	/ˌeɪˈtiːn/			

Fig 3.Replacement of phonetic symbols with characters

(1) We have club activity three days a week.
[wi] [hæ'v] [klʌˈ] [æktívəti] [θríː] [déiz] [ə] [wíːk]

(2) Wi hav clab aktiviti thri deiz a wik.

Fig 4.Sentence rewritten by algorithm of similar pronunciation

B. Speech Segmentation Effect for Text

Phonemic rebuilding impact is connected to our proposed calculation. In our strategy, a few characters in a word are supplanted with an image as clamour keeping in mind the end goal to shroud word somewhat. We receive a character "@" as clamour. A case of a sentence which is revamped by the proposed calculation is appeared in Fig 5. A sentence in Figure 5 (1) is changed to a sentence in Figure 5 (2) or (3).

A. Fourth National Conference on ACCET.

B. Fo@rt@ Na@ion@l Co@fere@ce o@ ACCET.

C. F@ur@h N@tio@al Con@eren@e @n ACCET.

Fig 5.Sentence rewritten by algorithm of speech segmentation.

VI. CONCLUSIONS

In this paper, we first present existing CAPTCHA calculations and call attention to the helplessness of the calculations. Furthermore, we propose another CAPTCHA with phonemic reclamation impact and comparative elocution. We likewise assess the proposed CAPTCHA and infer that the proposed CAPTCHA with the two calculations is difficult to be broken by PCs, while it is anything but difficult to be broken when each of the calculations is needed. In addition, the proposed CAPTCHA can be replied inside a suitable time by individuals since phonemic rebuilding impact and acknowledgment of words with comparative elocution are characteristic capacities of people. Consequently, the proposed CAPTCHA is not hard to be fathomed for people while it requires an excessive amount of figuring expense for PCs particularly noxious bots on Internet. The proposed CAPTCHA is compelling for keeping bots from securing records of online administrations consequently.

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