AC17

CAPTCHA Accessibility Design

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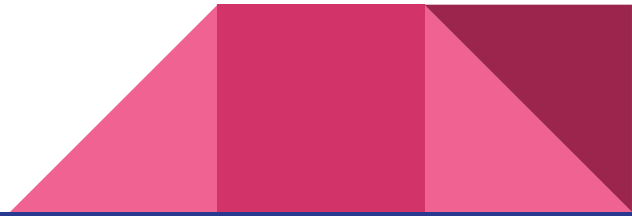
Problems With CAPTCHA for the Visually and Motor Impaired

- Time and Sensory requirements to CAPTCHAs make them unfeasible for users with certain handicaps
    - It is common for the elderly to experience impairments in sensory and fine motor skills, though these limitations in accessibility are not limited to older adults
- Making Captchas too easy or display information locally creates security issues
- We are faced with the challenge of creating accessible CAPTCHAs that retain their security.

Solution

- Have the CAPTCHA use Android’s Text-To-Speech (TTS) feature to minimize the strain of reading
- Make the questions easy enough for a human to answer, but a Turing Complete Machine to fail
- Minimal effort on the user’s end to solve the CAPTCHA



User Study

- We had 10 people try our CAPTCHA
- Each person attempted the CAPTCHA 5 times
- We recorded the user’s...
  - Age
  - Time it took to successfully solve the CAPTCHA (avg of 5 trials)
  - Amount of repeats (avg of 5 trials)
  - Amount of skips (avg of 5 trials)

Age	Time To Complete	Repeats	Skips
57	30s	2	0
24	33s	0	0
20	27s	0	0
22	12s	0	0

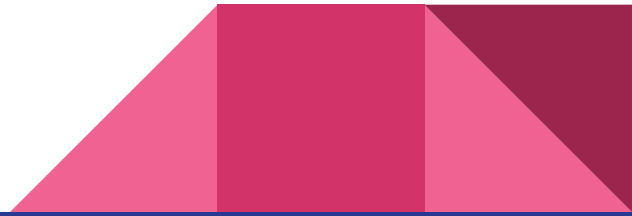
Testimonials

We asked the people who tested our app to rate the ease of use of the CAPTCHA. We also asked them what they liked and what they would improve. This is what some people had to say.

- Person1 - Never Heard of CAPTCHA
- Person2 - Support more languages/ accents
- Person3 - Like idea & better than blurry symbols

Modularity

- We aimed to design our code in a way that each part could be reused and maintained.
  - Different classes for each activity
  - Well documented comments.



Known Issues

- Voice recognition was not working with Android version 7.1.1 (works with previous generations)
- Voice recognition is extremely sensitive to sound (Background sound interferes with user interaction).
- App requires a wifi connection
- “What is 5+5” returns an incorrect answer

References

[1] Alternative text, 2015. Retrieved January 27, 2017. Web aim: web accessibility in mind. http://webaim.org/techniques/alttext/

[2] Android developers. Retrieved February 4, 2017. https://developer.android.com

[3] Color palettes for color blindness, 2017. Martin Krzywinski science art. http://mkweb.bcgsc.ca/colorblind/

[4] Developing websites for older people:
how web content accessibility guidelines (WCAG) 2.0 applies, 2010. Retrieved February 4, 2017. Web accessibility initiative.https://www.w3.org/WAI/older-users/developing.
html

[5] Stack overflow. Retrieved February 4, 2017. http://stackoverflow.com/

[6] Using Android Text-To Speech To Create a Smart Assistant; By: Theodhor Pandeli
https://www.sitepoint.com/using-android-text-to-speech-to-create-a-smart-assistant/

Q&A