Software Requirements Specification (SRS) Document

A Friendly Web Browser for the Differently Abled Users of the Internet
(Ambuj Tiwari, Shravya Kanchi)

Brief problem statement

Build a customized browser which is user friendly and implement extensions curated on user capabilities

System requirements

Web Browser
Languages - Python,JavaScript,HTML,CSS

Libraries - Gtk, Tkinter, Webkit, WebView, PyQT etc.

Tools : Glade(GTK+ UI builder), Sublime

Extensions

HTML/CSS/JavaScript, PyTTSx(TTS), ImageEnhance(Contrast/Brightness), Google APIs(Cloud Speech, YouTube etc.), PyGaze(Eye-tracking) etc.

Users profile

The following types of users can be enumerated for the project :-

1.The normal user: This user has no disability and can use the browser normally without any difficulty.

2.A user affected with visual disabilities: This user has to be assisted to overcome the accessibility issues like reading, writing, seeing images and videos. The problems of such a user include, but are not limited to :-

I.) Colorblindness
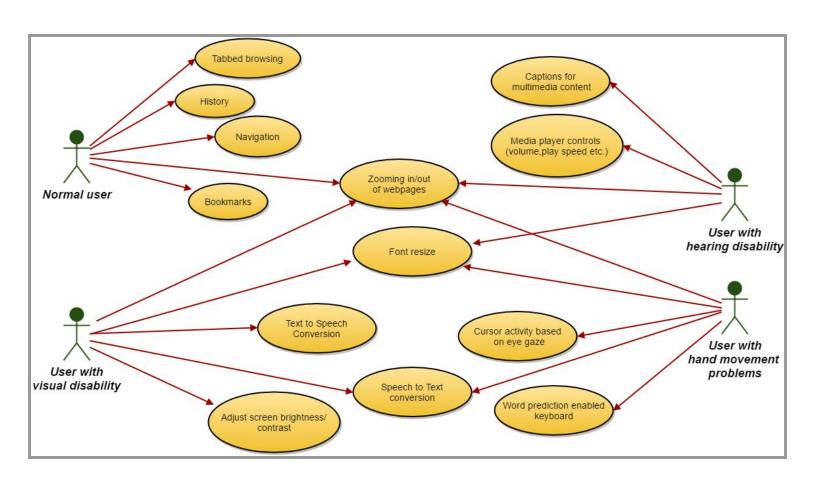
II.) Low vision

III.) Blindness

IV.) Deaf-blindness

3. A user affected by auditory disabilities: The user may encounter various problems related to hearing when dealing with media (esp. videos) on webpages. The problems of such a user include, but are not limited to :-

I.) Hard of hearing

II.) Deafness

III.) Deaf-blindness

3.A user with physical disabilities: User may have problems regarding locomotion and movement. He/she might take time in responding to the web pages. The problems of such a user include, but are not limited to :

1. Tremors and Spasms

2. Amputation and deformity

Feature requirements (described using use cases)

No.	Use Case Name	Description	Release
1	Open a new tab	To open a new instance of a tab in a browser window.	R1
2	Open a new window	To open a new instance of a browser window.	R1
3	Type a website URL (address bar)	Enter a website address in a user input field to visit the webpage.	R1
4	View history	Check the browsing history, contains a list of recently visited pages.	R1
5	View bookmarks	View the favorite/bookmarked webpages to visit again	R1
6	Stop/Refresh	Refresh the webpage content or stop loading the webpage content, when the user requests.	R1
7	Navigate between webpages	Go forward/backward between the webpages visited in an order.	R1
8	Zooming	Enable zooming in/out to increase/decrease the size of the webpage content	R1
9	Activate Text-to-speech conversion	For users with sight problems/blindness, the browser shall aid them by activating a TTS feature, which speaks aloud the highlighted text the user selects.	R2
10	Adjust screen contrast/brightness	For users with visual disabilities, who have difficulties with extreme brightness levels.	R2

11	Enable video captions	For users with hearing problems, the multimedia content (videos) may be equipped with appropriate subtitles.	R3
12	Resize screen font	For users who face difficulties in reading small font sizes, the browser shall be able to enlarge font size on request.	R3
13	Word prediction enabled keyboard	Provide a keyboard in the form of extension that predicts words based on user input	R3

Use case diagram

Use case description

Use Case Number:	UC-00
Use Case Name:	Normal User
Overview:	To be used by a normal user.
Actors:	Normal User
Precondition:	The users will be going through a test.
Flow:	**Main (success) Flow**: 1. Users will give a test which will determine that the user is normal. 2. No extensions will be added to the browser.
Post Condition:	The user will be using a browser with minimum features.

Use Case Number:	UC-01
Use Case Name:	User with visual disability
Overview:	The response of the browser when used by a visually impaired user.
Actors:	User with visual disability.
Precondition:	The users will be going through a test.
Flow:	**Main (success) Flow:** 1. Users will give a test which will determine the disabilities of the user. 2. Extensions related to visual aid will be added to the browser.
Post Condition:	The user will be using a browser with additional features like font-resize, brightness adjustment, text to speech conversion and speech to text conversion.

Use Case Number:	UC-02
Use Case Name:	User with hearing disability
Overview:	The response of the browser when used by a hearing impaired user.
Actors:	User with hearing disability.
Precondition:	The users will be going through a test.
Flow:	**Main (success) Flow**: 1. Users will give a test which will determine the disabilities of the user. 2. Extensions related to hearing aid will be added to the browser.
Post Condition:	The user will be using a browser with additional features like captions for multimedia content, font-resize etc..

Use Case Number:	UC-03
Use Case Name:	User with hand movement disability
Overview:	The response of the browser when used by a motor disabled user.
Actors:	User with hand movement disability.
Precondition:	The users will be going through a test.
Flow:	**Main (success) Flow**: 1. Users will give a test which will determine the disabilities of the user. 2. Extensions related to ease of typing/browsing will be added to the browser.
Post Condition:	The user will be using a browser with features like font-resize,eye-tracking, speech to text conversion and word prediction.