

# **Software Requirements Documentation**

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## **TalkBox App Group 3**

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## 1. Introduction

### 1.1 Purpose

The purpose of this document is to illustrate the functionality of the TalkBox application. In addition, an overview of use cases and acceptance test cases is covered.

### 1.2 Scope

The TalkBox application acts as a medium for users that are speech-impaired. Clients simulate speech via push buttons on a user interface. The user can filter through grouped phrases or words depending on the information they wish to convey. These words and phrases are customizable and can be self-created. A pre-installed audio set ensures the device can work from initial start up.

When the desired configuration is set, the user is able to launch a sound board. The sound board provides access to the selected configuration with named buttons corresponding to the word or phrase. In addition, the user can assign an icon to each button if they wish. Images can be chosen from their device.

Moreover, caretakers of the individual can record sounds and create any custom configuration they deem necessary. The recorded sounds can go to an already created group, or the words and phrases can be completely customized.

Recorded audio is saved and appears for future use. The user is able to filter the audio list when it becomes large.

Finally, the TalkBox encompasses a logger to account for all user interactions.

### 1.3 Users

The overall intended users of the TalkBox application are the speech-impaired, caretakers of the speech impaired or users who do not speak English as a second language and need a means to communicate.

### 1.4 Definitions

Term	Definition
Audio Set	A group of words and phrases will be referred to as an audio set
GUI	Graphical user interface

FR	Functional requirement
Class-1	Speech impaired user
Class-2	Relation to speech impaired user
Class-3	All other users in need of producing simulated words and phrases
.tbc	Extension for saved TalkBox configurations. Used interchangeably with an imported or exported instance of a configuration.

## 2. Functional Requirements

ID	Class	Description
FR-1	1,2,3	User has access to a GUI to display the sounds and provide interaction
FR-2	1,2,3	User can Import and export configurations
FR-3	1,2,3	User can sample audio before committing to an audio set
FR-4	2,3	User is able to record audio to be added to an audio set
FR-5	1,3	User is able to use the words and phrases to communicate
FR-6	1,2,3	Users is able to toggle through audio sets once a configuration is loaded
FR-7	2,3	User is able to create an audio set that is fully custom i.e. All recorded sounds only
FR-8	1,2,3	User can customize audio sets with both recorded and pre-loaded sounds
FR-9	1,2,3	User can clear a customized set in case of error and start over
FR-10	1,2,3	User can reuse recorded audio on other configurations
FR-11	1,2,3	User can assign icons to their buttons
FR-12	1,2,3	User can filter through the audio list to locate audio files

FR-13	1,2,3	Button icon selections stay registered to the associated button when a .tbc is saved
FR-14	1,2,3	TalkBox logs all user interaction

### 3. Use Cases

Note: All use cases assume the application is running.

Case	1
Class	1
Title	Quick start
Description	User loads application for the first time and instantly loads a pre-loaded audio set without any modifications
Events	<ol style="list-style-type: none"> <li>1.) User chooses audio set 1</li> <li>2.) User clicks on 'Start'</li> <li>3.) User uses the buttons to play sounds</li> </ol>
Alternative Event	<ol style="list-style-type: none"> <li>1.) User imports a saved .tbc file</li> <li>2.) User selects an audio set</li> <li>3.) User clicks on 'Start'</li> <li>4.) User uses the buttons to play sounds</li> </ol>
Further details	N/A

Case	2
Class	1
Title	Customize Audio Set
Description	User wants to create a sound board via the union of audio files
Events	<ol style="list-style-type: none"> <li>1.) User clicks on check box to create audio set</li> <li>2.) User selects an audio file from the audio list and clicks on "Select from audio list &gt;&gt;" button</li> <li>3.) User selects an icon for the button when prompted</li> <li>4.) 1-3 is repeated until the desired files are chosen</li> <li>5.) User enters an audio set name to name the file, enabling the "Create into audio set button"</li> <li>6.) User clicks on "Create into audio set button"</li> <li>7.) User starts the simulator</li> </ol>

Alternative Event	1.) User follows the same steps from above but chooses files from custom sets instead of using the audio list
Further details	Customized sets should be saved if user wants to reuse them.

Case	3
Class	1,2,3
Title	Removable sounds
Description	User does not want their talkbox to contain a sound
Events	<ol style="list-style-type: none"> <li>1.) User selects an audio set from the drop down list</li> <li>2.) User uses their mouse to highlight a specific sound file</li> <li>3.) User selects the “remove” button</li> <li>4.) User saves the modifications</li> </ol>
Alternative Event	1.) Steps 1-4 are repeated from above, but the user does not save their selection after realizing they regret some changes.
Further details	Files are not deleted from the system. User must manually go into directories to delete from disk.

Case	4
Class	2,3
Title	Record Audio
Description	User wants custom audio via recording
Events	<ol style="list-style-type: none"> <li>1.) User clicks on “Record new sound” button</li> <li>2.) User enters a name they want the sound to appear as</li> <li>3.) User clicks record and then stop when done</li> <li>4.) File is added to the audio list.</li> <li>5.) User creates a custom set using the recorded audio</li> </ol>
Alternative Event	1.) User follows steps from above but does not choose to use the audio at this time. Recorded is saved for all future sessions.

Further details	Memory constraint. All recorded audio is saved to disk and must be manually removed.
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Case	5
Class	1,2,3
Title	Toggle through sets
Description	User accesses unselected audio sets upon start-up
Events	<ol style="list-style-type: none"> <li>1.) User selects desired audio set</li> <li>2.) User clicks 'Start'</li> <li>3.) User uses the drop down list to access any audio sets they did not originally choose</li> </ol>
Alternative Event	<ol style="list-style-type: none"> <li>1.) User follows any of the customizable options or import of a .tb</li> <li>2.) User selects their customized set and clicks 'Start'</li> <li>3.) User saves their configuration if any configurations have been made</li> <li>4.) User clicks on 'start'.</li> </ol>
Further details	N/A

Case	6
Class	1, 3
Title	Communication
Description	User uses the Talkbox to communicate
Events	<ol style="list-style-type: none"> <li>1.) User follows any start up case above to open a sound board</li> <li>2.) User encounters a peer</li> <li>3.) User uses the buttons to respond.</li> <li>4.) User swaps through audio sets to get a desired phrase if their current audio set is lacking a specific word or phrase.</li> </ol>
Alternative Event	<ol style="list-style-type: none"> <li>1.) User follows the default event.</li> <li>2.) User discovers they require additional words or phrases via reflection of their interaction.</li> <li>3.) If class-1 user, user gets class-2 user to record audio.</li> <li>4.) If class-3 user that does not speak English, user gets class-2 user to record additional words and phrases.</li> </ol>

	5.) If class-3 user that speaks English, user records audio 6.) .tbc configurations are saved.
Further details	The user must have a personal computer/work station that outputs audio.

### 5.) Acceptance Tests:

The following table depicts the acceptance tests for the completed TalkBox application

Event	Expected Result	Pass/Fail
Select Audio drop down list is pressed	List of all audio sets shows	Pass
Audio set from the list is selected	All the audio files in that list show	Pass
Audio file is selected and then play button pressed	Audio file plays in order to sample the sound	Pass
Create Custom Audio Set checkbox is selected	Add set, audio set name and select buttons are enabled	Pass
Audio file from an audio set is highlighted, create custom audio is set and select from Audio button is pressed	Audio file name appears in the text area	Pass
Audio file name in text area, "create into audio set" selected without providing a name	"Create into audio set" button disabled	Pass
No Audio Set selected at start-up	Start button disabled	Pass
Clear button enabled and pressed	Any text in the text area is cleared.	Pass
Record New Sound Button is pressed	Dialog opens to enter sound name and the option to then record	Pass
Record new audio dialog open, record button is pressed but no filename given	Record button disabled until there is no empty string	Pass
Dialog opened to enter sound name and the option to then record (recording) and record button pressed after entering name	Recorded audio is added to the audio list to be used in an audio set	Pass
Recorded sound is played	Recorded audio works and is not silent.	Pass
Imported .tbc	Audio sets loaded with imported configuration	Pass



Exported .tbc	Current configuration saved in a .tbc file	Pass
Start button pressed	Currently selected audio set loads on the talkbox simulator	Pass
Talkbox simulator open Another audio list is selected from drop down list	Selected audio set appears on sound board	Pass
User clicks on create custom audio set then chooses a file from audio list	User prompted to select an icon	Pass
User clicks on create custom audio set then chooses audio from an audio set	User is not prompted to provide an icon	Pass
File is pressed Exit is pressed	Confirmation message to confirm exit is shown	Pass
'x' s pressed	Confirmation message to confirm exit is shown	Pass.
User registers an icon to their button	Icon shows when the simulator starts	Pass
User registers an icon, creates custom audio set, saves the configuration and uses the configuration at a later time	Icon still associated with button (assuming icon was not deleted or moved on disk)	Pass
User filters through the audio list	Only audio matching the given string are shown	Pass
User clicks on a GUI element	Log records the interaction	Pass

## 6.) Conclusion

The TalkBox application is a fully functional speech simulator that is ready to be used for communication purposes. All functionality outlined above is available.