Treasure Box Braille (TBB) Application

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1. Introduction

1.1 Purpose

The purpose of this program is to be an viewing aid, that is capable of editing and creating passages of text for the Treasure Box Braille (TBB) device. Transversely, this allows users that are visually impaired, or practicing braille to interact with this device

1.2 Objective

The "Treasure Box Braille Authoring Application" is a desktop application enabling users to view, edit and create passages for the program in a simplistic way. The objective of the project is as follows:

- Read TBB scenarios that are in .txt format audibly.
- Edit existing TBB scenarios that are in .txt format.
- Save any changes made to an existing TBB scenario.
- Create new TBB scenarios.
- Save any templates of manipulations to the files
- Test existing or created TBB scenarios using a software simulator
- Record audio
- Have accessibility support for visually impaired users

1.3 General Use

Our application is designed to provide an environment that allows the kids and educators to create and edit simple text scenarios with braille prompts. The editing portion of the application allows the user to freely skip, repeat certain phrases or words in the text scenario. The application is designed to be fully functional by a visually impaired user with accessibility containing hover functionality to audibly read buttons and labels. Furthermore, the application also provides audio recording facilities to supplement any text/response with audio.

1.4 Use Cases

The application will specifically allow for the following functions:

- Create a new text based scenario with customized prompts for each text entry.
- All text entries, referred to as nodes, can also have audio recording provided by the user
- A node can have multiple responses, allowing for multiple branch nodes based on which response was chosen. Multiple responses can also point to the same node.
- A pre-existing scenario may also be loaded by the user and edited, either removing, adding or modifying nodes and/or any responses to each node with respect to skipping and repeating functions.

- Each response may provide an audio cue recorded by the user most typically by hovering over the Java components, or by after entering a prompt on a text field.
- The application will also support playing of a scenario, allowing users to preview their scenarios.
- Audio recording is activated at command allowing the user to record and manipulate that recording whether textually, or audibly.

1.5 Acceptance Test Cases

- Does the application provide a description in English of every element within the application?
- Does the application allow the user to create a scenario from scratch within the application itself?
- Does the application allow loading of a text file so that they can preview or edit their scenario?
- Does the application provide audio recording for every node or response created for each node?
- Does the application provide scenarios built to have a branching path or a linear path?
- Does the application accurately display braille as indicated by the user?
- Does the application accurately pick up audio recordings for modifications?
- Does the application allow for recording to textually manipulated?
- Does the application allow for freely maneuvering between creating, recording, editing nodes?
- Does the application demonstrate specified pins?

2. Specific Requirements
This section describes the functional and quality requirements of the TBB Authoring Application. It contains detailed descriptions of the system's features.

2.1 User Interfaces
A user opening the Application should be presented with a window containing the following buttons:
- Create Scenario
- Open Scenario
- Edit Scenario
- Test Scenario
- Record Audio File

2.1.1 Create Scenario

If the Create Scenario button is selected, the user should be prompted to enter their file string, then the amount of buttons and cells to be included in the scenarios .txt file, along with the filename that can be called and used when in the editing stage

2.1.2 Open Scenario
If the Choose button is selected, this opens a window highlighting the destinations of all the scenarios they possess in the form of .txt files.

2.1.3 Test Scenario
After doing either of the above two tasks, you will be prompted to edit and apply a finite number of buttons. When running, you will notice that there is a set of braille pins, an audible voice, and number of buttons to your liking.

2.1.4 Record Audio File
If the Create Audio button is selected, the user will be prompted to press start on the recording session, which initiates the recording, afterwards, upon pressing end, this then prompts you for the filename for the recording, doing this then redirects you to the editing screen.

2.2 Functional Requirements
Entailed is detailed features accommodated in this program.

2.2.1 View TBB scenarios that are in .txt format
A user should be able to import and view existing TBB scenarios that are in .txt format.

2.2.2 Edit existing TBB scenarios that are in .txt format
Given that the user has imported a TBB scenario into the application, they should be able to make changes to the scenario.

2.2.3 Save manipulations made to an existing TBB scenario
If the user has made changes to the file in question, they are able to save the file along with the manipulations made such that upon saving it overwrites the content and upon running the file as is, it will read out the current file with its manipulations.

2.2.4 Create new passages
Should the user want to create a new file, they will do so in the Start Screen, this then leads to the Editing Screen.

2.2.5 Test existing passages using a Authoring simulator
Once the user is satisfied with the manipulations made, they may press "Run" to display pins and an audible representation.

2.2.6 Record Audio File

Should the user want to record their voice for further inspection and analysis, they may press this on the Editing Screen.

2.2.7 Have accessibility support for visually impaired users
Upon clicking a label and/or button, there is a feature denoted as accessibility to read out each component before continuing onwards.