Digital Kalimba

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Abstract

This kalimba application aims to make the kalimba more accessible to people who are interested in starting to learn an instrument. This can allow the user to experience how to play the kalimba and can satisfy their curiosity for the instrument. It is an interactive application that will allow users to play the kalimba by pressing specific keyboard keys or clicking on the kalimba key that they want to press. It has a feature where the user can change the tuning of the kalimba from a C major to a pentatonic scale, which will change how the kalimba sounds. This feature will allow the user to experiment with the different tunings of the kalimba, making sure that the application is engaging. Another feature is the customization of the order of the keys of the kalimba, which can help beginners to easily play the kalimba rather than just using the standard order of the keys. This can also help the user familiarize themselves with the keys of the kalimba, as different kalimbas can have different arrangements of keys. The last feature of the application is the musical tabs. These are given to the user so that they can play some known music, which will help them to learn and master the kalimba. Three musical tabs will be given, and each will vary in difficulty. This feature is there for users who want to test their skills in playing and to challenge users to learn a few songs to play, making them more engaged in learning. These features will ensure that the user, whether a beginner or a master at playing a kalimba, will enjoy using the application through its various features. Through this application, the user will be able to learn and master the kalimba through practice. This will allow the users to be engaged in music and try out different musical instruments.
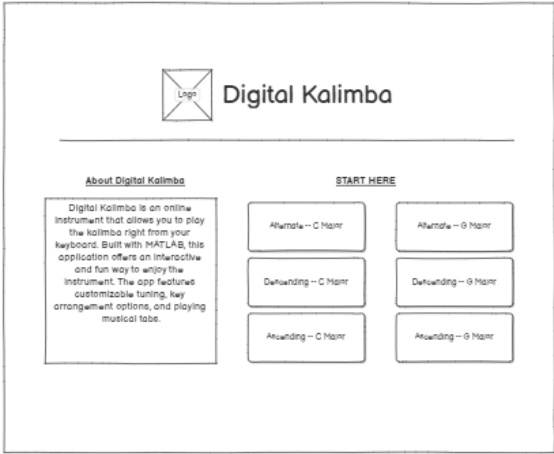
Introduction

This application aims to make musical instruments more accessible to others, and be able to provide the experience to learn about musical instruments. The kalimba, specifically, is not really a popular instrument compared to other musical instruments; thus, this application aims to be the solution to the popularity problem of the kalimba. Additionally, the application targets students who may be beginners in music, who are curious about the kalimba and how it is played. This application aims to provide an interactive digital experience to satisfy their curiosity and introduce them to the fundamentals of playing the kalimba.

The problems that the user of this application may encounter are the key handling of the instrument. Since the user can not really physically touch the key of the kalimba, the application compensates by assigning the keys to different keyboard keys, which may confuse the user confused on which key to press in order to play a note. By using the application, the user is given an opportunity to learn and experience how to play a kalimba. This can then help them decide to pursue their passion for playing a kalimba by using this application. It gives them the convenience of trying a kalimba easily through the application.

This application is significant as it can provide the user with a musical instrument to play digitally. By having an interactive application, they can easily learn and master the kalimba through practice using the application. Thus, encouraging other people to learn more instruments just like the kalimba, which can give them a challenge and satisfaction.
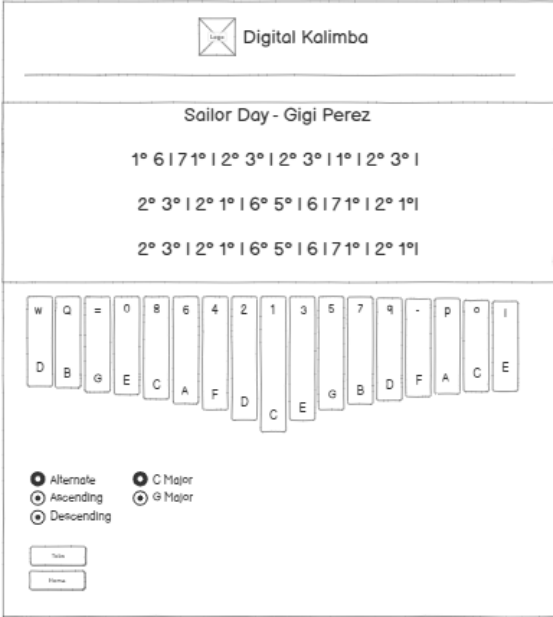
Functionalities

TABLE I.   Table Type Styles

Persona	Description	Benefit
Student	Home Page The starting page, where the user can learn more about the application and choose from the Kalimba options 	This will allow the user to have an overview of the application and have a brief introduction to the app.
Student	Kalimba Choices Buttons	This will benefit the user to have a choice to be able to

	These buttons will allow the user to choose the setting of their Kalimba keys and will direct them to the corresponding fixed layout. **START HERE** Alternate -- C Major Alternate -- G Major Descending -- C Major Descending -- G Major Ascending -- C Major Ascending -- G Major	start on the configuration of the kalimba they want.
Student	Kalimba Keys These buttons will serve as the Kalimba keys that the user can use to play the instrument. W Q = 0 8 6 4 2 1 3 5 7 9 - p o i D B G E C A F D C E G B D F A C E	This is the component that will let the user actually play the kalimba. When the user presses the key, it will play a tune.
Student	Kalimba Keys Layout Choices These buttons will allow the user to customize their Kalimba keys' layout according to their liking (Alternate, Ascending, or Descending).	This will benefit the user by making things more customizable and letting new players or students find a configuration of kalimba that they are comfortable with.

	Alternate / Ascending / Descending	
Student	**Kalimba Tuning Choices** These buttons will allow the user to customize their Kalimba keys' tune according to their liking (C Major or G Major) C Major / G Major	These buttons let the user explore more of the instrument by changing the tune of the kalimba so that they can experience a different tune to be able to play more songs.
Student	**Tabs Button** This button will direct the user to the Tab Selection Page. Alternate / Ascending / Descending / C Major / G Major / Tabs / Home	These buttons are for when the user wants to select a song that they want to play which offers a range of songs based on difficulty.
Student	**Home Page Button** This button will redirect the user to the Home Page.	When the users want to go back to the home page, whether to look back at the information or want to change the configuration of the kalimba, this button will allow

		them to go back to the home page.
Student	**Tab Selection Page** This page will allow the user to see the different song options of different categories (Easy, Medium, and Hard). 	This will show the user the choices of songs that they can play, varying in difficulty.
Student	**Song Choices Buttons** These buttons will allow the user to choose their preferred song and/or category and direct them to another page for that song. 	Pressing these buttons will direct the user to their choice of song, allowing them to have musical tabs available to them.

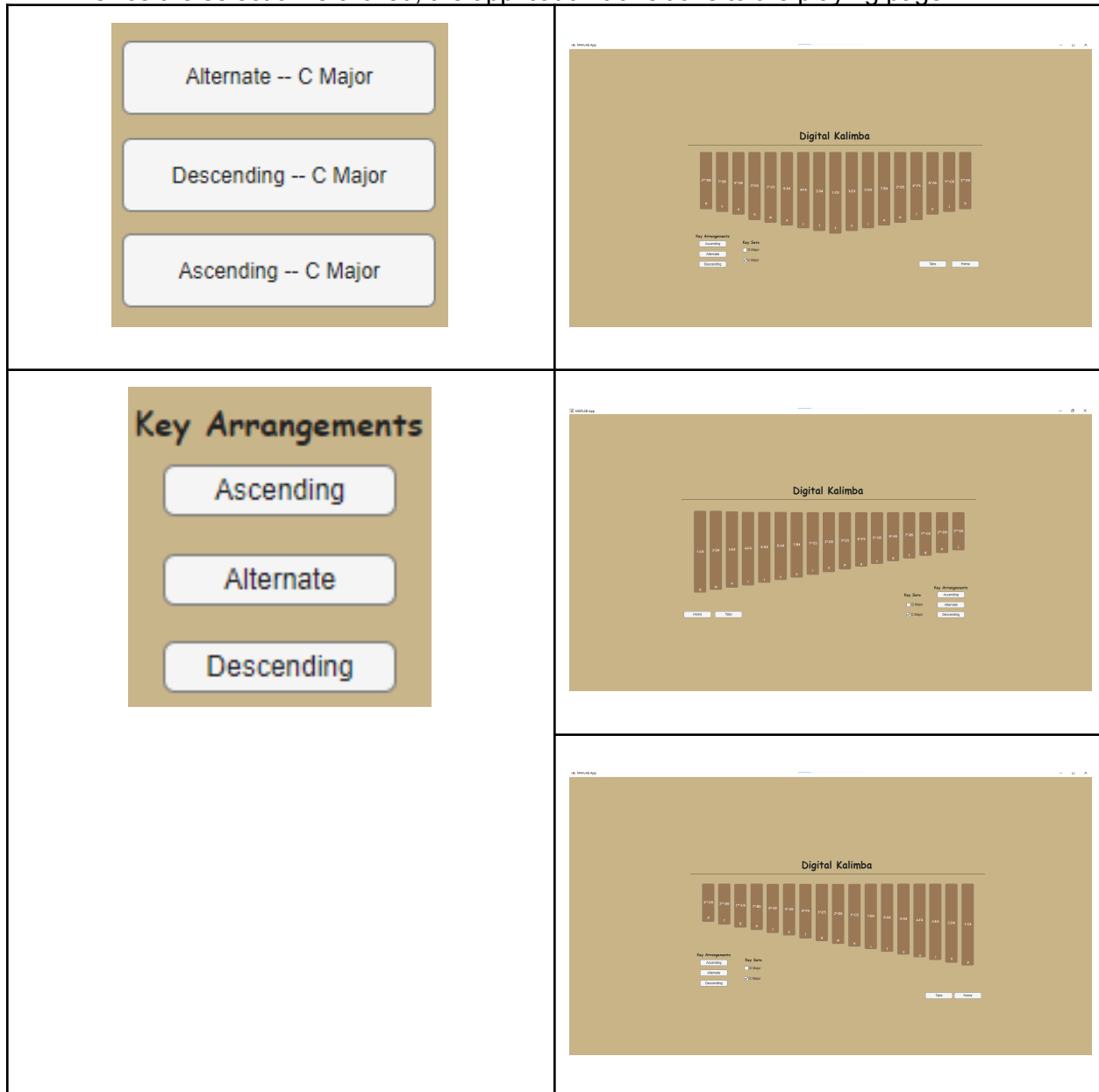| Student	Kalimba Tabs This page will show the accurate tabs of the chosen song that the user may follow to play the Kalimba. 	This shows the user the musical tabs that they need to play for the song they chose.

Walkthrough

STEP 1: Starting Page

- Launch the app from MATLAB
- The starting page will appear with a short introduction explaining the application and a selection of buttons to begin your journey with Digital Kalimba.
- Read the introduction to learn about the application's features.
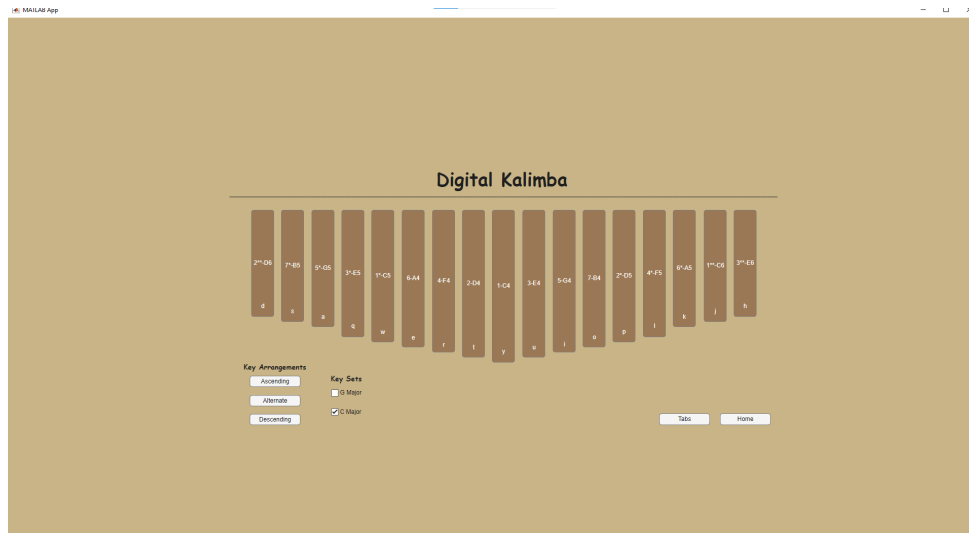
STEP 2: Choose your Kalimba Setting

- On the starting page, there are three button options: "Alternate – C Major", "Descending – C Major", and "Ascending – C Major".
- Click one, for example "Ascending – C Major", to display the Kalimba tuned in C Major with keys arranged in an ascending order.
- Once the selection is clicked, the application transitions to the playing page.
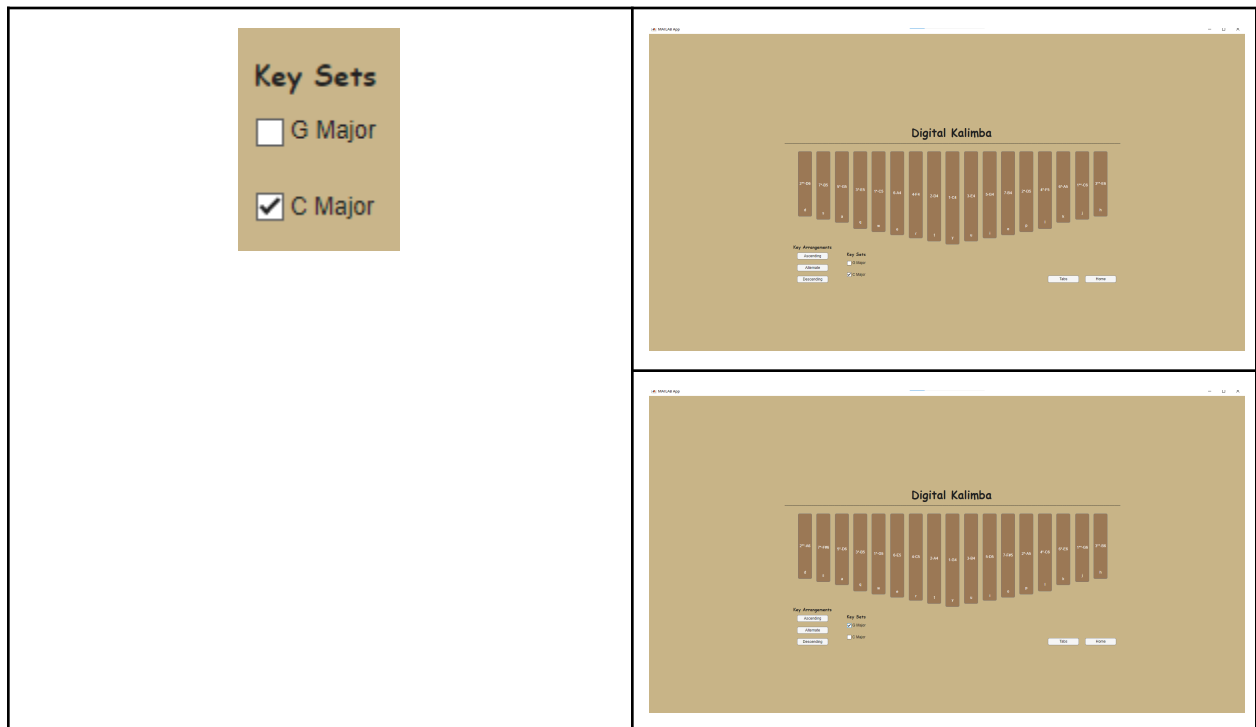

Step 3: Kalimba Playing Page

- At the playing page, you can see the Kalimba tabs, key arrangement selection, key tuning selection, a "Tabs" button, and a "Home" button.
- The application allows you to play directly from your keyboard; the key values are placed at the bottom end of each corresponding tab.
- The key notes are placed in the center for you to identify which note is assigned to each

tab.

Step 4: Key Tune Selection

- On the playing page, there is a tune selection option containing checkboxes for "C Major" (default) and "G Major".
- If you wish to play with G Major as the tune, click the "G Major" checkbox to switch the tune and update the notes on the keys, while the arrangement is maintained.
- To revert, tap "G Major" again to reselect the default, which is "C Major".

<u>Step 5: Tab and Home Button</u>

- On the playing page, you can find the "Tabs" and "Home" buttons.
- When the "Tabs" button is clicked, the application transitions to the Tab Selection Page.
- When the "Home" button is clicked, the application returns to the starting page.

<u>Step 6: Tab Selection Page</u>

- After clicking the "Tabs" button, the Tab Selection Page loads with three pre-chosen songs categorized by difficulty: easy, medium, and hard.
- Select a song based on the difficulty. Once the button is clicked, the application directs you back to a playing page with the same features (arrangement selection, tune selection, kalimba tabs, and navigation buttons), with an additional scrollable text for the song's tab notes.
- Additionally, there are two new buttons that appear for playing and pausing the song.

Step 7: Pause and Play Buttons

- On the song-specific playing page, you can find the Play button (left) and the Pause button (right).
- When the "Play" button is pressed, a snippet of the song being played on the Kalimba will play.
- When the "Pause" button is pressed, the playing song will be paused.