CS.104

The Walking Piano Project

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Abstract

The Walking Piano project allows users to play various songs on a piano with a catch: the user must play with their feet! Our aim is to develop a standalone software that works alongside a physical MIDI piano controller that can be played by the user as they move across the physical piano. By providing simple guidance with colorful notes falling towards a visual piano for reference, the software will empower users of all skill levels to enjoy the unique experience of playing a large MIDI piano and creating incredible music, alone, or with a friend.

Team





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Objective

- Construct a program and interface to control a custom-made walking piano MIDI controller, allowing users to intuitively play the instrument without any prior musical experience or knowledge.
- Utilize a MIDI file library to provide a curated list of songs to play on the piano.
- Design an intuitive visual interface, guiding users to the keys and when to strike them.
- Provide a feedback mechanism to assess and inform users about their accuracy.
- Provide an intuitive menu system for easy setup and provides the user choices for interactive, jukebox and free play modes.

soundbendor lab

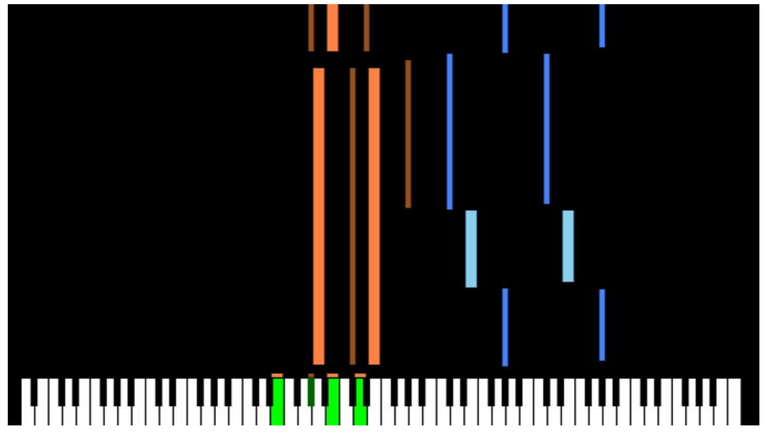

Figure 1: Walking Piano Game Interface

Implementation

- Utilizing Python and Pyglet we implemented user feedback with color coded keys on piano key press.
- Using Maestro and self created MIDI files, we created a track list that is easy to play and listen to.

Tools

This project is written in Python, with:

- `Pyglet` — for visualization and graphics
- `Mido` — reading and manipulating MIDI
- `Maestro` — music library of MIDI files



Figure 2: Potential Implementation of Physical Piano

Game Modes

We created an elegant interface which allows for users to select from a variety of different modes:

- **Challenge Mode**: Allows 1-2 users to earn points by playing songs of their choice.
- **Practice Mode**: Game will wait for user to press correct note before continuing song.
- **Freeplay Mode**: Allows users to freely play the walking piano, or any connected device.
- **Jukebox Mode:** Allows users to listen to a large collection of songs performed by professionals.