Move-it Music – Personal Music Suggestion Application

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INTRODUCTION

THERE is a widespread collection of information about music listening habits, song and artist preferences, and music suggestion concepts built into commercial streaming services. For example, Spotify suggests playlists based on your previous listening, as well as having a multitude of playlists sorted by genre. However, there is a lack of software that accepts an input of a device's surroundings, such as movement and extraneous sounds. These could factor into an individual's choice of song, album, artist, playlist, etc. which a device such as a mobile phone has the hardware capabilities to gather. We believe that incorporating such additional parameters could result in better music suggestions and smoother listening experience, and in the case of our application, accelerometer data.

APPLICATIONS

This would be primarily useful for individuals or small groups that want to focus more on their activities than providing a soundtrack. There could be several cases where this may prove useful. For example, if a group of people were running around or engaged in physical activity and the pace were to change from vigorous to a state of relative rest, the music on a device would still be playing loud and energetic music which could cause some to become uncomfortable. The application would detect this change, and adjust the song selection accordingly, better matching the current state of activity. Also, if a person were doing a sedentary activity, the accelerometer would also be helpful. Since no major changes would be detected, the playlist would remain consistent, instead of inserting a song that may disrupt the user. The application could also be applied to larger gatherings, but for this particular project, we focused on more personal settings

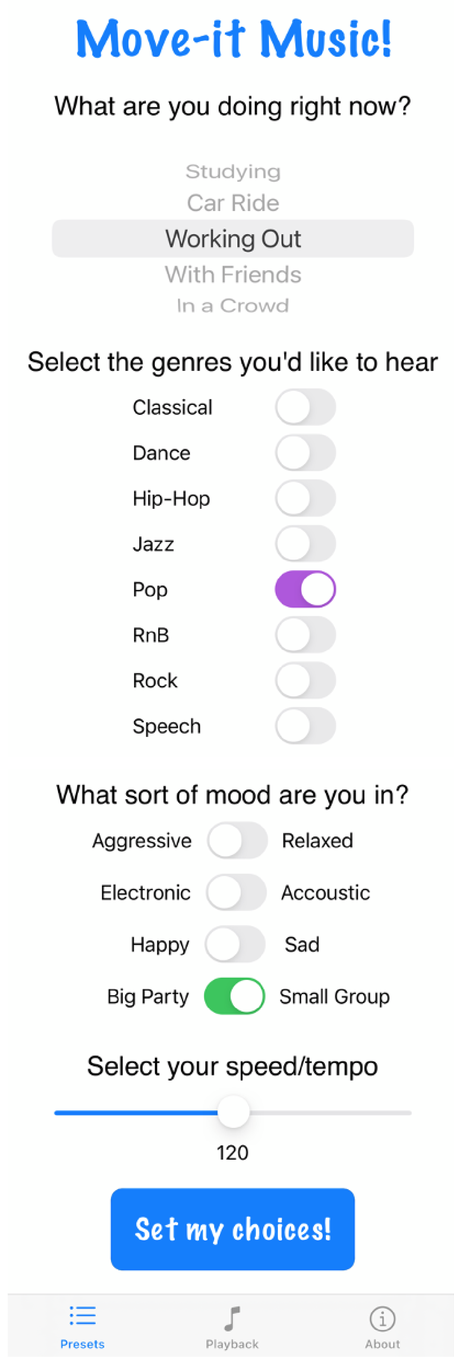
HOW IT WORKS

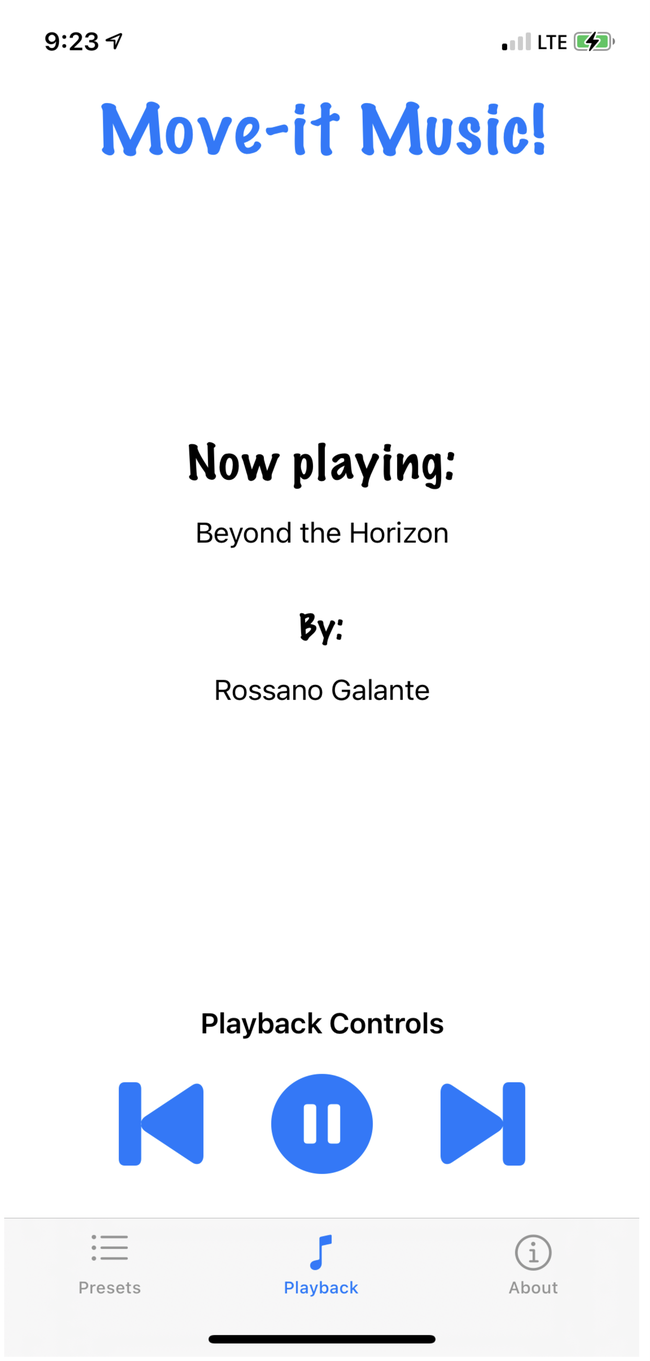
The goal for our final product was to make a mobile application that would take in parameters and other inputs from the user and select songs from the user's personal library accordingly. Initially our goal for the inputs was to use recorded audio of the user's environment, but eventually transitioned into using motion data from the accelerometer. Parameters for the music selection would draw from questions asked to the user about what they were doing, what sort of genres they would like to hear, what sort of mood they were in, and what speed (tempo) of music they would like. Since the songs did not have this information available in the file metadata, the songs must first be processed through MusicBrainz and AcousticBrainz to extract any missing title or artist information, and the low-level & high-level data that contain mood, genre, etc. This information is formatted and written in a text file. The formatting to the text file allows the information to be read easily by an algorithm which determines what songs should be played. This algorithm takes the user input from the UI and filters the songs that best match that criteria. This algorithm is also passed accelerometer data, which is used to measure user movement. Once the algorithm returned the list, they would be passed into the device's library and played back through the device's built-in media player. The playlist would also be able to adjust according to sudden changes in the user's movement, and could also be changed if the user updated their preferred parameters.

NOVELTY

One aspect that is novel is the fact that our application incorporates accelerometer inputs from a mobile device combined with user pre-selection to make music suggestions, whereas other applications have only used accelerometer data. The applications that have done that tend to focus on fitness and movement, unlike our application which could ideally apply to any movement scenario. Another unique aspect our application possesses is well-functioning local library inclusion. Since we applied consistent metadata from MusicBrainz & AcousticBrainz, we ensure accurate matches to existing files. Our application aimed to combine the aspects of hardware input, previous interactions, existing metadata, and more, to provide a smooth and easy experience for the user.

USER INTERFACE (IMAGES)





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GITHUB LINK

Github link: https://github.com/still18/PST2Repo