Take a Pic, Get a Playlist
AI Recommended Mood–Based Playlists

Renuka Sookdeosingh

Executive Summary

This project is an artificial intelligence application that recognizes a person's mood and recommends a playlist of songs for them to listen to. The purpose of this project is to connect people to personalized music. This application would be intended for anyone to use, and though it might be challenging to recognize different facial features among various faces, it is possible.

Multiple scientific studies have discovered that music and mood are closely related[1]. Music is one of the things that can be used as therapy with no reported side effects[2]. One of the most common ways we reveal moods is through our facial expressions. Technology has become so advanced that it can recognize specific facial features. Music is so vital to everyone, as it has such a major impact on our moods. Having unique playlists to match your mood creates personalized user experiences people crave.

Because this project will require a lot of testing, it will be broken down into three main parts – the technology to identify the facial features, a way to interpolate that facial information, and a way to send that data to a music service to link a playlist. Though the facial recognition technology is the main focus, all aspects need to work in coordination for a successful project.

The ideal outcome of this project is for it to work as intended and connect people to the music that fits their mood. A designated control group will be needed to test if the software is accurate or what needs to be improved. Then, we'd be able to see how this software could be implemented to do other things, instead of only linking to a playlist.

The conclusions of this project will affect how to continue developing the program. This project will shed light on which coding software is best for creating this technology. If the coding software does not produce the best results, a different program would be used in further iterations. There could be a shift in thinking that leads to using a different way to recognize a person's facial features altogether. It might also be more beneficial to ask the user questions instead of using facial recognition in case the software ends up being inaccurate.

[1] Brockis, Jenny. "How Does Music Make You Feel?" *Dr Jenny Brockis*, 14 June 2019, www.drjennybrockis.com/2016/3/14/how-does-music-make-you-feel/.

[2] Boothby, Suzanne. "How Does Music Affect Your Mood and Emotions." *Healthline Media*, 13 Apr. 2017, www.healthline.com/health-news/mental-listening-to-music-lifts-or-reinforces-mood-051713.

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Project Description

The goal of this project is to create an artificial intelligence software application that recognizes a person's mood. Then, it will recommend a playlist of songs for them to listen to. Music often goes hand in hand with our mood. This application will ultimately connect people to personalized music. Anyone would be able to use the software and all facial features should be recognized accordingly. The data, no matter how varied, could then be translated and linked to different playlists. Music is a universal language that everyone resonates with and has a major impact on our moods. Therefore, it would be interesting to implement technology that recognizes something as precise as facial expressions and have certain music for certain moods.

Methods

1. Research existing facial recognition technology
2. Create facial recognition technology (using JavaScript & Node JS)
3. Create a way to interpolate data collected from emotion recognition technology
   a. Test emotion recognition technology
4. Set up designated playlists through Spotify music service
   a. At least (3) – happy, sad, angry
5. Send data to music service for linked playlists
6. Test the entire AI program

Project Deliverables

1. Signed Proposal
2. Calendar
3. Open Lab Portfolio & Poster
4. Documentation of the development
   a. Photos, Videos, & Citations from research
5. Functioning facial recognition technology
6. Playlists of songs based on mood
7. Software that uses facial recognition technology to recommend playlist

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Schedule

AI Developed Mood-Based Playlists: Gantt Chart Table			
Task	**Start**	**End**	**Duration**
Finalize topic	8/25/2021	9/2/2021	8
Define milestones	9/3/2021	9/8/2021	5
Background research	9/7/2021	9/12/2021	5
Face recognition coding	9/13/2021	10/4/2021	21
Face recognition UI	10/5/2021	10/19/2021	14
Collect recognition data	10/20/2021	10/24/2021	4
Test recognition software	10/25/2021	11/3/2021	9
Tweak recognition software	10/26/2021	11/10/2021	15
Define moods using data	11/11/2021	11/15/2021	4
Curate playlists by mood	11/13/2021	11/17/2021	4
Link data to playlist	11/18/2021	11/23/2021	5
Test entire AI program	11/24/2021	11/27/2021	3
Final adjustments	11/21/2021	11/28/2021	7
Turn in	11/29/2021	12/3/2021	4

AI Developed Mood-Based Playlists: Gantt Chart
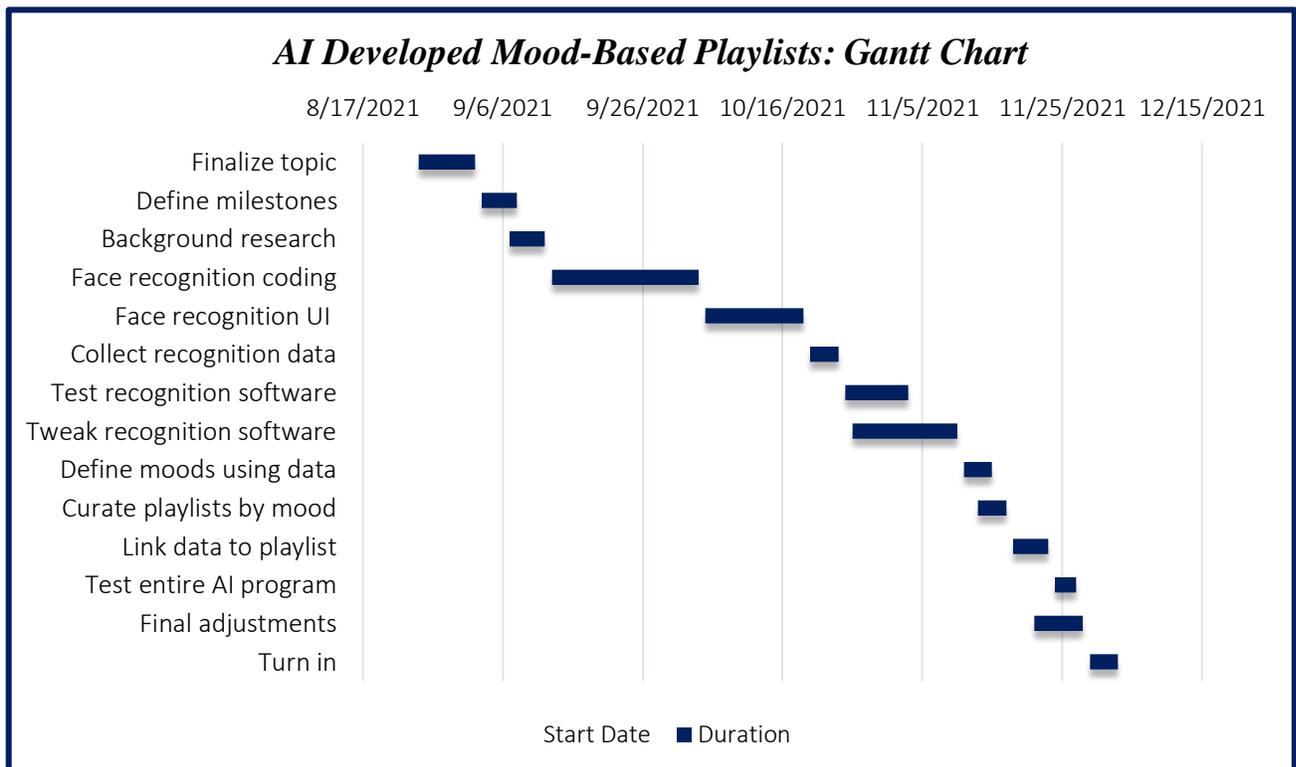
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Required Resources

1. Hardware
    a. CPU – Apple MacBook
    b. External Hard Drive or Cloud Storage
2. Software
    a. Code Editor IDE – Visual Studio Code (Python, JavaScript, Node.js)
    b. Google Cloud Platform APIs – Vision AI
    c. User Interface (UI) Development Software
3. Server Hosting – App Engine and Firestore by Google Cloud
4. Music Streaming Service – Spotify Web SDK
5. Control Group – test software

Estimated Budget

Item	Estimate
Research	$20
External Storage	$30
Google Cloud Account	$100
Code Development	$100
Interface Development	$50
Total	**$300**

* Due to trials and access to student resources, the budget was $0

Proposed Table of Contents

1. Proposal
2. Culmination Project Agreement
3. Description of Research Conducted (with citations)
4. Project Budget and/or Calendar – Gantt Chart with Table
5. Documentation of Project – prototypes, notes, photos/videos
6. Conclusion