**Fortnightly Mini Project Status Report**

# Project Title: Deep learning for song Recommendation Group No: CP-G22

**Report 1 :**

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# Problem Statement:

To design and implement a real time music player which plays music according to the emotion of the user, using Machine learning .

# Aim:

* To provide a solution for the substantial method of using a music player by incorporating emotion detection.
* To design and implement a reliable CNN classifier to distinguish between different facial expressions.

# Project Status Summary :

In the initial phase of the project, our primary focus has been on selecting the most promising project definition. After careful deliberation, we have enthusiastically chosen web based ‘Song Recommendation System by facial expression’ using ML .

# Work Planned For Last Fortnight :

During the last fortnight, team has geared up for the project by delving into the following areas :-

* + Researching different platforms related to Song Recommendation by facial expression
  + Investigating the technologies suitable for the project (HTML, CSS, Python ML, Opencv, Tensorflow , spotipy (for music),Web Camera).
  + Exploring potential data sources, including APIs and online data services.

# Work Completed For This Fortnight

The good progress has been done in the first part of our project. The work completed so far has set a strong base for the next steps in the project.

Abstract of Research paper :

**Image Capturing:** OpenCV library is used to capture image of face and identify various facial features such as eyes, nose, mouth & shape of face and further identifying the emotions expressed [1].

**Emotion Detection:** One of the most effective ML algorithm for emotion classification using facial features is the Convolutional Neural Network (CNN) algorithm [1].

**Music Classifier:** It is the ML model that is trained to recognize different types of music based on their audio features. These features include tempo, rhythm, melody and timbre [3].

Scientists have done several studies and researches and article summarizes that facial expressions across the globe fall roughly into 7 categories:

**Sadness:** The eyelids droop while the inner corners of the brows rise. When in extreme sadness, the brows will all push nearer together. As for the lips, both of its corners pull down and the lower lip may push up in a mope.

**Surprise:** Both the upper eyelids and brows rise, and the jaw drops open.

**Anger:** Both the lower and upper eyelids squeeze in as the brows move down and draw together. The jaw pushes forward, the upper and lower lip press on each other when the lower lip pushes upper a bit.

**Contempt:** The expression appears on one side of a face: One half of the upper lip tightens upward.

**Disgust:** The individual’s nose wrinkles and the upper lip rise while the lower lip protrudes.

**Fear:** The eyes widen and the upper lids rise. The brows draw together while the lips extend horizontally.

**Happiness:** The corners of the lips lifted and shaped a smile, the eyelids tighten, the cheeks rise up and the outside corners of the brows pull down.

# Work Planned For Next Fortnight

Roadmap for the next fortnight includes:

1. Detailed study of the research papers.
2. In-depth examination of websites and APIs related to Songs.
3. Executing the development of the front-end of the website.
4. Creating comprehensive class diagram, ER diagram, Activity Diagram & Flow diagram to map out the system architecture.

# Open Issue :

The quality of the image should be at least higher than 320p for the classifier to predict the emotion of the user accurately [2] .

**REFERENCES :**

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[2]. S. Sunitha , V. Jyothi , P. Ramya and S. Priyanka , “Music Recommendation Based On Facial Expression By Using Deep Learning” , International Research Journal Of Modernization in Engineering Technology and Science | Volume 5 Issue : 01 Jan 2023 , pp. 927 – 934

[3]. Madhuri Athavle , Deepali Mudale , Upasana Shrivastav and Megha Gupta , “Music

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