**Affective MP3 Project Description and Design**

This program will be a simplified MP3 player which responds to user emotion. Using the laptop camera, the program will take the facial expressions and emotions of the user as input and play music which corresponds to the conveyed ‘mood’ of the user.

**High Level Program Flow and Architecture**

The Model Class contains

* *Affectiva Detector*
* *5-Element Mood List*
* *Five 5-Element Song Lists, each corresponding to one mood*
* *Canvas and Relevant Variables*
* *Local Variables to support functionality*
* *Widgets to handle user interaction*

When the user initiates the program, Affectiva Detector runs for approximately 5 seconds and returns a list of values assigned with each emotion and expression between 1 and 100. Using combinations of these, the program quantifies the following moods in the mood list and ranks them in descending order of prevalence:

* *Happy*
* *Sad*
* *Angry*
* *Romantic*
* *NonVerbal*

Based upon this, the program will play music from one of five pre-made playlists, each corresponding to one of the moods. The user may request to change song, change mood, pause, and play at any time, as well as report mood attribution errors, via the user widgets.

* *If the user wishes to change the song, the model simply switches the current song from the one playing to another song in the same mood list.*
* *If the user wishes to change mood, the Affectiva Detector runs again, adjusts the mood list and plays music accordingly.*
* *If the user wishes to pause or play, the model appropriately pauses or plays the current song.*
* *If the user reports feeling that the detector attributed the wrong mood to their face, the model switches the mood to the second element in the mood list (the second most prevalent mood detected on the user’s face by the detector).*

**Basic Architecture Diagram**

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**Affectiva Technical Analysis**

My testing and research regarding the Affectiva interface gives me fair confidence in its ability to quickly and accurately attribute emotions and expressions of users via its chosen parameters, at least to the extent required by this design. In order to ensure robustness however, I am providing functionality to switch the current mood to that which was perceived at the second highest intensity at the most recent instance of the detector running. One thing I noticed is that the detector is better at attributing happiness and anger than other moods on this list. To curb this, the program will ask users to drop their jaw to express sadness, pout their lips to convey a romantic mood, and close their eyes to convey nonverbal mood. This is because Affectiva is relatively good at perceiving these expressions than conventional displays of sadness, etc.

**Affectiva Technical Analysis**

In class, we’ve already witnessed several programs which prove that Affectiva is capable of reading and processing input of the nature required by this program.