

**ECE 180DB**

**Project Report**

*(Winter 2021)*

***Project Smartify: Intelligent Music Player***

**Team 9**

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## Summary

This proposal will be an addition to our Fall proposal, delineating our overall plans for this quarter, including the additional features and improvements to the existing ones. Most of our focus will be on the UI/UX of the music player. Core features for a music player will be added and the interface will be improved to be more intuitive and appealing to the eyes of the user.

## Fall Quarter Accomplishments

Our team has finished the basic Smartify Framework, which meets the minimum project requirements. Our player has a GUI with basic player functionalities (play, pause, random song), detects user emotion through OpenCV, and transmits/receives commands via MQTT (Wifi) to retrieve metadata of song from other users. However, our project is not yet polished; Our GUI is not intuitive, has no easy installation scripts, and is missing functionalities that would make it user-friendly (Automated song sharing, icons, menu design, etc). We have made a list of features to implement below, with 5 different levels of priority. We plan to finish features in High and Medium-High Priority, and some from Medium Priority. All other features will be finished given there is 1) extra time 2) does not interfere with User Experience.

## Winter Quarter Feature List

### High Priority

1. GUI redesign for intuitive UX  
Expected Time: 2-3 weeks if using Tk-Inter, may take much longer if switching to GUI Library (5-6 weeks). We have to rewrite the player itself, starting mostly again from scratch, if choosing the latter.
2. MQTT redesign for multiple channels and Live Listening  
Expected Time: 1-2 weeks; may increase with GUI Library change, as this is linked to multi-threading.
3. Easier Installation/Setup for new Users  
Expected Time: 2 weeks; we will need to reduce dependent libraries, and create scripts.

### Medium-High Priority

1. Searching missing songs via Internet  
Expected Time: 1-2 weeks.

2. Volume control

Expected Time: Dependent on GUI library choice, should not take too long.

#### Medium Priority

1. Creating custom playlists and view page

Expected Time: Also dependent on GUI Library, 2-4 weeks with TK-inter.

2. Add more voice commands and increase their utility

Expected Time: 2-4 weeks.

3. Analyze emotion of a song (Key Element, but given our constraints, this may negatively affect User Experience)

Expected Time: 3-8 weeks.

4. List of people listening to the music(friends and maybe # value of others listening)

Expected Time: 1-2 weeks.

5. Improve visual aspect and color schemes

Expected Time: Variable, as long as we please.

#### Medium-Low Priority

1. Background music filtering for audio recognition

Expected Time: 1-3 weeks.

2. Manual emotion labeling

Expected Time: Dependent on GUI Library, 2-4 weeks TK-inter.

3. Increase IMU accuracy

Expected Time: 1-2 weeks.

4. User Statistics/Multiple User on same Player

Expected Time: Varies over GUI, 2-3 Weeks.

#### Low Priority

1. Audio recognition in multiple languages

Expected Time: 1 week.