1. **General Status**

We are fully on track to complete the project. We have working models for all of the datasets, along with a driver to run the model on any of them based on user input, and recordings of the relevant statistics. This marks completion of goals 1 through 5 of the 10 goals mentioned in the project proposal, including the ones we thought would likely be the hardest. More specifically, we have completed the following goals:

- Read the relevant literature
- Implement three ML models
- Collect metrics on the models' performance
- Implement the models for all datasets
- Isolate the results per dataset

The following goals remain:

- Use the SHAP library to explain the results of the models
- Retrain the models after removing the most important features
- Process the results
- Deploy the experiment in Occam
- Analyze the outputs and write a final report

We expect the first two of the remaining goals to be the most time consuming, while the last three should be straightforward. Significant progress has been made towards the first two of the remaining goals - we only need to finish running our code on all of the remaining datasets, compile the results, and enable programmatic (rather than hardcoded) feature blocking.

Aside from the project's main goals, we have also looked into some "side" goals to expand the project. Specifically, to serve as a comparison to emotion prediction, we have developed code to predict gender labels as well. This will allow us to determine the relative importance of each feature across both classification tasks according to the SHAP library.

2. **Changes to Process**

The only relevant change to our planned process was to experiment with some "pair coding" activity, which resulted in the successful resolution of several bugs. We have also changed the division of labor - while at first we specifically divided all of the tasks among people, we have found that simply listing the tasks that need to be done and having people simply grab the next one in the sequence ended up being more effective.

3. **Reflection - What Went Well/Poorly?**

One pitfall that our group encountered was in migrating between local systems and Google Collab, which we used as an easy way to collaborate. Compatibility issues have hampered our ability to easily transfer code and results between platforms, and we currently have active parts of the project that are split between multiple platforms which are mutually incompatible. This is not at all an insurmountable problem, especially since the project is highly "modular," but we will need to consolidate in order to reach step 9 (deploying our experiment in Occam), and as a part of that process, we will aim to reduce our reliance on outdated versions of packages so that others can easily get our code to run. Despite this drawback, Google Collab has been a great way to collaborate

remotely, thereby drastically improving our productivity. Otherwise, we have faced no major problems.

4. Major Risks

The main risk that our project faces is the possibility that our proposed mechanism for audio privacy will turn out to be infeasible. We are relying on the assumption that removing some features from the audio data will allow us to eliminate the ability to predict certain types of information (i. e. gender) without completely garbling the data. However, if the features we are considering are somehow too influential to the information we want to preserve, or the information we are trying to eliminate can be gleaned in many other ways, then our experiment could return a negative result. While this may not constitute a complete failure of the project (a negative result is, after all, still useful, and would tell us a lot about the nature of the effects of gender and language on vocal frequencies), it would certainly be less interesting than a positive result. Fortunately, given the data we have collected thus far, this seems like a very unlikely result.

One other risk our project faces is compatibility with Occam. One of the goals of our project is to upload it to Occam. Unfortunately, Occam has a set list of packages with which it is compatible. We have spoken with our sponsor and determined that there should be no incompatibility issues at this time, but it is still possible that they may arise in the future if we end up wanting to use a less well known package. So, Occam somewhat limits the potential libraries we can use.

5. Conclusion

In conclusion, our project is coming along well, and unless something goes terribly wrong, we will be able to complete all the requirements outlined by our sponsor at the beginning of the term, along with the additional task of gender classification. The only major roadblocks we expect in the future are potential compatibility issues with Occam, and the actual outcome of our experiment.