Adam Tait

**Individual Capstone Assessment**

The project we are planning is a music app to give kids the opportunity to experience creating music that they potentially would not have had the chance to experience otherwise. From an academic standpoint this will incorporate many different disciplines into one. Obviously, it will incorporate computer science, but it will also include music theory and embedded systems. Music theory will be behind all the content of the app, what the user is actually experiencing. One of our project members is receiving a minor in embedded systems so we are required to include an embedded system. The plan for this is to include a piece of hardware that the user can tap a beat into to then use in the app to make music.

There are a variety of classes that are going into this project and we all bring different backgrounds into the project. For example, I have a background in music which will contribute to the content of the project and others have a background in embedded systems which will help us implement a hardware solution. I am currently taking a music theory class (FAM1001) which will help with the content of the application. I also have a background in music from a hobbyist perspective so I will be able to bring everything I know about music into this project. I am also currently taking a UI (CS5167) class and Computer Graphics (CS5160) class which will help in the design of the app. Having an easy to use UI will be critical in this usefulness of this app as it is designed for kids and needs to be able to be used by kids with a wide variety of backgrounds.

When it comes to work background, we all have diverse experiences that we can bring together to work on the project. I worked at ITI as a co-op and I worked in Python on a CAD-Server connector. This in itself does not really bring much to the project, however, I did get experience working on a large project with other people which will in turn help greatly on this project. Something that I learned on co-op which will be helpful is designing implementations that users of different levels will be able to work with and understand. During work if I was implementing a new feature I would have to think of the customer who asked for the feature and would have a background understanding of the new feature as well as the users who would receive the feature in a new update and how to make the new feature accessible to them. This will be critical in this project because not everyone who uses the app will have the same background in music or in technology.

My motivation for this project is pretty personal. I love creating music and its something that a lot of people don’t get exposure to. I personally had very limited exposure as a child and the only exposure I did have was because of my parents, not schooling or any other avenue. I want to make something that gives kids an interest in learning music and a cheap/free way to meddle with making music. I would like to take what I have taught myself over the years and turn it into a way to get kids interested in making music. I think kids should be given the opportunity to explore different hobbies and potential professions and I think music is one that kind of gets left behind.

Our project approach is rather simple but difficult to get perfect. The end goal is to have some kind of application where the user can tap in a beat and add notes to the beat to make a melody. If that is accomplished, then I think that will indicate a good job. The difficulty comes in the small details, such as snapping notes that were tapped in to fit the measure without changing the users intended beat too much. Another difficulty will be implementing the actual sound of the notes and making sure we can accommodate for different not lengths (quarter note vs. whole note). I think this is one of those projects where aiming for small chunks at a time will help keep the project in perspective and make the end goal easier to accomplish.