**EE404/591 – Real-Time DSP**

**TI Lab 2:**

**Musical Note Synthesis**

**Osciel Rodriguez and Isaiah Gaspar**

**Introduction/Lab Objectives**

The objective of this lab is to introduce students to sinewave generation at various

frequencies through the synthesis of musical notes.

**Results and Analysis**

The two primary methods used were round-down and linear interpolation, both of which offering benefits and consequences. Round-down as the name implies finds the lowest lookup value from a table to be able to estimate the desired output. This is very simple to implement although rounding down can also introduce distortion. Conversely, linear interpolation finds the appropriate value between two lookup table entries to estimate an accurate output.

We learned how to properly generate tones from a single lookup table and how to execute new ideas built with the TI DSP.

**Lab Evaluation**

We mainly had issues implementing ADSR in assembly. Though the reference information about assembly functions helped, we were unable to complete our project.

We found no errors in the lab manual.

As for improving this lab, maybe more reference code in TI Lab1?

**Conclusion**

From this lab, we learned how to properly synthesize sinewaves/tones in addition to incorporating ADSR Dynamics to improve sound quality.

It was very cool to be able to hear changes in audio although we did struggle with the assembly related portions of our lab.