

Proposal for final project MTEC2280 Anderson Tenecela:

- 1.) My proposal is a Theremin instrument that can change the tune/pitch whenever I interact with the instrument through both arduino and unity.
- 2.) I will be using the ESP32-S3 dev board to code many of the tones and pitches from the arduino software with holes that will allow me to connect the UART cable to the laptop and the theremin itself.
- 3.) Unity, Arduino, breadboard, wood, spray paint(will give an orange design), drill for holes(using the lab), stickers/decorations with a music vibe.
- 4.) 3d animation and Unity are my experiences. With me learning both of those softwares in the past couple of semesters, I will take what I gain and apply them to the arduino software.
- 5.) I will look into Unity and see how I can link all of the work into arduino. For example, colored wires, volume control(maybe the potentiometer), I will study how arduino can send data to Unity. Since I have some experience with 3d animation, I want to have something displayed on the screen that will act as a physical demonstration that the tone/pitch is changing.

<https://www.youtube.com/watch?v=5EIKFY3N1zs> This video will allow me to research how I can connect the systems from unity and arduino together.

[Unity - Scripting API: AudioClip](#) This page is from the Unity website that groups many of the audio related code names together. From there, I will research what function each definition does and determine what's best to write in the code.

[Ultrasonic Sensor HC-SR04 and Arduino - Complete Guide](#) This guide displays how the ultrasonic sensor is functioned. This material is new to my project and is the key component that will make this project possible.

7.) Calendar Task:

Week of April 30th: the ultrasonic sensor will arrive, have basic code written between arduino and Unity after finishing all the research from my resources. Start work on Unity code.

Week of May 7th: start working on the wood(measuring the board and fitting inside the wood in its rectangle shape). Working on the animation in Unity and have most of the code in arduino written.

Week of May 14th: have the physical theremin design finalized and use decorations. The main codes for Unity and arduino will be completed by the end of that week.

Week of May 21th: Arduino code; adding some final polish for the theremin code in the software.