Project Summary

For our project we were tasked to create a music box where the user can select and play pre-programmed songs. The music will have lighting controls, the ability to record seconds of sound, and play back the tones recorded. Our team separated the project into different blocks and assigned a member to each block. Jack was assigned to the power and enclosure block. Justin was assigned to the microphone and led block. And Will was assigned to the screen and speaker block.

During the first phase, the power block, the led block, and the screen block were created. We needed a power supply to power our system. The power supply we made in our Junior Design class was used since it provided the correct amount of voltage. For the led control, an Arduino was used to control the led. The led was connected to the Arduino and the Arduino connects to a potentiometer which controls the brightness of the led. The screen block was completed by connecting a lcd screen with buttons to the Raspberry Pi. Will implemented code where the screen displayed a menu and buttons were used to navigate the screen.

The second phase we implemented the remaining blocks. A speaker and microphone was connected to the Raspberry Pi and code was implemented to record and playback sound. An enclosure was designed but not made due to lack of equipment. If we had more time and access to equipment we would like to make our enclosure and assemble all of our parts together.

After completing this project, A key lesson we learned was how to improvise since we weren't allowed access to most of the lab equipment.

Project Timeline:

Task No	Task Description	Task Assignment	Start Date	End Date	Dependencies	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 9	Week 10
1	Psuedo code for Pi	Will Dodge	3/30/2020	4/10/2020	none									
2	Psuedo code for Arduino	Justin Chen	3/30/2020	4/10/2020	none									
3	Power Supply- Design	Jack Larson	3/30/2020	4/10/2020	none									
4	Interfacing Pi with screen	Will Dodge	4/10/20	5/11/20	1									
5	Interfacing Arduino with buttons & LED	Justin Chen	4/10/2020	4/20/20	2									
6	Interfacing Pi with buttons	Will Dodge	4/10/20	4/20/20	1									
7	Power Supply- Prototype	Jack Larson	4/10/2020	4/20/0202	3									
8	Code Implementation Pi	Will Dodge	4/10/20	5/11/20	1									
9	Fourier Transform	Justin Chen	4/10/2020	5/1/2020	none									
10	Interfacing with mic	Justin Chen	5/1/2020	5/11/2020	none									
11	Interfacing Pi with speaker	Will Dodge	4/10/20	4/20/20	1									
12	Enclosure Design	Jack Larson	4/20/2020	4/30/2020	none									
13	Enclosure Fabrication	Jack Larson	5/1/2020	5/11/2020	12									
14	Assembly	All	5/11/2020	6/10/2020	1-13									