

System Requirements

1. **Customer Requirement:** The system must control lights.

Engineering Requirement: An RGB LED must have at least 10 different colors and 10 different brightness levels for the system lighting.

2. **Customer Requirement:** The system should play pre-programmed songs.

Engineering Requirement: The user should be able to select from at least two pre-programmed songs to be played with the project. The songs should be at least 20 seconds long.

3. **Customer Requirement:** The system should be able to playback recorded songs.

Engineering Requirement: The system will record audio data of 100 Hz to 5 KHz. It will play back a tone that locks to the correct note of a piano, with less than 4% error on frequency. The duration of the played back note will be accurate within .02 seconds. Total song length will be at least 20 seconds.

4. **Customer Requirement:** The system must be aesthetically pleasing.

Engineering Requirement: There will be no visible tape, cardboard, or other non-drafted materials on the final prototype.

5. **Customer Requirement:** The system must be easy to use.

Engineering Requirement: 9 of 10 people should be able to easily read documentation on the project to understand how to change the lights, select a song to be played, and record their own song to be played back.