

Arduino Music Visualizer:

A Project Proposal

CS 207 - Building Interactive Gadgets

Oct 20th 2019

Tao Zhu

University of Regina

Introduction

In this paper we describe a modification of a simple Arduino based a little pocket-size music visualizer which called “Piccolo.”. The original project, developed by Phillip Burgess on adafruit.com, describes the Piccolo that the lights respond to music and sound, lowest notes toward the left end of the graph, highest notes toward the right.

Novel Contribution

My goal is to optimize the functionality of the original project by adding a music library that will show the difference in sound through the light while playing the song. To do this, I added a speaker for playing music. This allows for some visual effects while listening to music.

Motivation

The reason for choosing this project is that the author's roommates especially like to listen to music, but we don't think it's enough to just play music. When we listen to music quietly, adding some color will make us feel the charm of music more. There is some more dynamic music, we can also dance with the lights.

Materials Required

According to the project website, the following materials are required:

1. The LED matrix
2. Arduino UNO
3. Breadboarding wire bundle

4. Breadboard

5. Speaker

Milestones

If the project is kept properly on track, the following mile-stones should be met:

Milestone 1	Nov 1st	Prepare all the required materials
Milestone 2	Nov 8th	Initial assembly -- no code
Milestone 3	Nov 15th	Write all the code
Milestone 4	Nov 21st	Import code to test if there is any problem
Milestone 5	December 1st	Add a music library to have enough music to play

The last goal is to have no limits, because each song needs to be coded to make Arduino understandable.

It is foreseeable that there will be many setbacks, because I am not very good at coding.

However, since this project is not particularly complicated, I think this is not a big problem. At the last milestone, I probably won't be preparing a lot of songs, it will be about three songs.

Team Roles

I am alone in completing the project. I will do everything by myself, including programming, documentation and presentations.

Summary

The project aims to improve the feeling of listening to music. If the project is completed as planned, then the world of music will also be colored. In order to have a better enjoyment and a better mood, we should do our best.

References

https://github.com/adafruit/Adafruit_Learning_System_Guides/tree/master/Tiny_Music_Visualizer

https://github.com/adafruit/Adafruit_LED_Backpack

<https://learn.adafruit.com/piccolo?view=all>