Mini project 3 Dancing party parrot music game

李振邦 2019531055

Design concept:

A Party Parrot (a very popular gif meme) finger puppet seems to be quite interesting. Since the core charm of the parrot is its funny back-and-forward moving and body color changing, I not only need to make an appearance, but also make it can move and change color. So, I involve a rotating axle structure to take use of eye persistence effect, making the parrot 'move'.

Basically, I hope the user will enjoy doing on/off the leds and dancing (or control its speed) according to the melody. That's fun for me. In the video, I turn on the leds when music's pace becomes fast and comes the guitar solo. It is like a music game.

In week 3, I improve the axle structure to make its running more stable and smoother.
In addition, I replace the hand driven structure with a speed controllable DC motor (with Flyback Diode and transistor). I also replace the Mini Speaker with mp3 module to produce better song. The led structure is also replaced to a better version. All the three function: music, lights, 'dance' can be controlled with switches and potentiometer. All of these are not related you can turn on/off led \music \dancing at any time.

I try to make it looks better by divide the function part and circuit part apart. Maybe the circuit looks very complex, but it does not affect how the function part looks anymore. And I hide the wires and 130 DC motor on the behind/inside the container.

Some details will be discussed later.

Related work

1.https://cultofthepartyparrot.com/
Just more party parrot gifs for you.
I get the basic one here and modify the pictures so they can be used on the axle structure smoothly and produce eye persistence effect.

2.https://www.bilibili.com/video/BV16T4y137sm/?spm_id_from=333.788.videocard.0
Another persistence effect parrot for you. Just for fun here.

Implementation

Code:

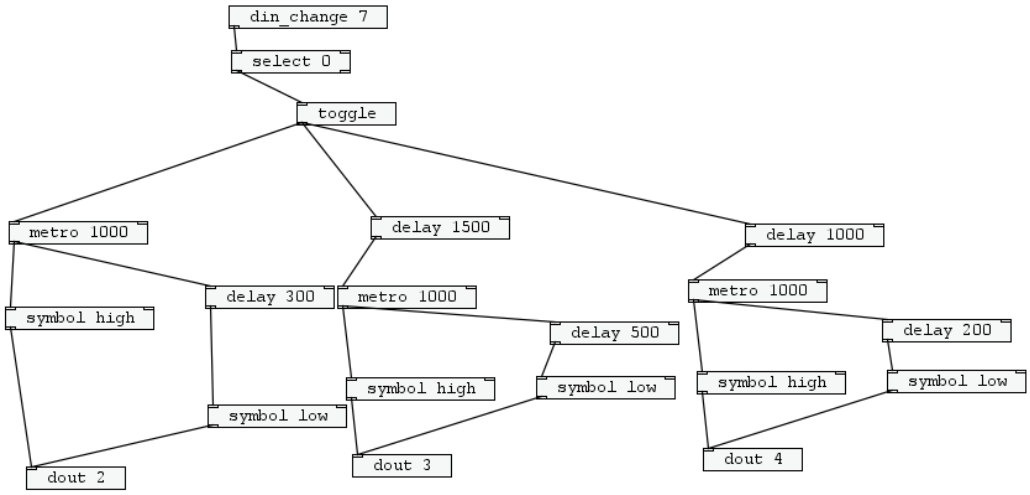

Fig1.Light with control

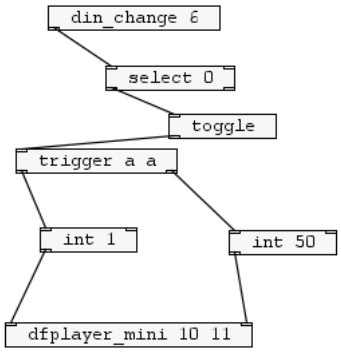

Fig2.Mp3 with control

The DC motor is total analog-controlled.

Circuit:

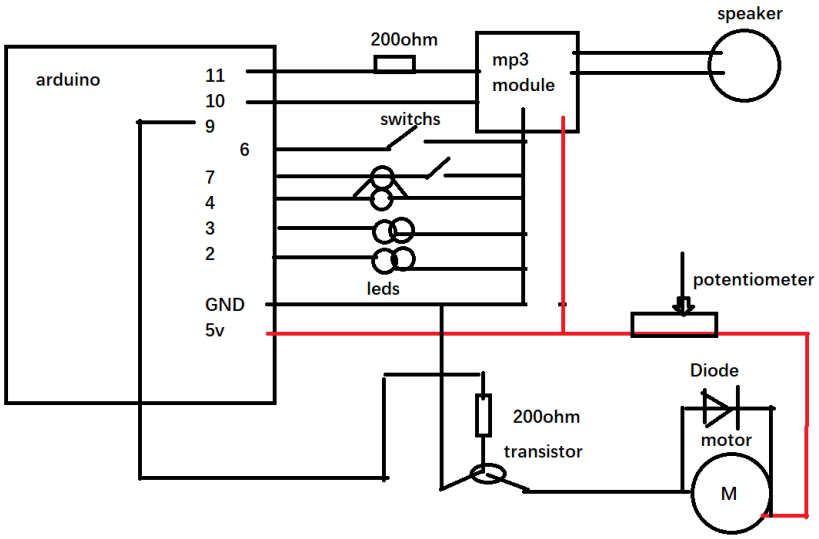

Fig3.Circuit

Pictures:

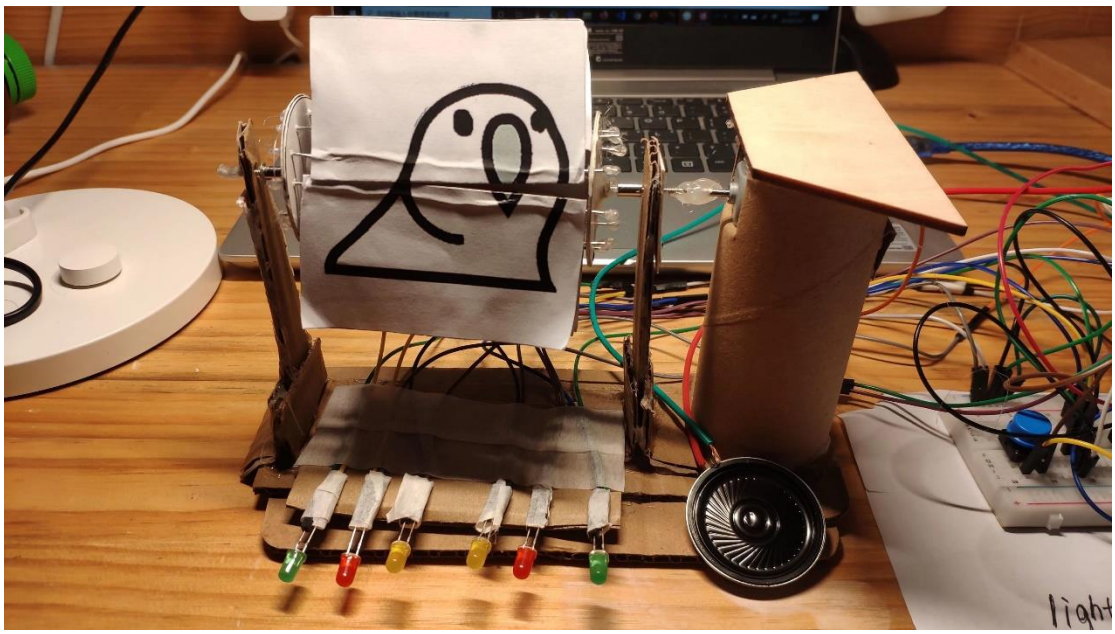

Fig4.Function part with hiding design

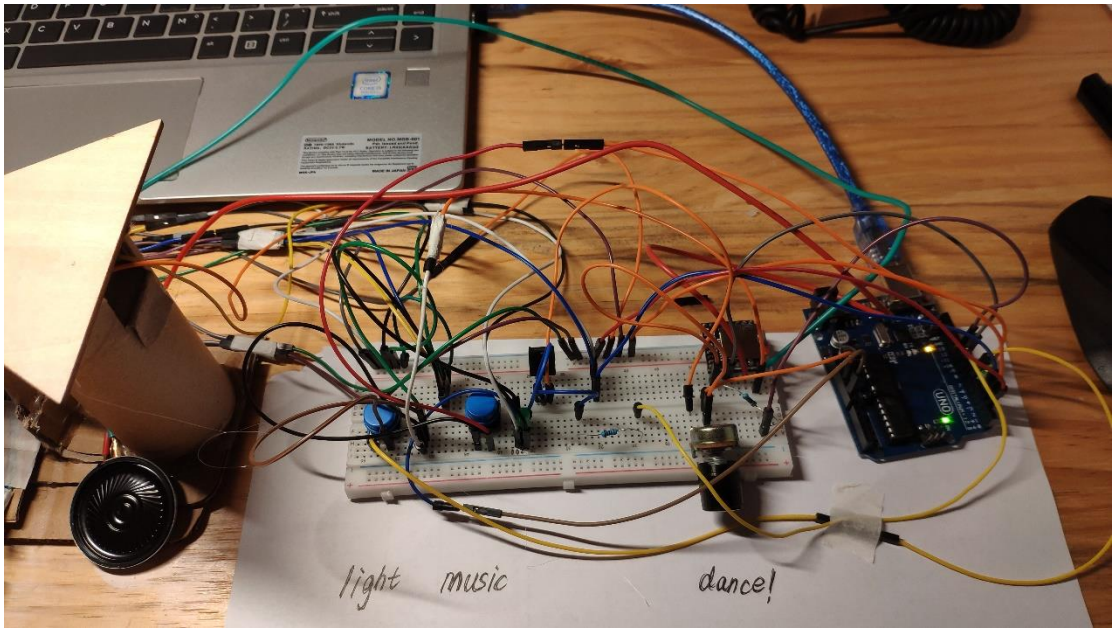

Fig5.Circuit part with notes

Fig6. New version Axle structure

Discussion

I redesign the axle with spacing structures to make its rotation smoother and more stable.

To make it easier for kids to understand, I divide the function (parrot, light, speaker) part and the circuit part into two. I also add the notes for switches and potentiometer. All of these are not related, you can turn on/off led \music \dancing at any time.

The DC motor is totally analog controlled because it is very stable in this way. You can control its speed with the potentiometer.

The green led is not very bright because I push the Arduino to its maximum power supply limitation. I tried to use a 9v battery at first, but it breaks down, so I have to use Arduino's 5v source instead.

If you change the pictures on the axle and the music, you can produce more things you like.

Summary

It is a gif-like party parrot with lights and music, making use of circuits and eye persistence effect. I hope the user well enjoy doing on/off the leds and dancing (or control its speed) according to the melody. It is like a music game,

Reference

None.

 word count:540