Aquarium Project Week#14 Monday

Tian Xie Final Project – Major Studio

The Concept:

Using twitter to feed and play with the fish

• Powered by:

an Arduino, a WiFly wireless module, LED lights, Twitter.com and a Mac (Processing)

 The Arduino connects directly to any wireless network via the WiFly module, continually searches Twitter for tweets with specific content, collates the tweets for each specific content, does some math, and then fades the color of the LED to reflect the current specific command;

> White for normal statue, Red for Feed, Blue for Change water, Green for Clean, Turn off for Sleep.

How to use it? and The Structure

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How to use it?

Please follow the Aquarium Project's Twitter

- Please comment on Aquarium Project daily tweet with those specific words "Feed/ Water/ Play/ Clean/ Sleep"
- Those specific word can control the LED lights colors
- Then the LED lights show different colors, which can give different commands to processing and show an animation.

The Structure:

- Twitter: get new comments with specific words, catch those out as a command for Arduino part.
- Arduino: follow the comments with specific words to change the RGB LED lights colors.
- Processing: catch the different colors from Anduino, then perform an animation.

Aquarium Twitter



Preparation

How to connect Twitter and Arduino

• Step1,

Download, install and import

Download here: Library-Twitter-1.2.2.zip

and put the Twitter directory in "~/Documents/Arduino/libraries (Mac) or My Documents\Arduino\libraries\ (Windows)" of Arduino IDE.

You also need to install EthernetDNS library 1.0b4 or later, which is available at gkaindl.com.

The library is automatically complied when you launch the Arduino IDE.

Before tweeting, get a token at http://arduino-tweet.appspot.com/. This library send a tweet via the site to avoid using up the memory of Arduino by complex OAuth signature stuff.

You can see an example sketch from "File -> Sketchbook -> Example -> Library-Twitter -> SimplePost".

To create a new sketch, select from the menubar "Sketch->Import Library->Twitter". Once the library is imported, at '#include <Twitter.h>' line will appear at the top of your Sketch. You need also import Ethernet library and EthernetDNS library in the same way. Step2,

arduinoethernet



Download Version History

Arduino Ethernet is a collection of libraries I have written to use within the Arduino programming environment in conjunction with the Ethernet shield.

While the individual libraries are downloaded within a single archive, they do not depend on each other (unless noted otherwise) and can be used independently.

The libraries are published under the GPLv2 (or, at your discretion, any later version).

Step3,

Tweet Library for Arduino

Post messages to Twitter (tweet) from Aruduino with Ethernet Shield!

How to begin:

- Step I: Get a token to post a message using OAuth.
- Step 2 : Add some Libraries to your Arduino IDE.
- Step 3 : Run a sample sketch to tweet!

Reference

See Arduino: Playground

Hardware Need

- Arduino Part
- Wifly
- Router





Prototype # Arduino Part

- Arduino LED lights part testing: try to get a straight LED line.
- Mock the dropping fish food in the aquarium and the rising bubbles.





Prototype Arduino LED Part

- LED lights:
- http://youtu.be/UEX7FWYRJ1I



Prototype Processing Catching Color Part

- Bubbles:
- <u>http://youtu.be/3ZgTPVOWTI4</u>





The Problems

• Though the prototyping video, it is easy to get that all the LED lights were too close to each other. This made the bubbles on the screen getting too close as well.

Calculate the distance between each LED light, and the distance between the LED lights and the motion eye still need to be calculated.

- The LED lights shined too fast. The delay time should be longer.
- Another problem is the color on the screen. When you see the red LED lights on the breadboard, the color of the light was red.
 But, when the motion eye caught the color and showed it on the screen, the color was white. It is hard to catch the right color.

Thank You!