University of Regina

Project Proposal

Fancy Bubble Bot

Course:	CS 207 – Building Interactive Gadgets
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1. Introduction

This paper is the proposal for a semester project for the CS 207 – Building Interactive Gadgets Course. The aim of the project is to build a 3D Spherical Atmosphere Encapsulated Phosphorous Printer and a CNC Anti-Gravity transparent Orb Machine at the same time (Katz Glass, 2010). The target solution is a Bubble-Machine after the model by Bernard Katz Glass, as described on the website www.instructables.com (Katz Glass, 2010). The model is based on a movable arm that dips a ring in soapy water (Katz Glass, 2010). Afterwards, it turns around and a fan gets activated to blow bubbles into the air (Katz Glass, 2010).

2. Modification

Although the model works perfectly fine, there is room for improvement, and perhaps more features. In this version of the Bubble-Machine, the idea is to use a plastic floor and add LED stripes to make it glow. To continue with the element of light, a second adaptation would be added to the fan - a small laser, that will point in the direction of the generated bubbles to illuminate them. In the source code, there will also be two further modifications. Firstly, the fan should run on different levels to generate different sizes of bubbles. Secondly the color of the laser and the LED stripes will change randomly between different colors.

3. Motivation

The need for a machine like this is urgent. Who doesn't want to impress people and pets with these beautiful fragile bubbles without lifting a finger? The second motivation of this project is to apply the learned theory in a lighthearted way. From the author's point of view, it contains all the important elements, such as servos, motors and LEDs. The building and coding is challenging but still feasible in the remaining time of this semester, which adds to the motiviation.

4. Materials

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

- 1x Arduino Uno
- 1x Motor shield
- 2x Micro servos
- 1x DC toy motor
- 1x Bubble-Mix
- 1x roll of perforated metal tape
- Nuts and bolts of various sizes
- aluminum channel
- 1 threaded rod hanger/ plate
- museum wax
- 5 minute epoxy
- acrylic sheet- about 6" x 6" worth
- acrylic adhesive

Additionally, for the adaption, the following materials are required:

- 1x plastic plate
- 1x Stripe of LED
- 1x Laser pointer

5. Milestones

Milestone #	Date	What
1	5th November 2017	All parts gathered
2	15th November 2017	The physical parts assembled
3	22nd November 2017	All the coding finished
4	26th November 2017	Finished all testing, documentation, and cleaned-up the git-repository.
5	27th November 2017	Presentation, hand-in the Project.

6. Summary

If this project can be implemented as proposed, on the 27th of November, there will be an automatic Bubble-Machine that impresses people and pets with beautiful colored bubbles. The author has learned how to combine physical and digital elements to build a working device. Even though a potential time problem has been identified while writing this proposal, the implementation is realistic and possible in the remaining time.

7. Citation

Katz Glass, B. (2010). Bubblesteen Bubble Machine. Retrieved 29 October 2017, from https://www.instructables.com/id/Bubblesteen-Bubble-Machine/