A1 SHARE OUTS & CRITIQUE + INTRO TO A2

CSE 599 Prototyping Interactive Systems | Lecture 6 | April 18

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DESIGN USE BUILD

MAKEABILITY LAB

PAUL G. ALLEN SCHOOL
OF COMPUTER SCIENCE & ENGINEERING

UNIVERSITY of WASHINGTON

A1 SHARE OUTS & CRITIQUE

A1: Physical Computing: Interactive Night Light

Published | Edit

Image Source: Richard Clarkson, Clouds

You are working for a design consultancy hired to rethink and redesign interactive ambient light's for the 21st century. You have been asked to rapidly prototype some designs that are responsive to the user and the environment.

Learning Goals

- Introduce and learn basics of electronic circuits, including voltage, current, and resistance
- Introduce and learn basic circuit design concepts, including voltage dividers, pull-up and pull-down resistors
- Introduce and learn the popular embedded prototyping platform Arduino and programming concepts therein

We expect that you will seek out external sources to help you learn and complete this assignment. Please properly

ASSIGNMENT

A1: INTERACTIVE NIGHT LIGHT

[2 pts] **Interactive RGB circuit.** Design your light using an RGB LED. The individual color hues should be selectable via custom physical controls that you design (see next bullet). The brightness of the LED should change automatically based on ambient light (inversely proportional to light level).

[2 pts] **Lo-fi input.** Use craft materials (*e.g.,* clay, conductive paint, paper) to build a DIY input sensor

[1 pt] **Lo-fi enclosure.** Create a lo-fi form (e.g., using cardboard, paper, foamcore, etc.) that fully encloses hardware

[2 pts] **Creative feature.** Add in a creative feature of your choice--this could be a new physical control, actuation (e.g., LED affixed to servo), or a way of presenting ambient information

[2 pts] **Deliverables**. Including source code, slide deck report, and short video demo. We will also have live demonstrations in class on April 18th.

Each student has roughly ~4 mins to present and receive feedback

As the student is presenting, we expect that you'll be jotting down thoughts, reactions, and ideas

A1: Interactive Night Light Peer Critique

* Required

Peer Critique

Name of presenting student: *

Choose

Your thoughts, comments, constructive criticisms about their idea and/or implementation *

Writing bullet points is fine (and perhaps easier both to write and read)

Your answer

Rate the spiciness level *

	Mild	Medium	Hot	Dragon's Breath
Technical sophistication	○	○	○	○
Form	○	○	○	○
Creativity	○	○	○	○
Lo-fi input	○	○	○	○
Overall design	○	○	○	○

A1: INTERACTIVE NIGHT LIGHT

LO-FI INPUT

A1 EXAMPLE

WOBBLE GARDEN

Designer: Robin Baumgarten, http://wobblylabs.com/projects/wobblegarden

ASSIGNMENT

A2: 3D-PRINTED INTERACTIVE NIGHT LIGHT

Design and fabricate a **3D-printed interactive night light**, which responds to **user interaction**, creatively **diffuses the light,** and fully **encloses your Arduino** and **electronics**.

ASSIGNMENT

A2: 3D-PRINTED INTERACTIVE NIGHT LIGHT

Design and fabricate a 3D-printed interactive night light, which responds to user interaction, creatively diffuses the light, and fully encloses your Arduino and electronics.

The specific model is up to you but should include:

1. an internal mounting stand for the internal electronics;
2. a carefully measured and tightly fit input slot for the USB micro cable to power your design;
3. and similarly well-designed fittings for any input controls you want to expose.

A2 INSPIRATIONS

BLOSSOMING LAMP

Designer: Emmett Lalish, https://www.thingiverse.com/thing:37926

A2 INSPIRATIONS

HOLOCRON NIGHTLIGHT

Designer: Philip Dasler, https://www.instructables.com/id/Holocron-Nightlight/

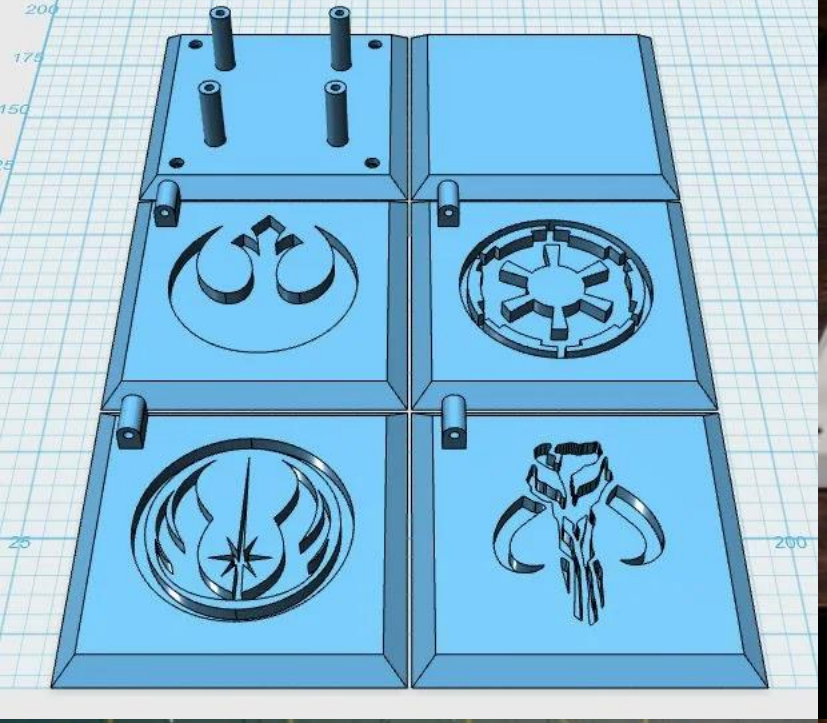
Holocron Nightlight

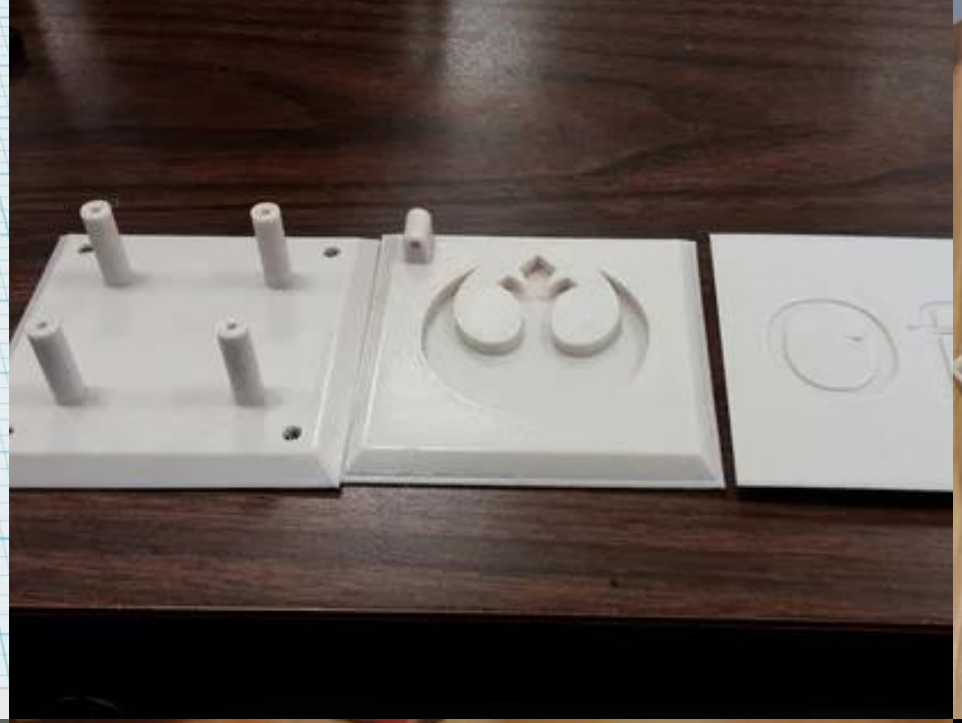
By daslerpc in 3D Printing 4,807 139 3 Featured

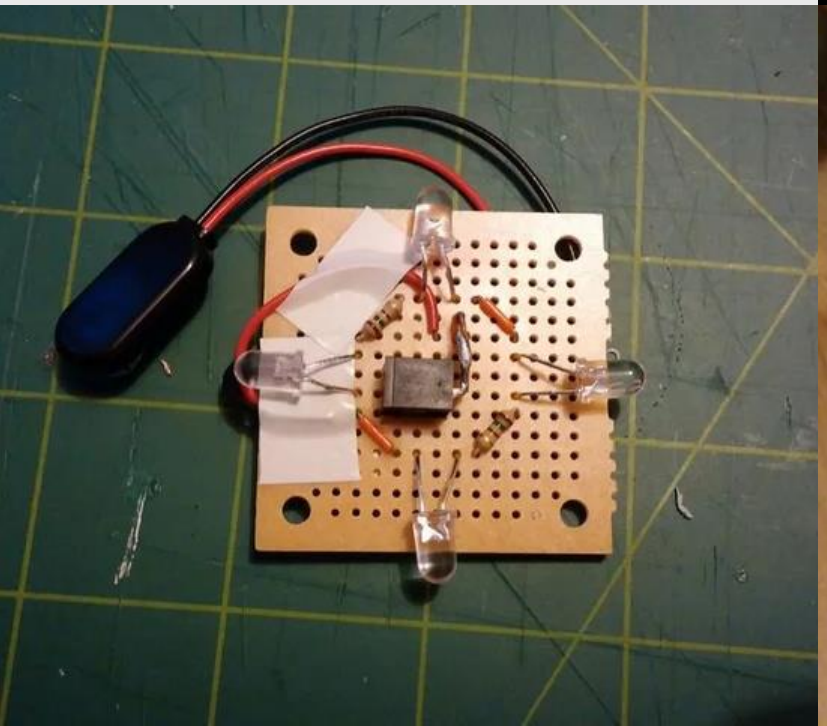
Published May 22nd, 2015

Download Favorited

This nightlight appears, at first, to be nothing but a simple cube. Written on one side is the word "Off" and on the other is, as one might expect, is the word "On". By turning the cube upside down, you activate the light inside and reveal the cubes secret!Hidden within the cube are the emblems of four factions from the Star Wars universe. These emblems are inset on the inside faces of the four side panels of the cube, making the plastic thinner and allowing the light to shine through. A simple circuit consisting mainly of a tilt switch and four LEDs is all there is to this simple nightlight.

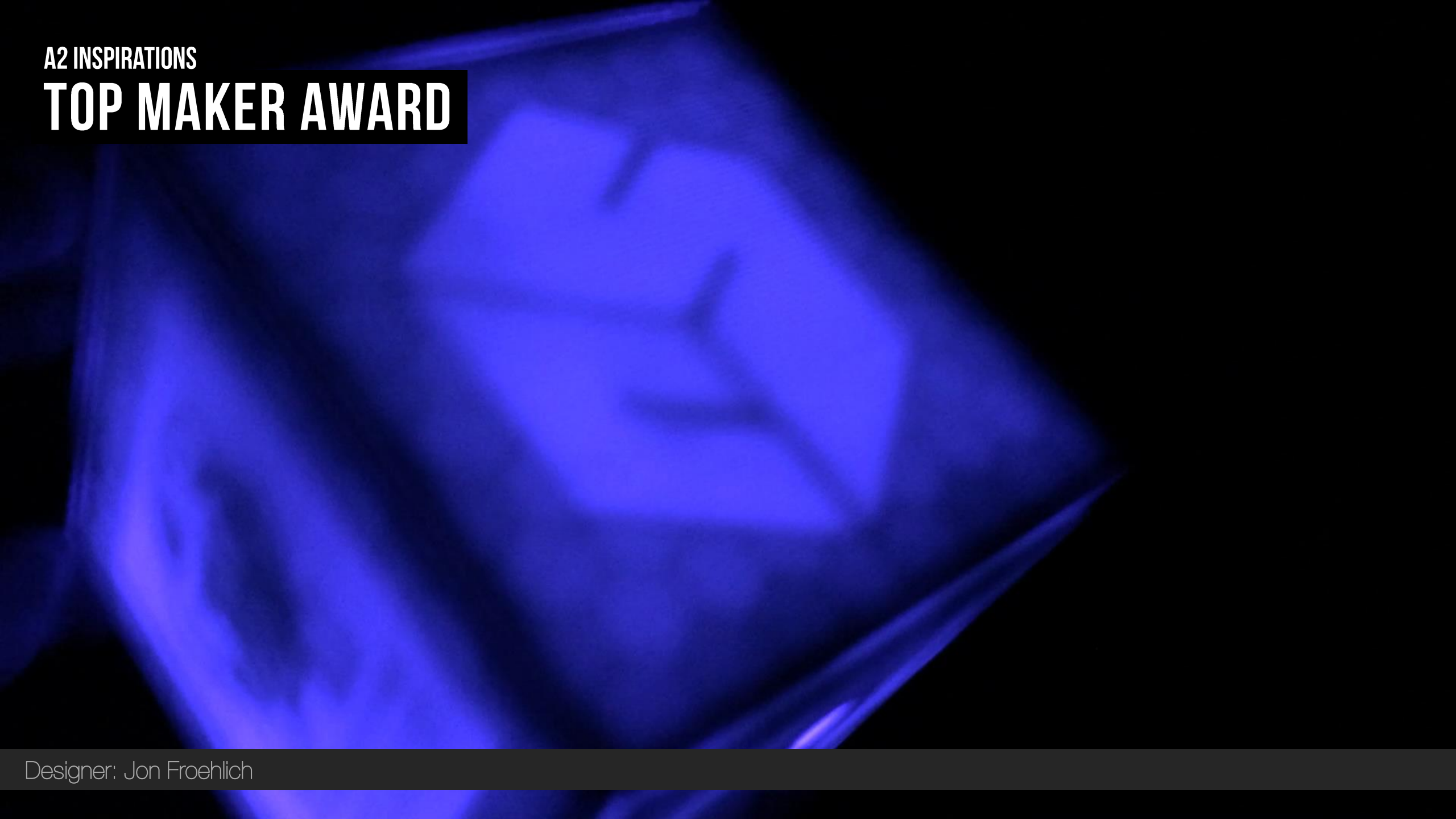






A2 INSPIRATIONS

TOP MAKER AWARD



Designer: Jon Froehlich