Chameleon
Team 15

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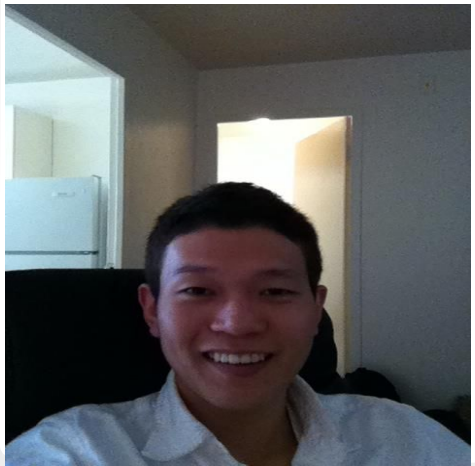
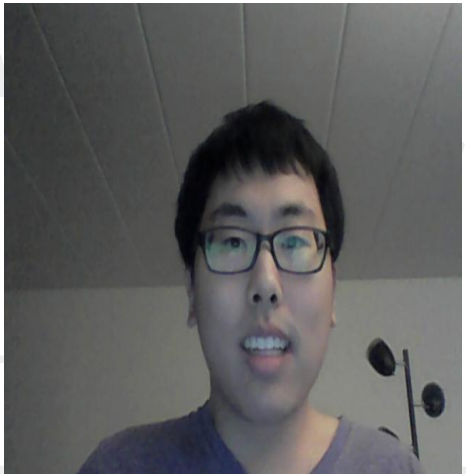


Project Concept & Motivation

Before Chameleon

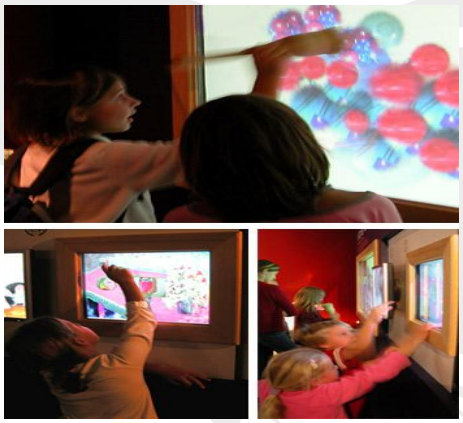
- Artists drawing in multiple colors have to use a palette and multiple brushes
- No paintbrush exists that can paint in multiple colors instantly

After Chameleon

- Chameleon - brush that can paint any color, through a color picker OR through a color scanner on board
- Support for gradient drawing - color X to color Y and back over Z seconds
- Support for accelerometer - faster drawing means a different color

Competitive Analysis

I/O PaintBrush



- Proposed at MIT Media Lab
- Scans the color of the object with brush
- Brush can be used to draw on touch screen

Color Picker

- Conceptual idea proposed by Jinsun Park
- Scans the color of the object with picker
- Using ink-cartridges inside picker, it can draw

* only conceptual and cannot draw colors using RGB as proposed

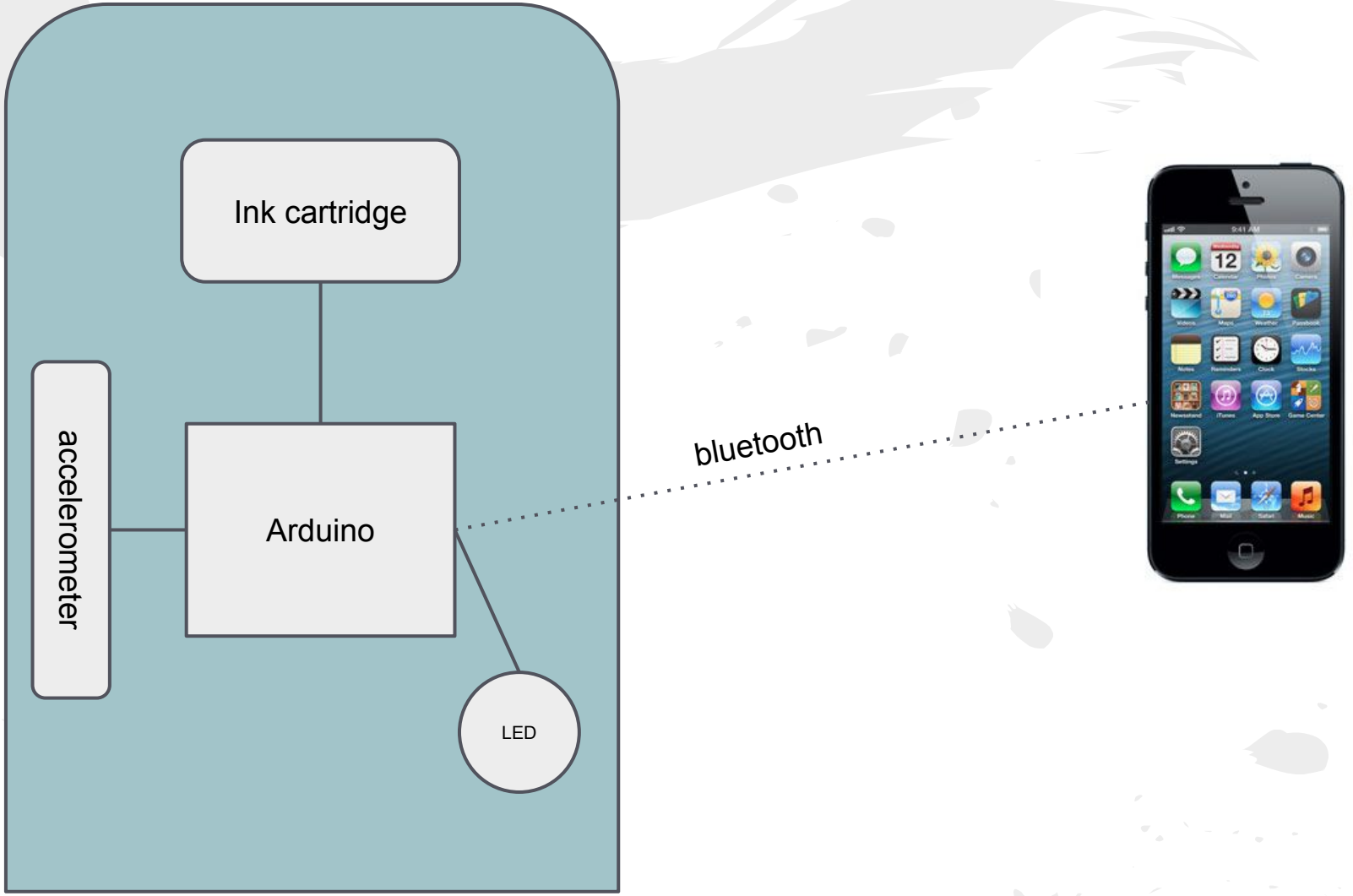
Requirements

- Paintbrush that can paint in a color of the user's choosing
- Easy to paint with, cannot be too unwieldy
- User can scan items in surroundings and paint with those colors
- User can paint in gradients
- Accelerometer support works

Tech Specs

- Small color printhead and ink cartridge
  - reverse engineer-able
  - high PPM
  - small and light enough to hold when drawing
- CPU
  - Arduino BT (Bluetooth)
- Accelerometer
- RGB Sensor
  - Lego RGB detector?
- Casing?

Architecture



Risks and Mitigation

- Accuracy/Responsiveness/Fidelity of sensors(RGB, accelerometer)
- Size of the brush
  - Aim to have size of water bottle
  - Use all of adhoc parts (e.g color controller) outside of the brush
  - Find smallest ink-cartridge as possible
  - If time allows, make custom color cartridge
- Printing Speed
  - Aim to find color printer with pages per minutes between 2 and 3 or high
  - Have to aware of size of the printer as well
- Time to reverse engineer printer
  - Find open source printer
  - Try couple different printers
- Cost of printer to reverse engineer
  - $800 budget reduced the issue significantly