

Team 25: CANDL

Create a network of dependable lights

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Challenge for all photographers and videographers

- Maintaining consistent lighting
- Need to keep track of:
 - Color
 - Brightness
 - Position
- Difficult to have precise lighting every time.

CANDL lights will allow photographers to

- Customize settings for multiple LED lights from a single source.
- Save light settings and positioning of multiple lights to keep lighting consistent over multiple days of shooting.

Selador Desire LED Luminaires

- Can be controlled remotely
- Multi-color
- Doesn't store positioning



Spectra

- Intended for theatrical lighting
- Does not have standard tripod mount



Phillips Colorburst

- Requires proprietary hardware controller.
- Intended for Architecture and landscapes



CANDL	Competition				
Product Name	Price per node	Easily mounted on tripod or camera	Remotely change light quality (without proprietary hardware: +)	Wide range of colors	Assist placement of nodes
White Lights + Tinted Gels	Average ~\$100	✓	✗	✗	✗
Selador Desire	\$1776.88	✗	✓ +	✓	✗
Spectra IQ38	\$774.95	✗	✓	✓	✗
Philips Colorburst Compact	\$592.00	✗	✓	✓	✗
CANDL	~\$100 to produce	✓	✓ +	✓	✓

Customizable:

The lights of each node shall be customizable to the exact color and brightness that the user desires without the use of gels.

User Interface:

The user interface shall require a minimum learning curve to implement the entire system.

Latency:

The maximum latency response of each node to the central control unit shall be 3 seconds

Cost :

This product shall cost less than its competitors so as to be more available to amateur photographers.

Bluetooth:

Each node shall communicate wirelessly with the central control device using Bluetooth.

Overheating:

Each node shall not overheat through the use of low-noise fans.

Stand-Alone:

These lights should provide sufficient lighting such that minimal additional lighting will be necessary.

Previous Settings:

The user shall be able to save previous settings of the nodes, including light and brightness.

Positioning:

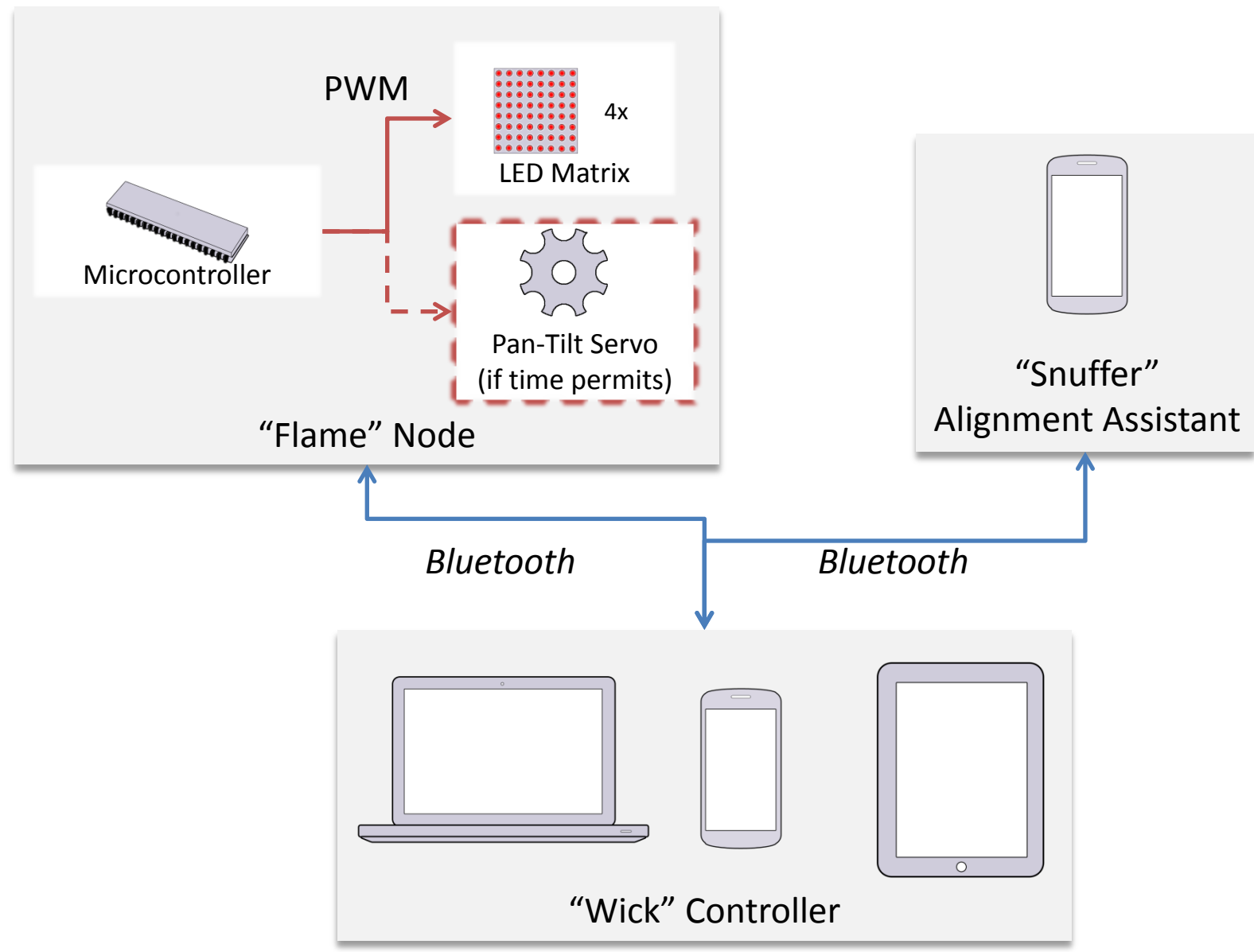
A camera phone shall be attachable to any node such that a previous shot displaying a previous position and angle of that node can be compared to the current position and angle for the exact recreation of the lighting for a particular scene.

Hardware

- ATmega328P
- 8x8 dot LED Matrix
- Bluetooth
- Cell phone for positioning
- Smartphone, Tablet, or PC

Software

- Processing to control the lights based on requests
- Android for positioning lights
- Android for controlling light settings.
- Web application and IOS development, if time permits.



Power dissipation from transistors may lead to overheating

Use heat sinks and silent fans to dissipate heat. Add additional precaution to the housing design so that air can flow freely

Motors aren't precise enough?

Allow users to be able to manually adjust the light without damaging the motor

LEDs are not bright enough

Design circuit to permit more current to go through LEDs. Add more LED matrices per node.

Latency

Provide as much information as possible in the software and apply the final changes at once

Quality does not match existing products

Take test photos and apply different filters to match quality

Custom PCB board fails or has major issues

Solder circuits to large protoboards instead of custom PCB.

Alignment assistant is more trouble than worthwhile

Make use of the camera's gyro and possibly add a gyro to the light so the pan/tilt angles of the light node can be more accurately measured

Nodes aren't dynamic enough to create the desired scenes

Focus more on perfecting the lighting nodes for specific applications.

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Questions?