

LED Lighting System for Handbags and Diaper Bags



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Problem Statement

Most handbags and diaper bags lack a light source, which presents a problem when trying to locate contents in the bag. The following research aims to provide an upgrade to the outdated functions of the handbag and diaper bag.



Requirements

- Lights
- Rechargeable battery source
- Adaptor to charge phone

Added features

- Bluetooth compatible
- Light sensors
- Color Changing



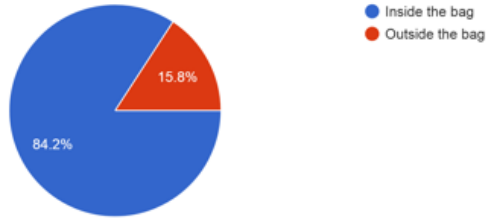
Design Analysis

After conducting a survey to future consumers the original design had to be changed.

- The output charging cable inside the bag vs. the original design which was to be placed outside the bag.
- The bag options needed to be changed to have control over brightness and have color options.

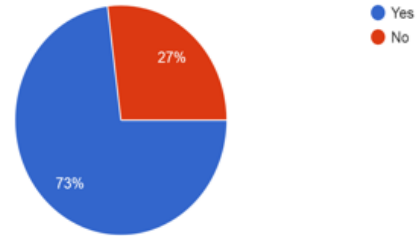
If your handbag could charge your phone, would you prefer the port to be inside or outside the bag?

38 responses



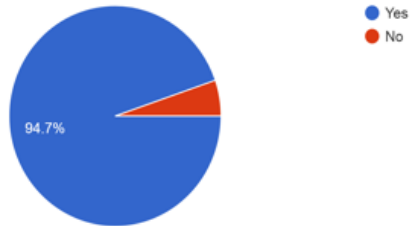
If your handbag had a light, would you want one with color options?

37 responses



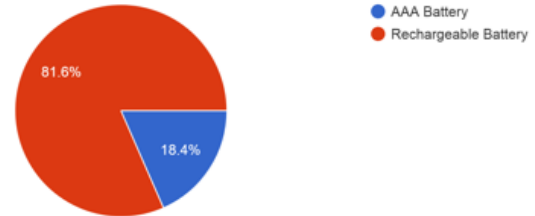
Would you prefer to have control over the brightness?

38 responses



If your handbag (purse, diaper bag, backpack, etc..) had a light which source of power would you prefer?

38 responses



Methods

- The light is placed at the top of the bag along with the Circuit playground express and are all powered by the rechargeable battery pack.
- The power bank has another output connection to charge other small devices such as the cell phone.
- Once the Circuit playground express is programmed and connected. The LUX sensor will be able to read environmental lighting and adjust itself according to the surrounding brightness.
- The CAD model is the housing design for the wiring and components.





Electronic Safety

- The 3D printed box is incorporated as a water-resistant case with a interior compartment and a lid for sealing the components from the outside environment.
- The adaptable case opening allows the device to be utilized and controlled from the inside if needed.
- The case has openings to allow the wires to connect to the battery and Flora board to power and control the system. To further waterproof this area, silicon will be used to seal off any water from running in through that area and into the system.

Lighting Components



Future Studies

The same components will be applied to a diaper bag in addition to a bottle warmer and wipe warmer as well. Which will use small heating pads powered by a small battery pack to warm these items.





References

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Questions?

