Wearable Light Logger to Facilitate Full Spectrum Light Dosing for Mood Disorders

Date: September 27 to October 3, 2024

Client: Dr. Jean Riquelme
Advisor: Dr. Brandon Coventry
Team:
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Problem Statement

Currently, there are no affordable wearable light-logging devices on the market. Full-spectrum light therapy has been proven to be successful in treating mood disorders, especially seasonal affective disorder, but patient response studies are lacking. A wearable allows for accurate representation of light intensities that reach the retina, the presumed site of action. A wearable light logger would provide convenient research into what correct dosages for optimal patient response look like for patients suffering from mood disorders.

Brief Status Update

Last week we met with our advisor, but not our client since she was on a trip. We shared a potential circuit design with our advisor that got approved. Also with our advisor, we began to decide on the specifications of the parts we need to purchase for the circuit board. We have completed our preliminary presentation and are ready to present for this friday.

Summary of Weekly Team Member Design Accomplishments

- Team:
    - The team has received the headlamp we ordered and met with our advisor again. The team has begun to purchase relevant items for our project regarding the circuitry. We are prepared to present our preliminary design presentation this week.

- Molly Wilhelmson:
    - Worked on our slides for the preliminary presentation (1 hrs)

    - Researched sensors for circuit, but could not find one which measured un tp 1000 lux (1 hr)

- Ella Eklund:
    - Worked on individual section of the preliminary presentation(1hr)
    - Researched circuit components and sensors that would work for our project (1hr)

- Neel Srinivasan:
    - Started brainstorming possible code lines and researching required chip capabilities
    - Worked on/practiced preliminary design presentation

- Kate Briesemeister:
    - Worked on slides for preliminary design presentation (1 hr)
    - Researched sensors for the circuit and out together a list of items that will need to be purchased (1 hr)

Weekly/Ongoing Difficulties

N/A

Upcoming Team and Individual Goals

- Team:
    - Present our design ideas and research at the preliminary presentations
- Molly Wilhelmson:
    - Present our preliminary findings
    - Complete our preliminary report
    - Find a light sensor to use to test our circuit
- Ella Eklund:
    - Order parts for circuit board
    - Start creating CAD files of the hardware box and headlamp design
- Neel Srinivasan:
    - Continue researching coding methods and light sensors

    - Work on preliminary presentation and start coding
- Kate Briesemeister:
    - Present the preliminary presentation
    - Continue to search for a light sensor that will work for our design
    - Place order for circuit parts from Digikey

Project Timeline

Project Goal	**Deadline**	**Team Assigned**	**Progress**	**Completed**
Meet with client	09/13	All	100%	Yes
→ Product Design Specification	09/20	All	100%	Yes
Preliminary Presentations	10/4	All	90%	No
Preliminary Deliverables	10/9	All	60%	No
Show and Tell	11/01	All		
Poster Presentations	12/06	All		
Final Deliverables	12/11	All		

Expenses

Item	Description	Manufacturer	Part Number	Date	QTY	Cost Each	Total	Link
Component 1								
Happy Light	Light for testing sensor	Verilux	N/A	9/13/24	2	$49.99	$99.98	Link
Component 2								
Battery	Battery for chip	PGSONIC	CR2045	9/19/24	1	$1.15	$1.15	
Component 3								
Head Lamp	Light that attaches to head	Fire Supply Depot	FL8210-6SMD	9/26/24	1	$11.92	$11.92	Link
TOTAL:								**$113.05**