

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

Date: September 13 to September 19, 2024

Client: Dr. Jean Riquelme

Advisor: Dr. Brandon Coventry

Team:

Molly Wilhelmson mwilhelmson@wisc.edu (Team Leader, BSAC)

Ella Eklund ereklund@wisc.edu (Team Leader, Communicator)

Neel Srinivasan nsrinivasan8@wisc.edu (BPAG)

Kate Briesemeister kbriesemeist@wisc.edu (BWIG)

Problem Statement

There are no affordable wearable light logging devices on the market currently. 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 which 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 client and advisor for the first time. We gained a lot of great insight on our project from both. This week we are working on our first draft of our Product Design Specifications and continuing to research and brainstorm our project's design.

Summary of Weekly Team Member Design Accomplishments

- Team:
 - Each team member completed their assigned section of the PDS and communicated on the upcoming client meeting

- Molly Wilhelmson:
 - Completed my portion of the PDS (1 hr)
 - Further research on patents and standards, as well as some light sensors (2hr)

- Ella Eklund:
 - Finished assigned section of the Product Design Specifications (1hr)
 - Added more research on competitive designs for the project (1hr)

- Neel Srinivasan:
 - Finished individually assigned sections of PDS
 - Continued research on light sensors, competing devices, and various standards

- Kate Briesemeister:
 - Completed assigned sections of the Product Design Specification Document (1hr)
 - Added research notes to the online notebook in order to keep track of information and findings clearly (1hr)

Weekly/Ongoing Difficulties

N/A

Upcoming Team and Individual Goals

- Team:
 - Decide on three design ideas to evaluate using a design matrix
 - Meet with our advisor and client to discuss our progress
- Molly Wilhelmson:
 - .Continue research on circuit designs
 - Come up with a few designs to consider while deciding on a final design for ur prototype
- Ella Eklund:
 - Continue to communicate with client about upcoming meetings and progress reports
 - Continue to research circuit designs and begin to sketch preliminary design ideas
- Neel Srinivasan:
 - Continue research on light sensing, possible coding options for the device
 - Coming up with possible designs
- Kate Briesemeister:
 - Attach the Product Design Specification Document to the website

- Continue to research basic circuit design in order to make a preliminary prototype of the circuit that will be used in our device

Project Timeline

Project Goal	Deadline	Team Assigned	Progress	Completed
Meet with client	09/13	All	100%	Yes
→ Product Design Specification	09/20	All	75%	
Preliminary Presentations	10/4	All		
Preliminary Deliverables	10/9	All		
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	\$50.0 0	\$100	Link	
Component 2									
Component 3									
TOTAL:							\$100.00		