

# Final Semester Project Proposal

Interactive Devices | Nasya

# Concept

***Distant Bodies:*** altering lighting in a space with your body, distantly.

# Concept

## ***Seasonal Affective Disorder (SAD):***

- A type of depression that comes and goes in a seasonal pattern.
- Known as "winter depression": symptoms are usually more apparent and more severe during the winter.
- The main theory is that a lack of sunlight might stop a part of the brain called the hypothalamus working properly, which may affect the:
  - production of melatonin – a hormone that makes you feel sleepy (in people with SAD, the body may produce it in higher than normal levels)
  - production of serotonin – a hormone that affects mood, appetite and sleep (a lack of sunlight = lower serotonin levels, which is linked to feelings of depression)
  - body's internal clock (circadian rhythm) – our bodies use sunlight to time various important functions, such as when to wake up, so lower light levels during the winter may disrupt our body clocks and lead to symptoms of SAD

# Concept

## *A form of treatment for SAD: Light therapy*

### *What is it:*

- Meant to compensate for the lack of exposure to sunlight that is thought to be linked to SAD.

### *How it works:*

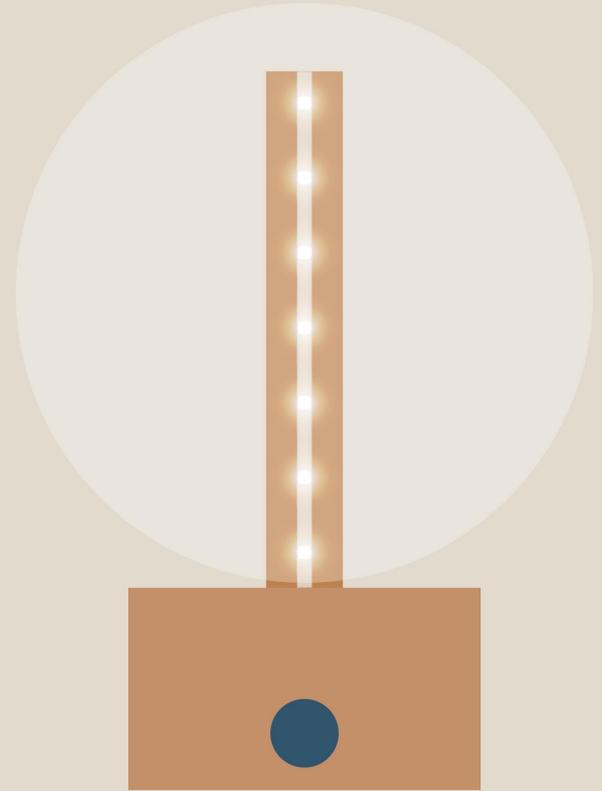
- You will sit near a light box which emits strong light. The light usually simulates natural sunlight, but there can be variations.
- Treatments usually begin in the fall and continue until early spring. Sessions commonly last from 10 to 15 minutes. For most, light therapy is most effective when it's done early in the morning, after waking up.
- Light therapy most probably will not cure seasonal affective disorder, but it may ease symptoms and increase energy levels.



# Project: Personal Sun

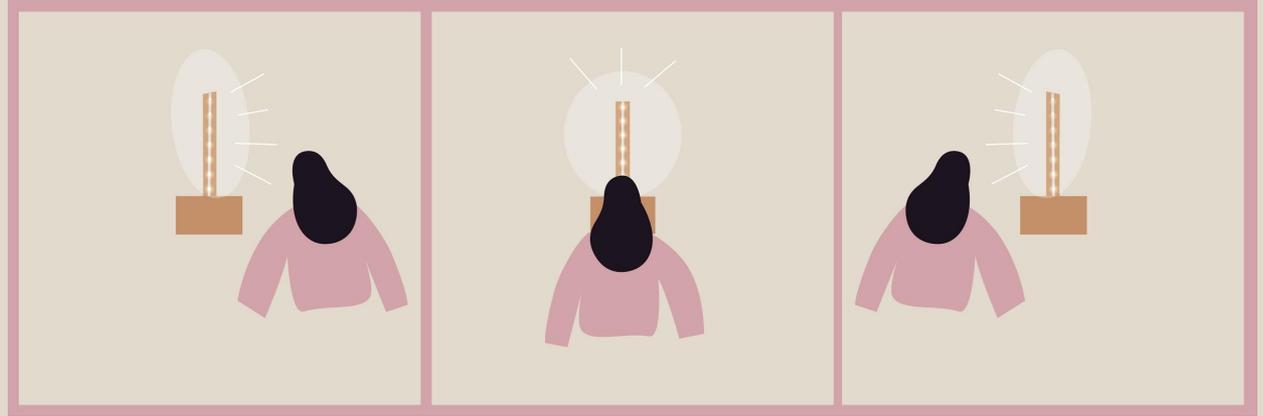
A lamp that rotates to always be facing a person, acting as a sort of “personal sun”.

The lamp switches on and off by touch, and you are able to change the colour of the lamp by pressing a button.

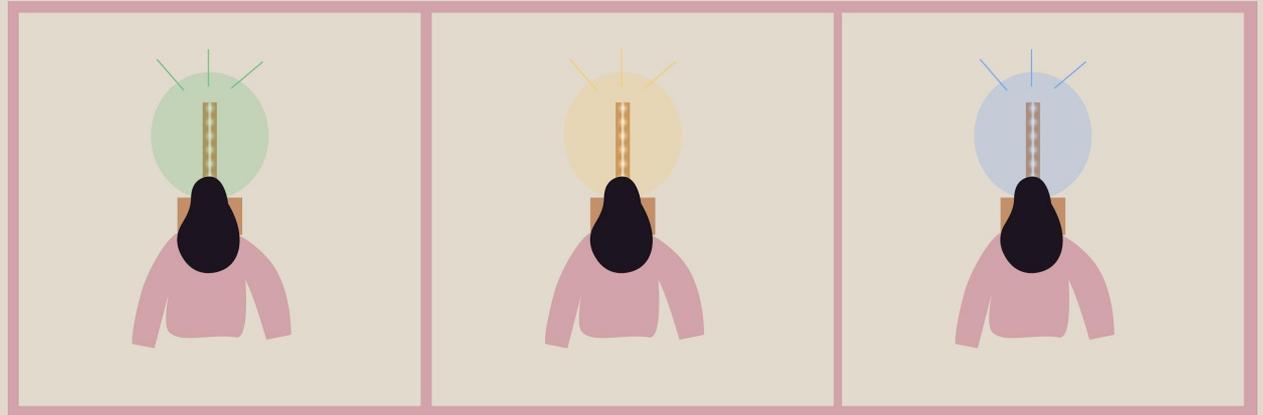


# Storyboard

**Direction of light changes depending on position of person.**

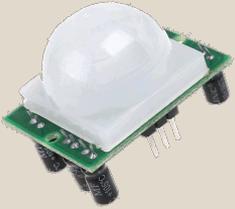


**Colour of light changes depending on button.**



# Technical aspects

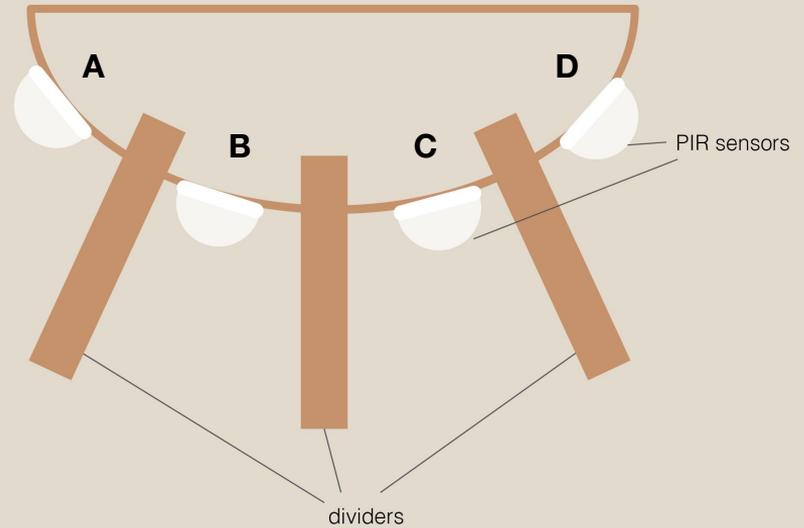
Detecting position in a room



**Passive Infrared Sensor (PIR) x 4**

Acts to track position of user, and sends this instruction to the servo motor to tell it to turn by how many angles.

E.g if B, turn 60 degrees.



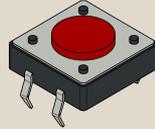
# Technical aspects

## Lamp



**Capacitive sensor**

To turn the lamp on.



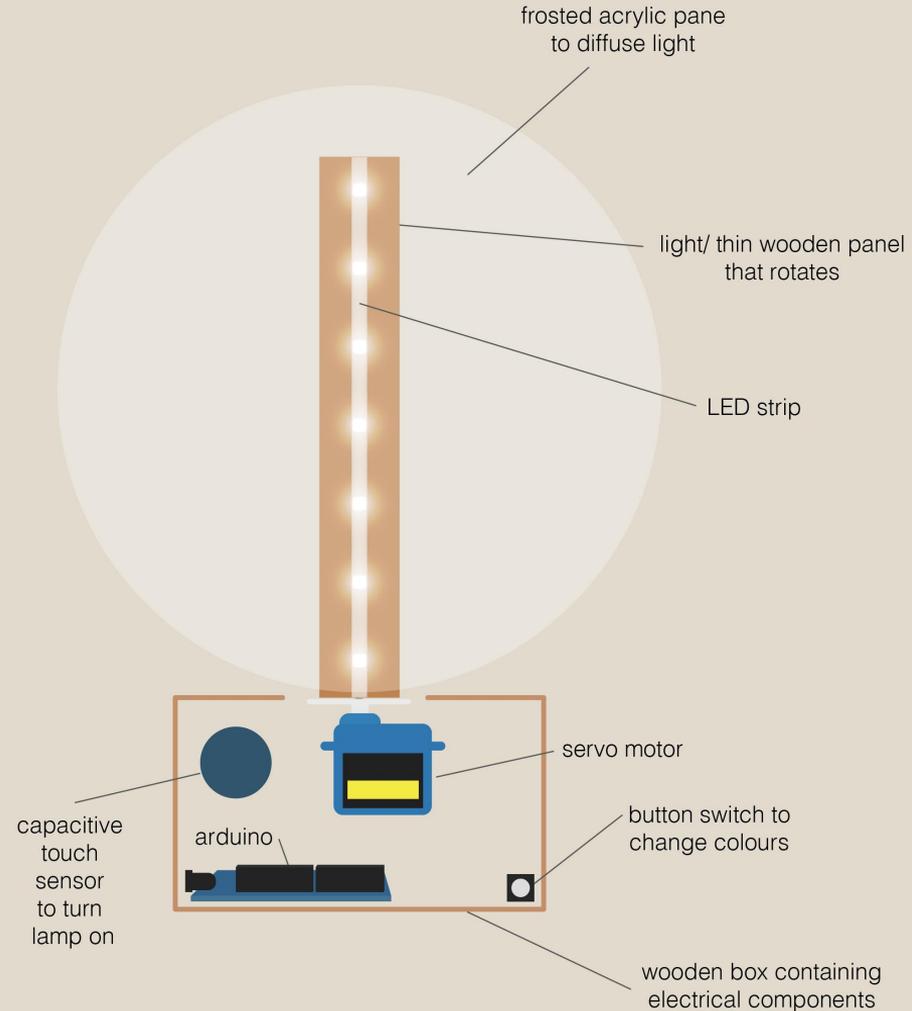
**Push button**

To change colour of lamp.



**Servo motor**

To rotate thin wooden panel.



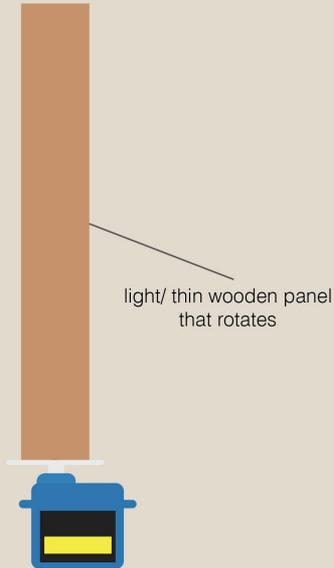
# Visual inspirations



# Low & mid fidelity prototypes

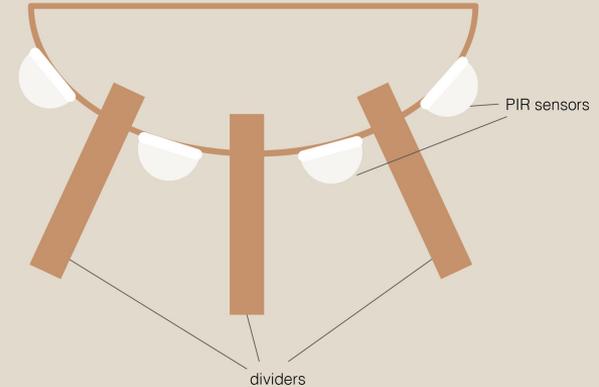
## ***Low fidelity:***

- Testing wooden panel + acrylic pane with servo motor.



## ***Medium fidelity:***

- Connecting PIR data to servo motor.
- Button state to change LED colours.



# Timeline

13 October 2020	Final project proposal + work on low fidelity prototype + source hardware & software required
20 October 2020	Have low fidelity prototype done, start on medium fidelity prototype
27 October 2020	Have medium fidelity prototype done, start to work on final product
3 November 2020	Work on final product
10 November 2020	Final presentation (!!!)

# References

- Watt, A. (2018). **How Does Light Therapy Treat Depression?** Retrieved 2020, from <https://www.healthline.com/health/depression/light-therapy>
- **Seasonal affective disorder (SAD).** (2018). Retrieved 2020, from <https://www.nhs.uk/conditions/seasonal-affective-disorder-sad/>
- **Light therapy. (2017).** Retrieved 2020, from <https://www.mayoclinic.org/tests-procedures/light-therapy/about/pac-20384604>



# Concept

## ***A form of treatment for SAD: Light therapy***

Light therapy – where a special lamp called a light box is used to simulate exposure to sunlight.

- During light therapy sessions, you sit or work near a light box. To be effective, the light from the light box must enter your eyes indirectly. You cannot get the same effect merely by exposing your skin to the light.
- Light therapy requires time and consistency. You can set your light box on a table or desk in your home or office.
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- For most people, light therapy is most effective when it's done early in the morning, after you first wake up.
- Light therapy may not cure seasonal affective disorder, but it may ease symptoms, increase your energy levels, and help you feel better about yourself and life.
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- Light therapy can start to improve symptoms within just a few days. In some cases, though, it can take two or more weeks.
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# Project: Personal Sun

- ***Distant Bodies***: altering a light source with your body distantly.
- ***Seasonal Affective Disorder (SAD) Lamp***:  
SAD is a type of depression that comes and goes in a seasonal pattern. It is sometimes known as "*winter depression*" because the symptoms are usually more apparent and more severe during the winter.

