

# TRACE

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PRODUCT DESIGN | CREATIVE CODING

**‘Trace is a timepiece that redefines  
the way we scale time while raises our  
awareness of its existence.’**



People have designed so many clocks, but haven't updated the way we measure time. Trace intergrated creative coding into design, providing users a different perspective looking at time through the flexibility of technology.

## 1 / Analysis of time

Time is a manmade concept to quantify transformations. Being involved in the fast pace society, we are formed to scale time through clocks that circles around. However changes does not go in a circular way, neither should time.



### Time needs to be appreciated

Fast-paced lifestyle misleads our understanding of time. Time is not our enemy, it deserves to be appreciated.



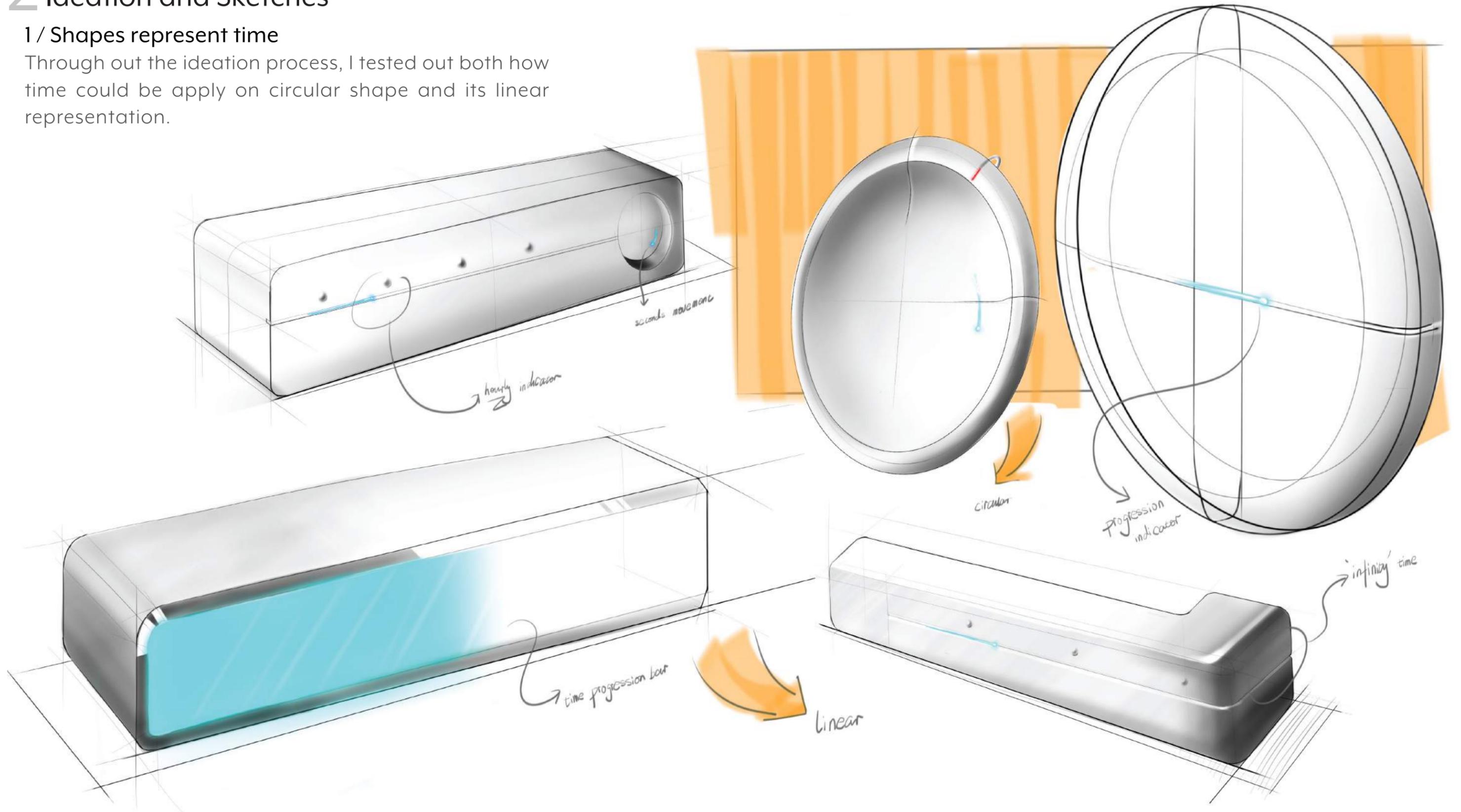
### Time goes linearly

Nothing happens to be the same as time goes by. Like a linear scale, everything goes forward irreversibly.

## 2 Ideation and Sketches

### 1 / Shapes represent time

Through out the ideation process, I tested out both how time could be apply on circular shape and its linear representation.



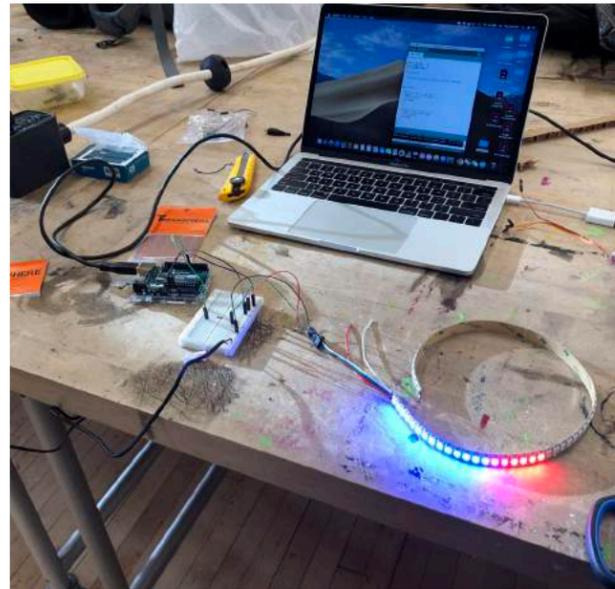
# 3 Form and Color Exploration

## 1 / Sketch models and coding

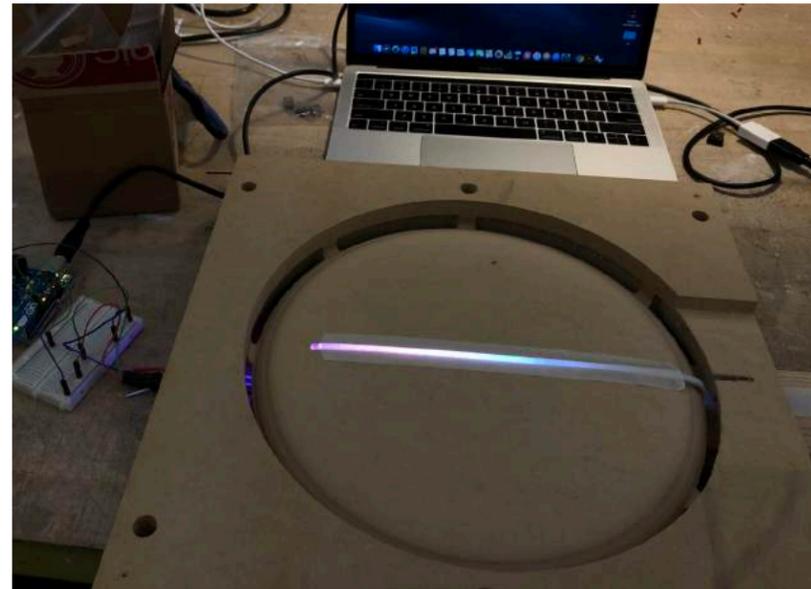
From the form explorations, I noticed that circular shape would remind user the most about time. My interviewers agreed a linear progression bar inside of the circle would strengthen my expression of time runs linearly.



form explorations



coding for colors



color regulation



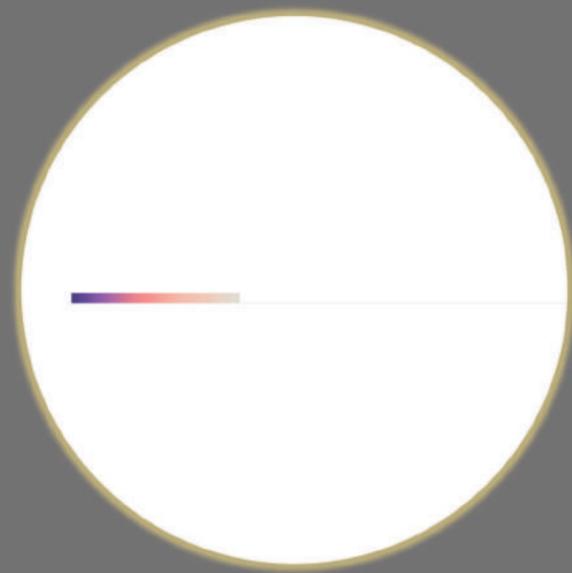
size testing

## How It Works?

### 1 / Recognizing time through color

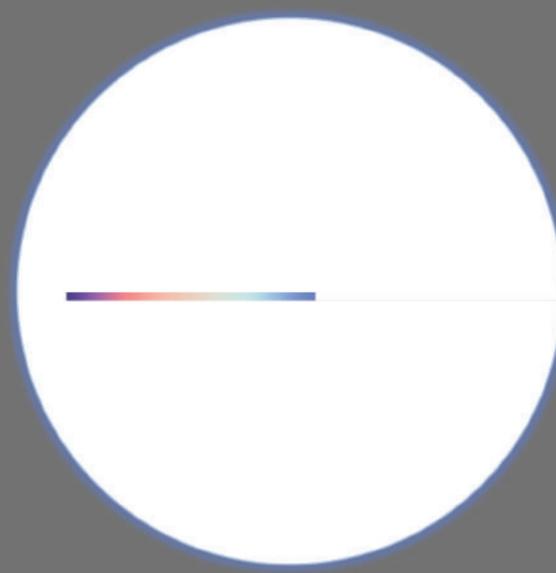
Colors influence emotion with their visual impacts. Trace takes this theory to communicate with its user group.

Users tell time through the color of light bar, referring to the gradient of sky in a day. It effects users to raise the awareness of time through the color path (time has passed).



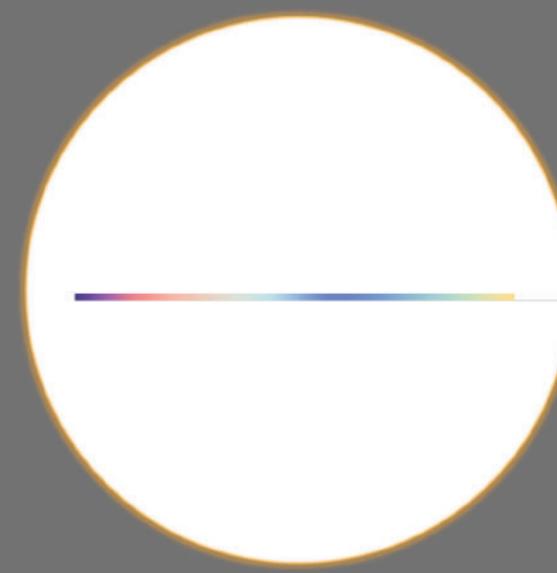
Morning

8 am



Noon

11 am



Dusk

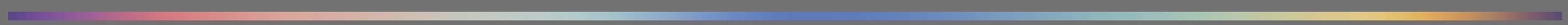
5 pm

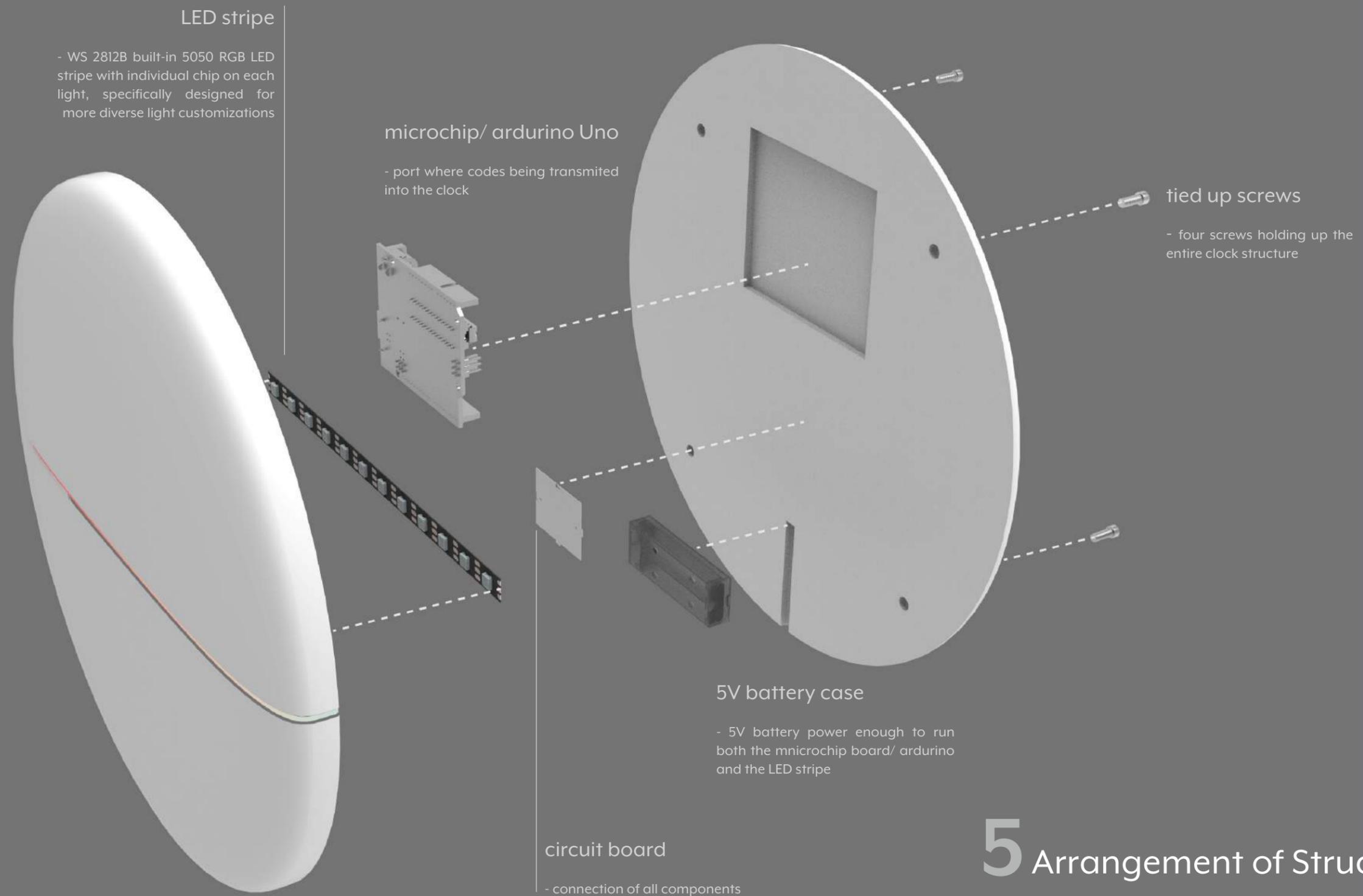


Midnight

12 am

LED light effect





LED stripe

- WS 2812B built-in 5050 RGB LED stripe with individual chip on each light, specifically designed for more diverse light customizations

microchip/ ardurino Uno

- port where codes being transmitted into the clock

tied up screws

- four screws holding up the entire clock structure

5V battery case

- 5V battery power enough to run both the mmicrochip board/ ardurino and the LED stripe

circuit board

- connection of all components

# 5 Arrangement of Structure

1 / Design meets engineering  
I divided the mechanical structure into two parts, LED light and chips.

# 6 Prototyping

## 1 / Prototyping the effects

I use polystyrene through vacuum forming covering the outside of a milled MDF structure to prototype the plastic finish and while holding the inside structure.



1. CNC milling

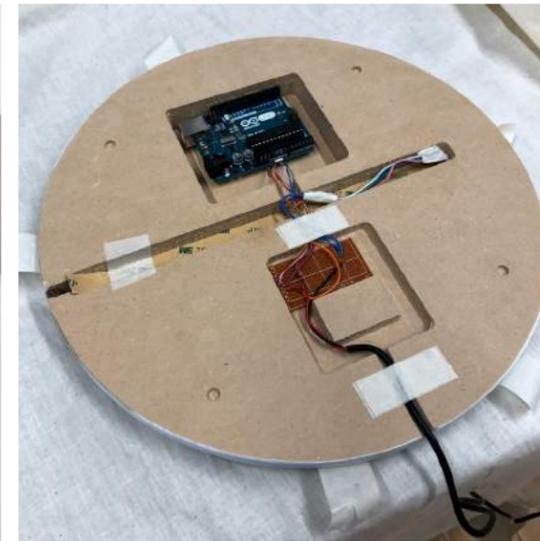
CNC milling MDF board to create the inside structure for Trace. Professionally would be done through injection molding.



2. vacuum form



3. surface finishings

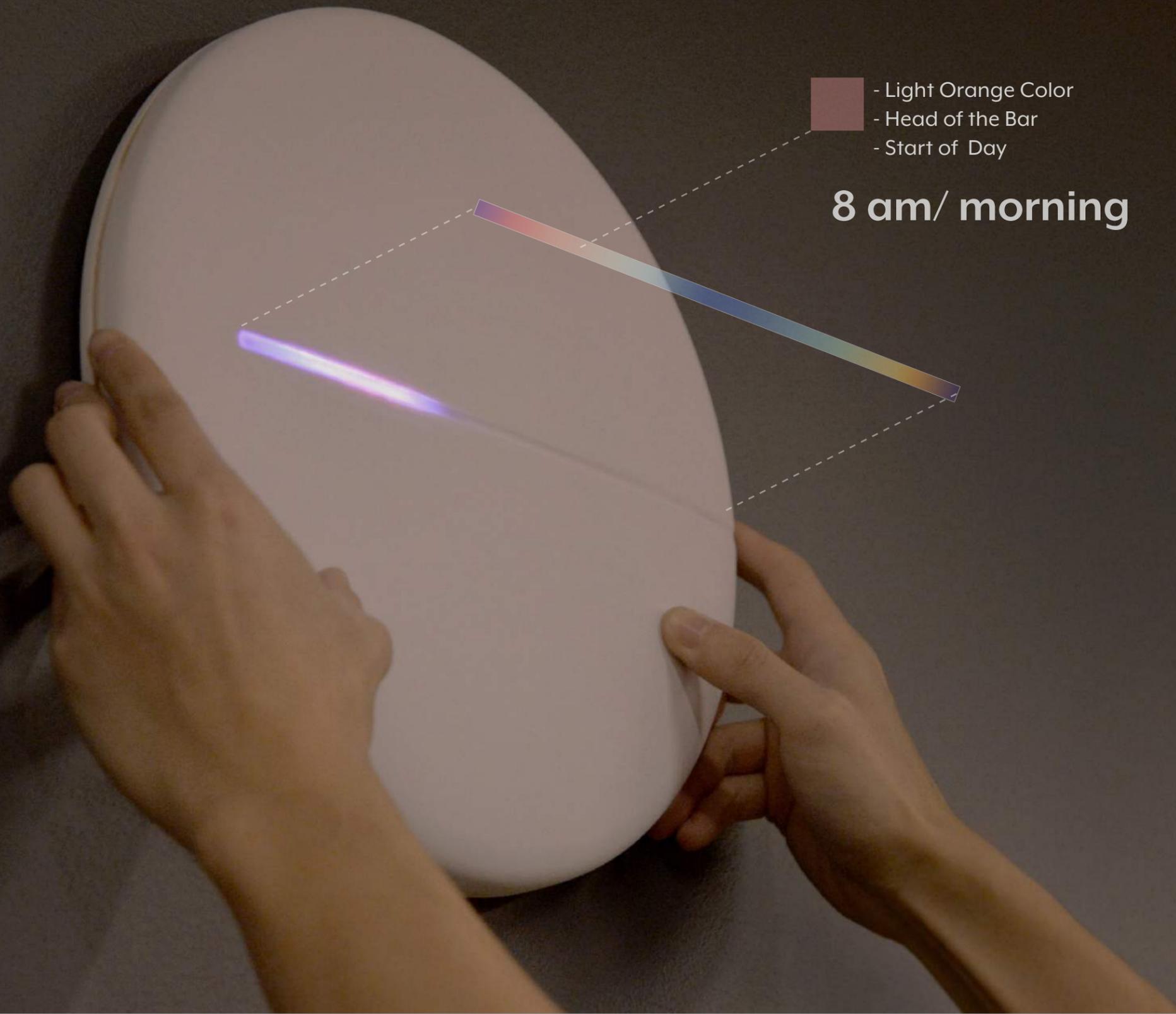


4. electronics layout



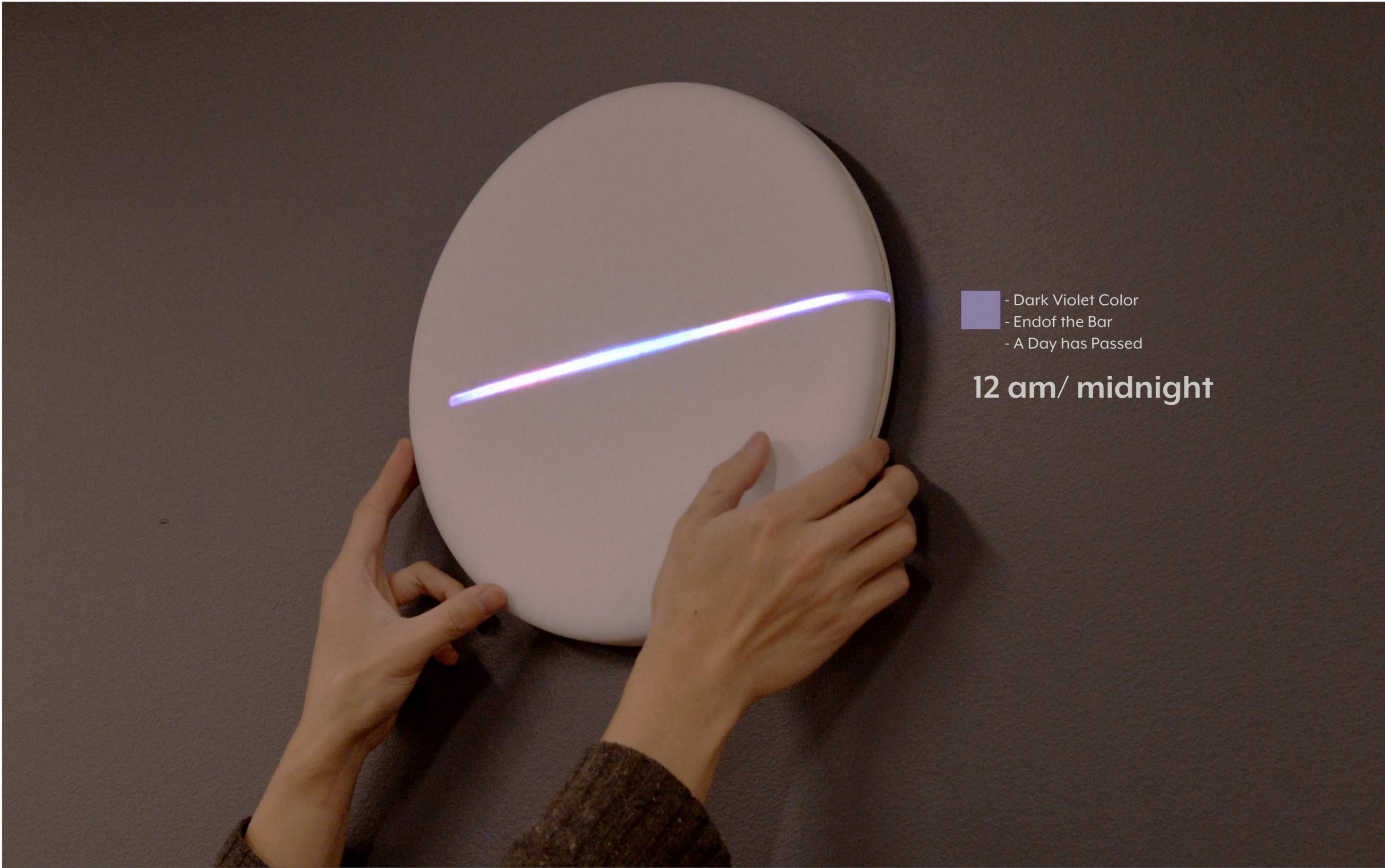
5. function test

# 7 In Use



- Light Orange Color
- Head of the Bar
- Start of Day

8 am/ morning



- Dark Violet Color
- End of the Bar
- A Day has Passed

**12 am/ midnight**



During the user test, it has successfully helped users regulate their lifestyle so as their sleeping cycles.

1 / Trace  
Render