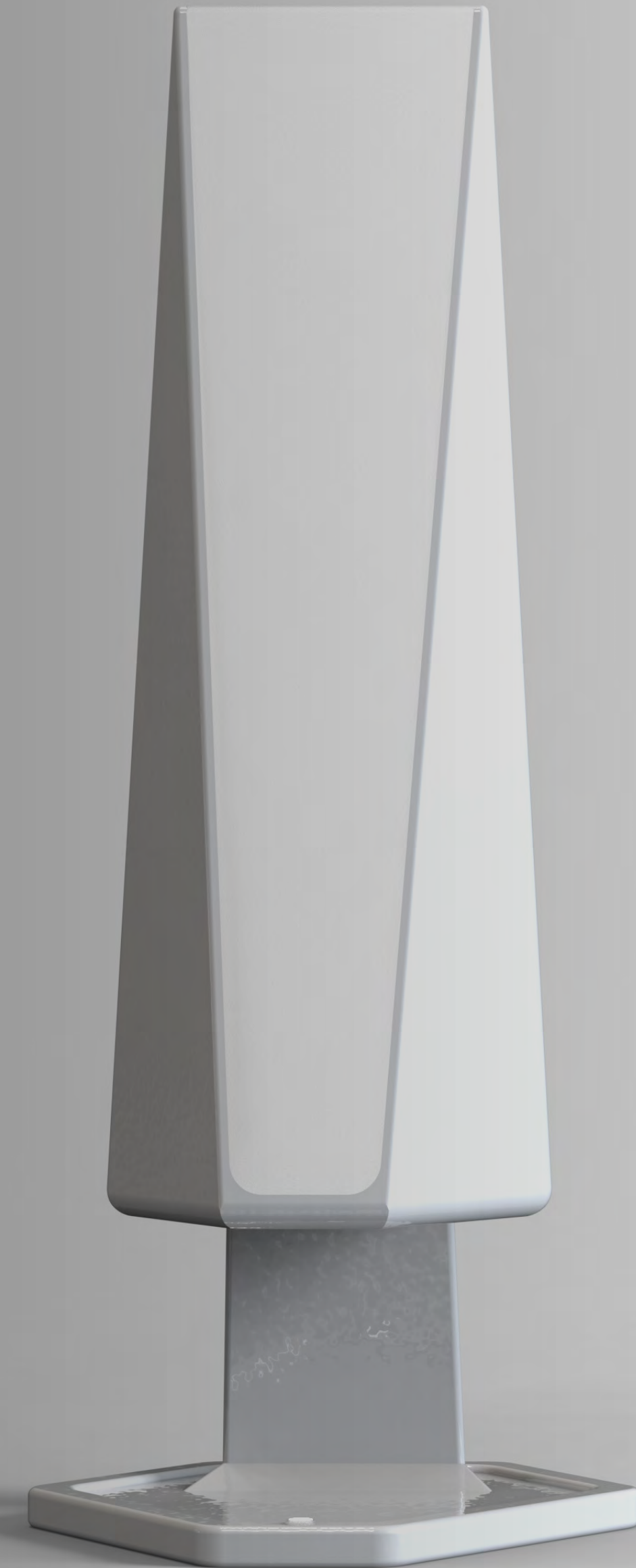


Sleep Improvement

BFA Thesis Review

Sean Stamski 23



Understanding Sleep

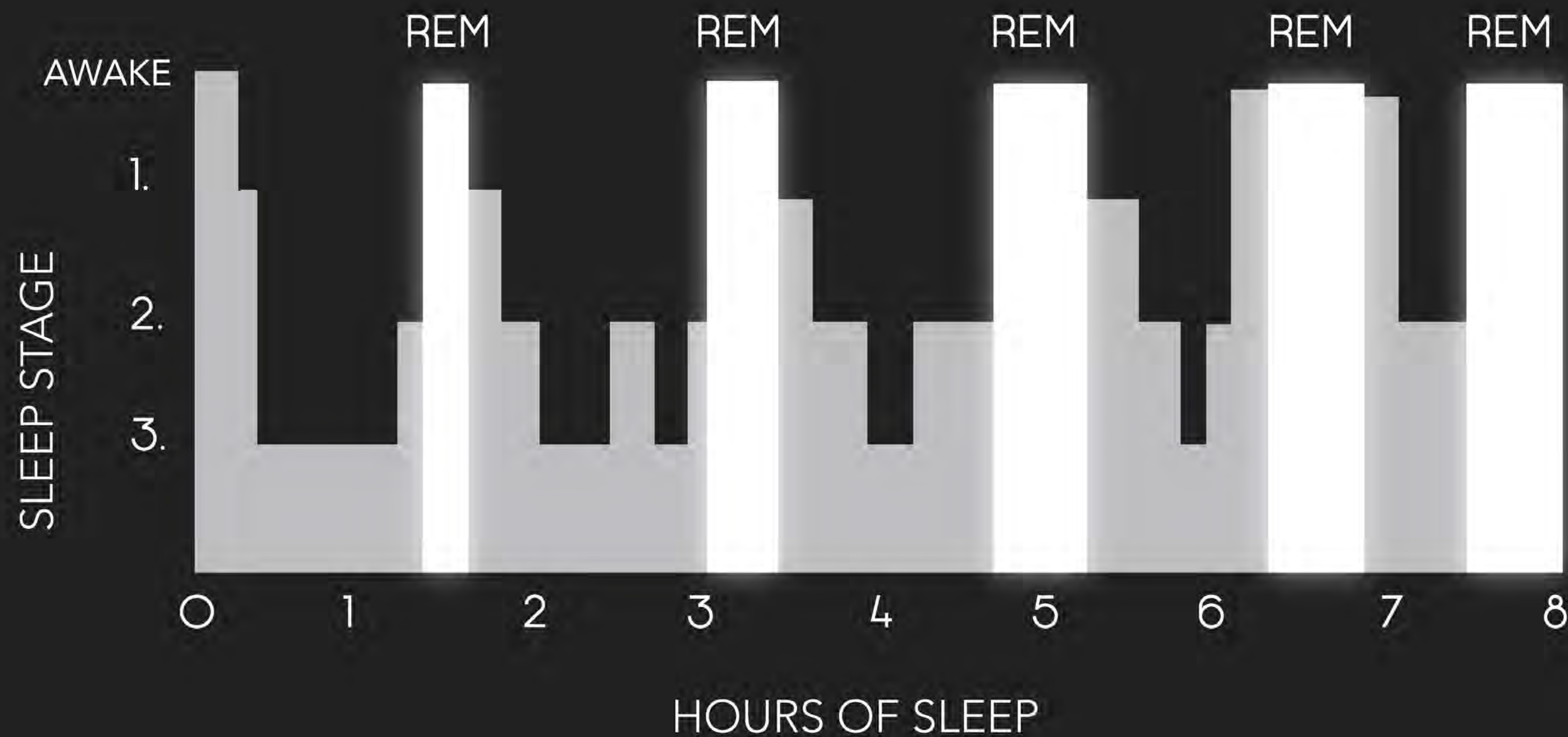
75% of the sleep we get is NREM (non rapid eye movement). In these stages we experience light to increasingly deeper sleep.

25% of our sleep is spent in the most important stage- REM (rapid eye movement). This can last 10-60mins per healthy cycle. REM can occur within the first 90mins.

An individual with ideal sleep can experience 5 REM sleep cycles in an 8hr rest.

An individual with poor sleep may only experience 2 short REM sleep cycles, with the overwhelming majority being light sleep.

STAGES OF HEALTHY SLEEP



What causes poor sleep?

1. Lack of sleep schedule. Going to sleep and waking up at inconsistent times leads to issues during the day.
2. Stress/ working too late. One can work late into the night without realizing the time has passed.
3. Screen time. Too much light at night ruins the body's internal clock, causing insomnia and other sleep issues.



Poor Sleep Causes

- Depression, Anxiety
- Fatigue and drowsiness
- Lowered capacity to learn and retain information
- Poor eating = weight gain
- Weakened immune system
- Reduced cognition
- Lower reaction time
- Mood swings...

bettersleep.org



Recording Sleep

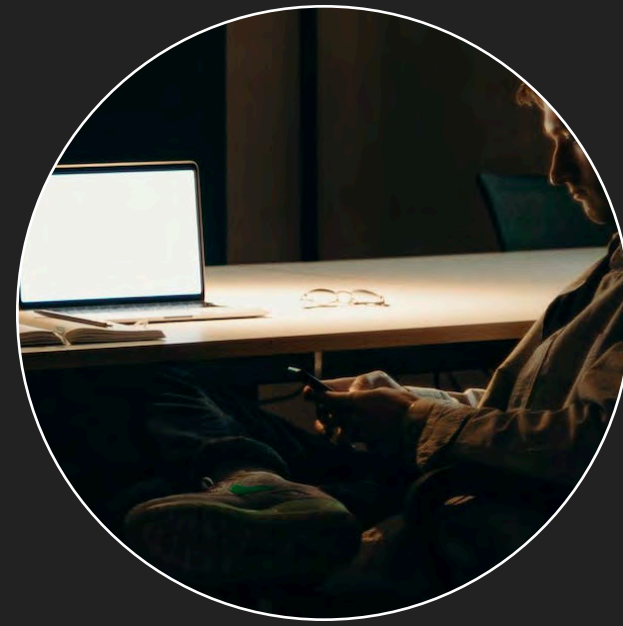
Wearable tech such as the Apple watch and Fitbit can track sleep in real time.

This is being achieved through the use of heart rate and movement sensors.

Your heart rate will rise and fall depending on which state of sleep you've entered. If your movement is high, the sleep quality is recorded as being lower.



Journey Map-Trenton



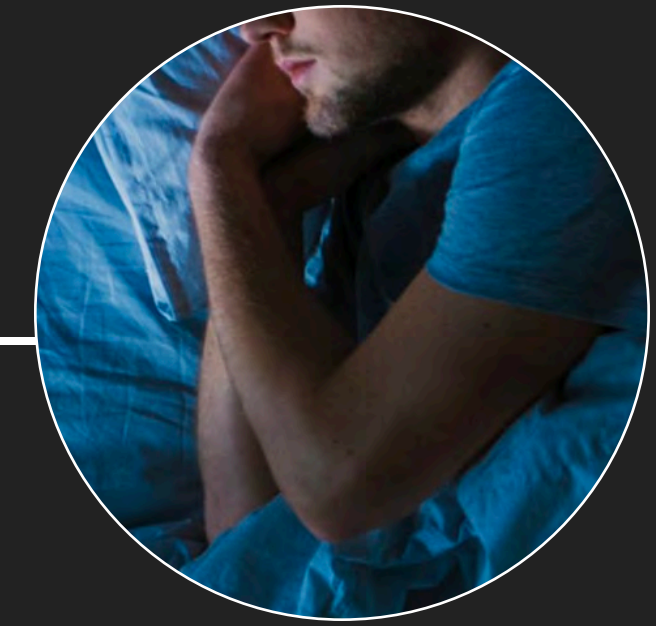
Doing work on computer 8:00pm



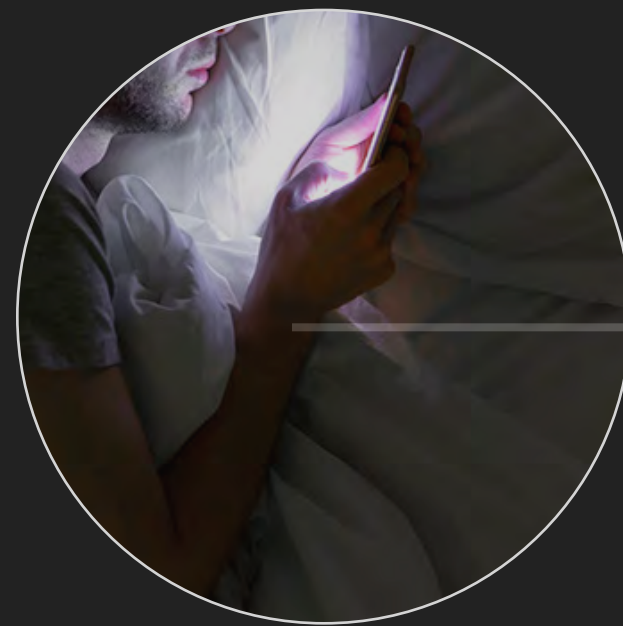
Personal Hygiene-11:15pm



In bed, checking phone 11:30pm



Attempt to sleep 12-12:30am



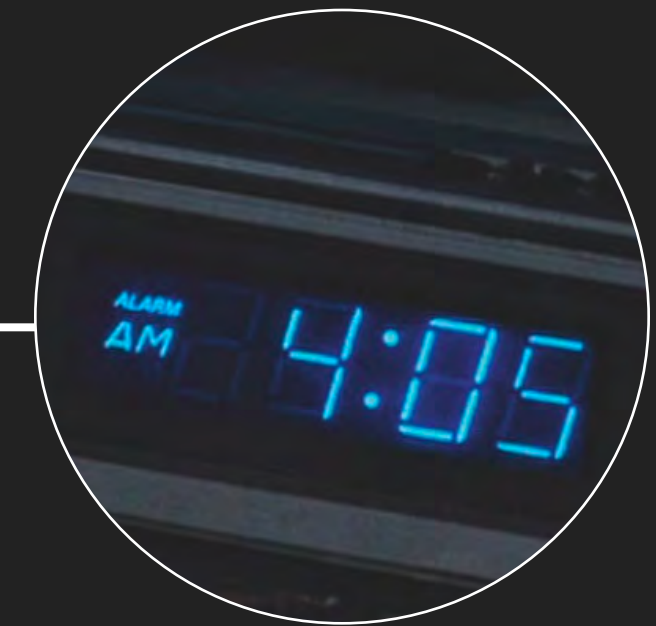
Attempt failed, goes back on phone 1- 2:00am



Becomes hungry, gets up for a snack 2:30am



2nd attempt to sleep 3:00am



Either actually falls asleep or phone cycle continues...

Problem Statement

Due to stress, late night screen time, and a lack of sleep schedule, individuals experience poor sleep.

Hypothesis

By creating a more relaxing environment that promotes good habits, and educates the user, one can maximize their sleep quality and experience the benefit of a restful nights rest

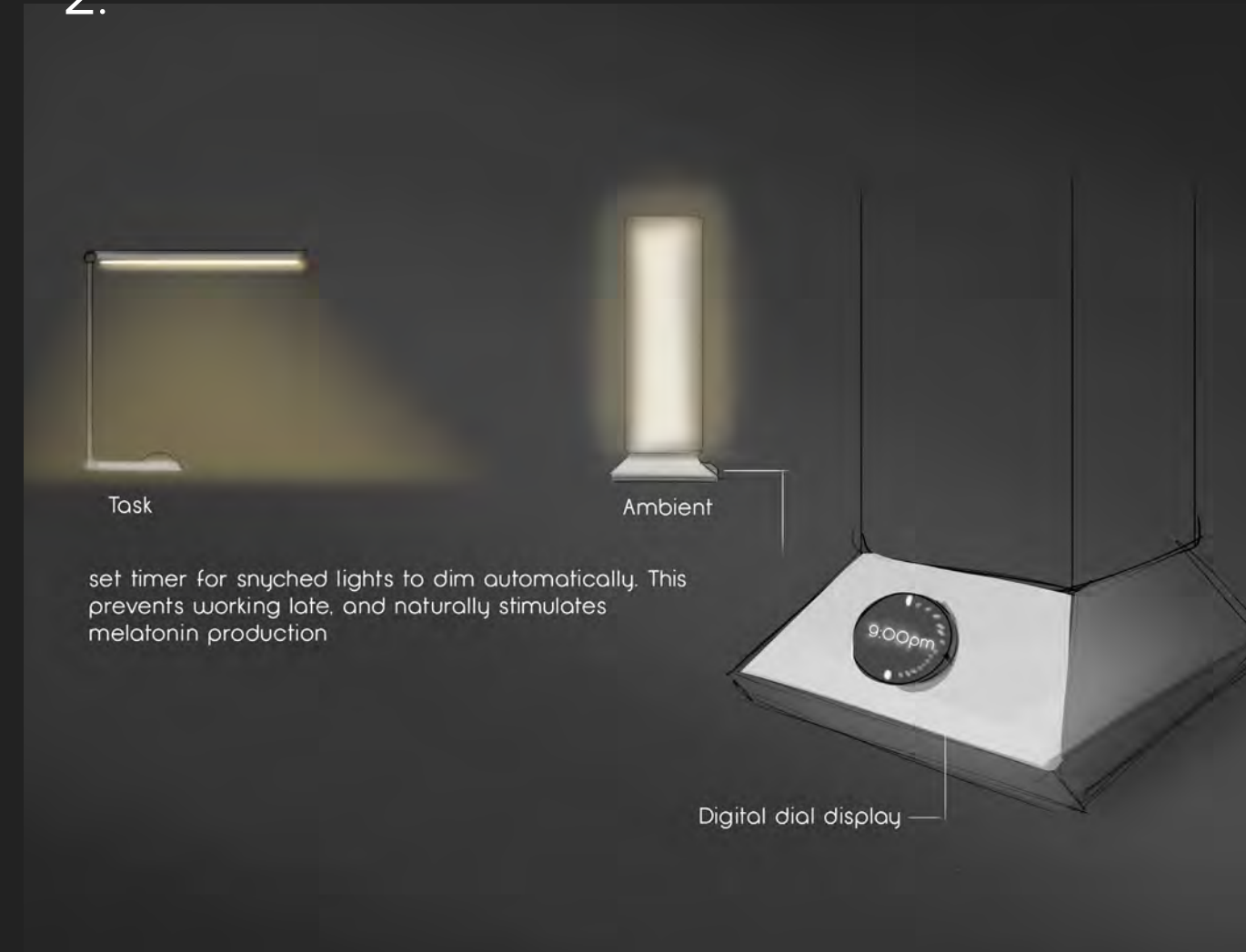
Design Brief

1. Physical product that educates the user on their sleep habits (schedule, light exposure...)
2. A product that can help adjust the user's sleep environment (Lights, sound, temperature...)
3. Products that can help de-stress and relax for sleep

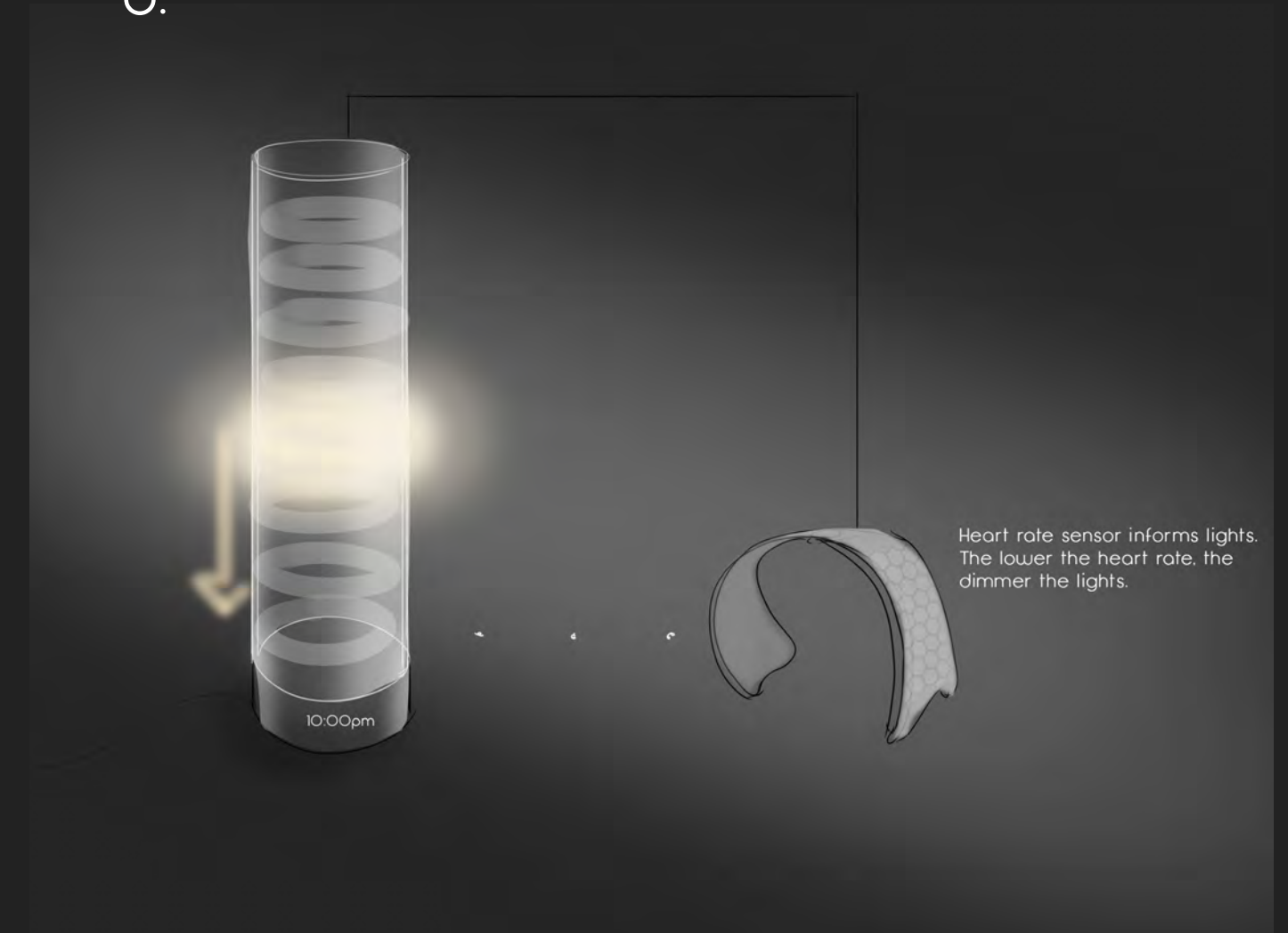
1.



2.

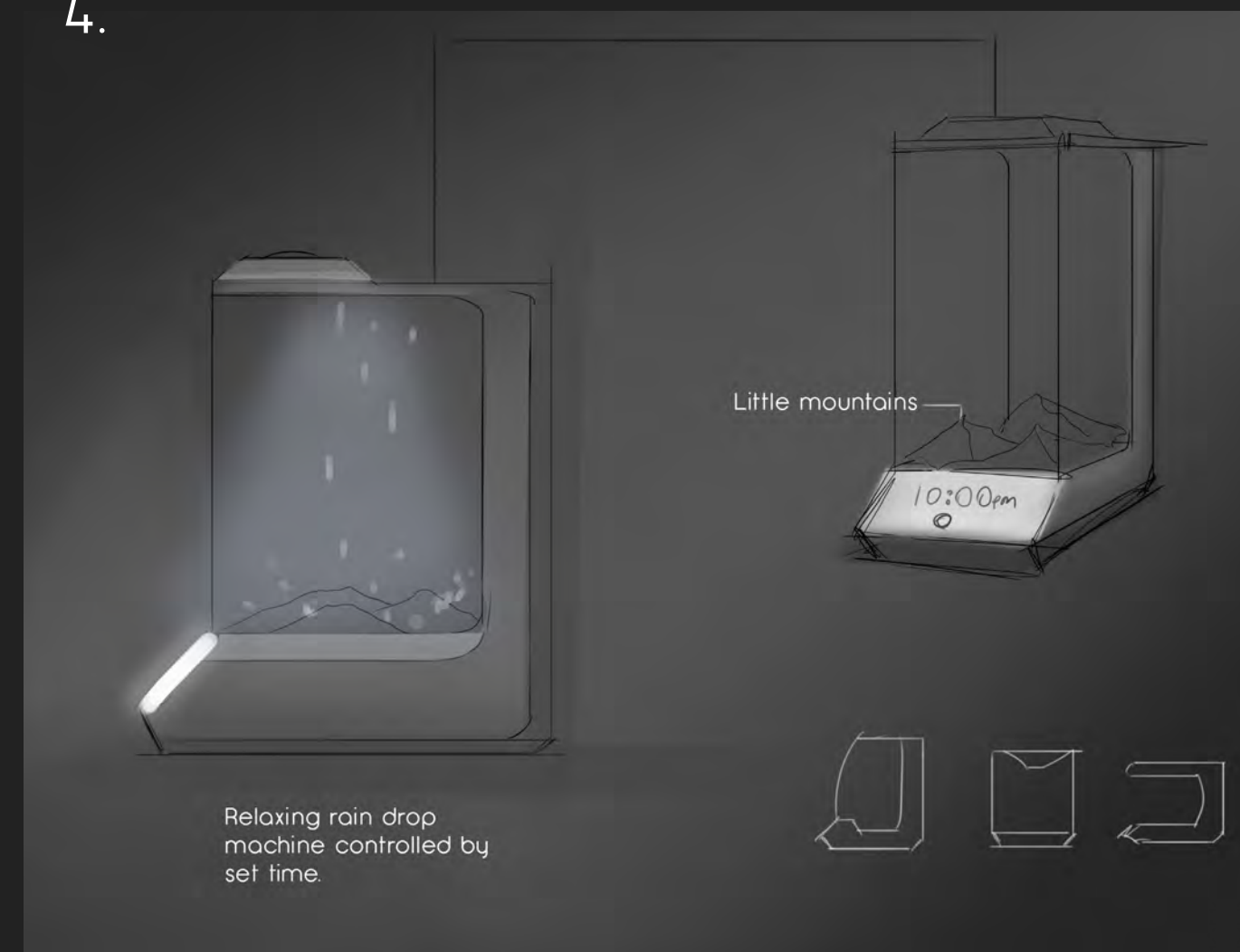


3.



Concepts

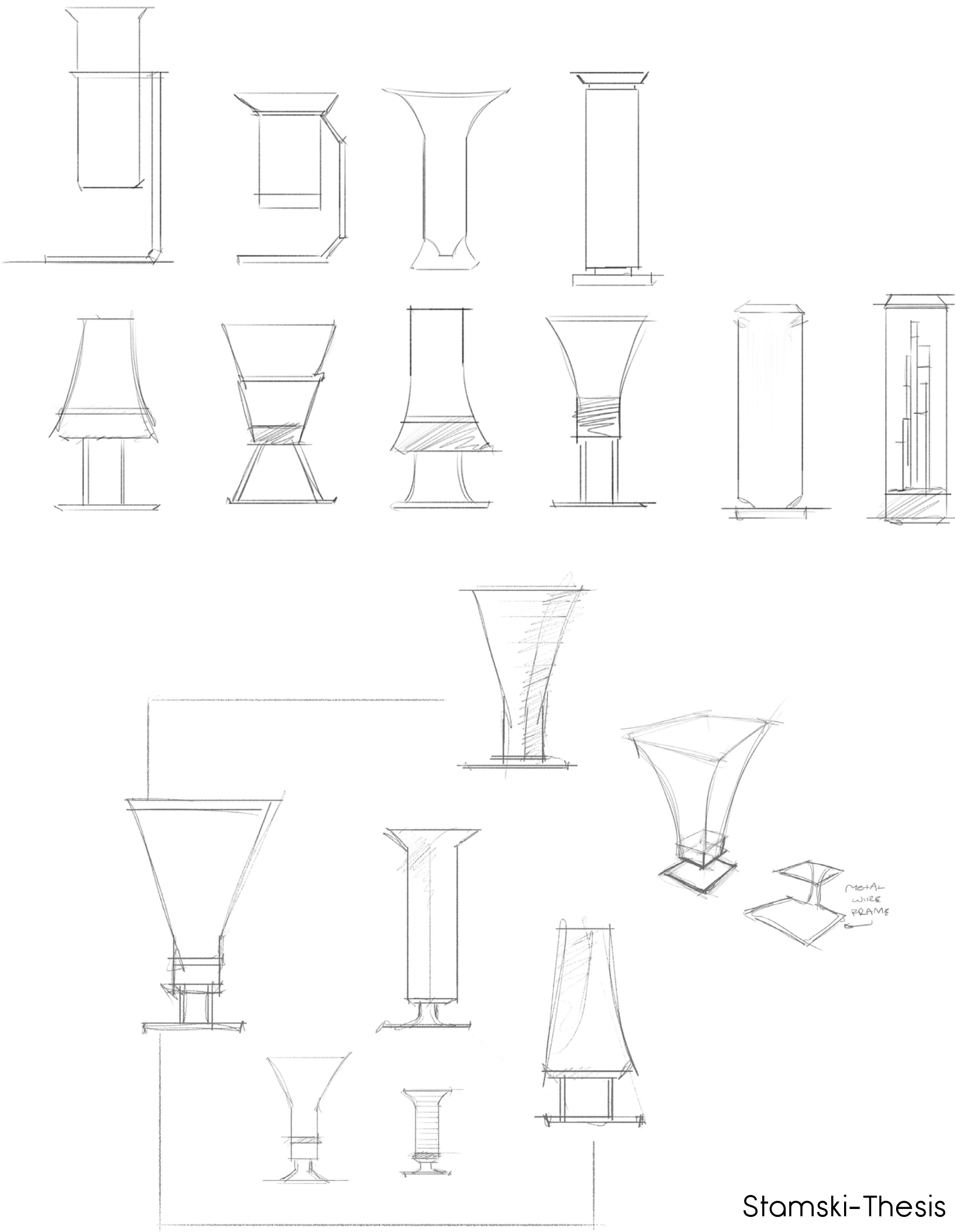
4.

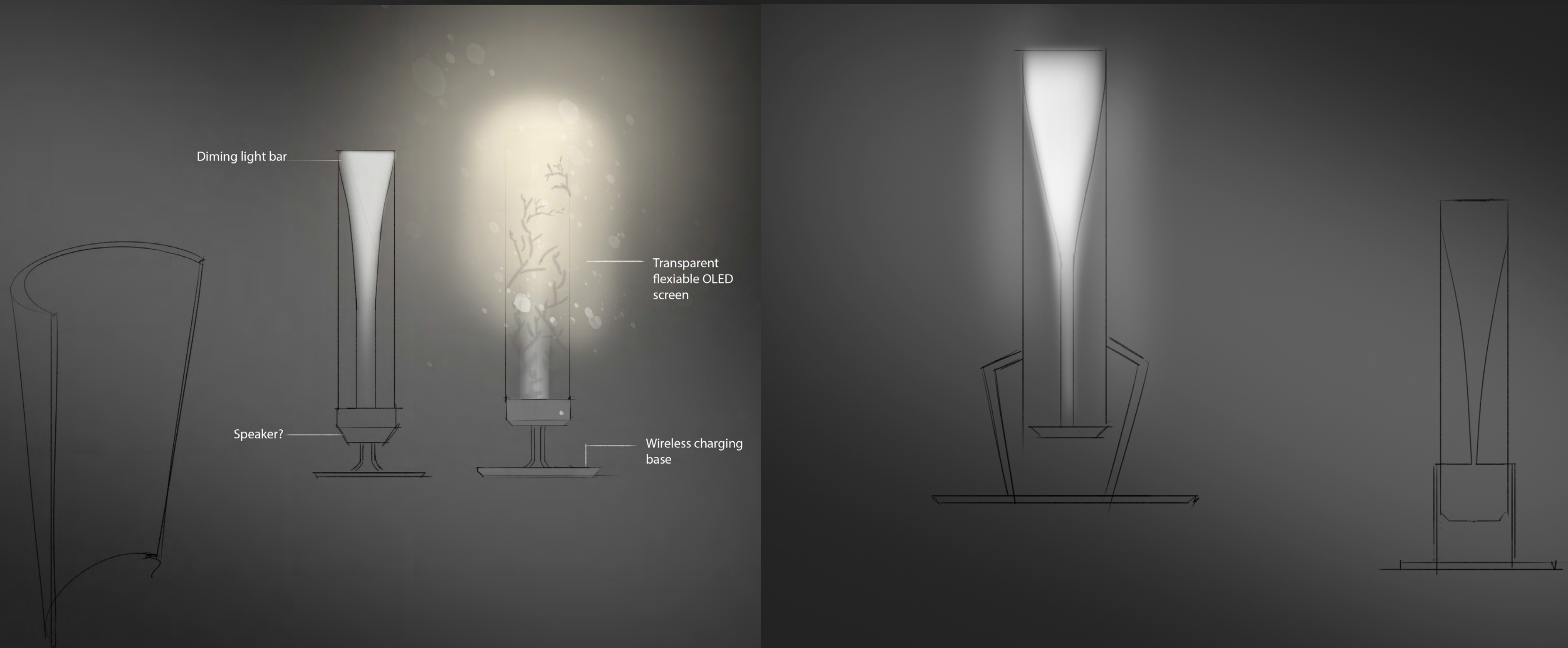


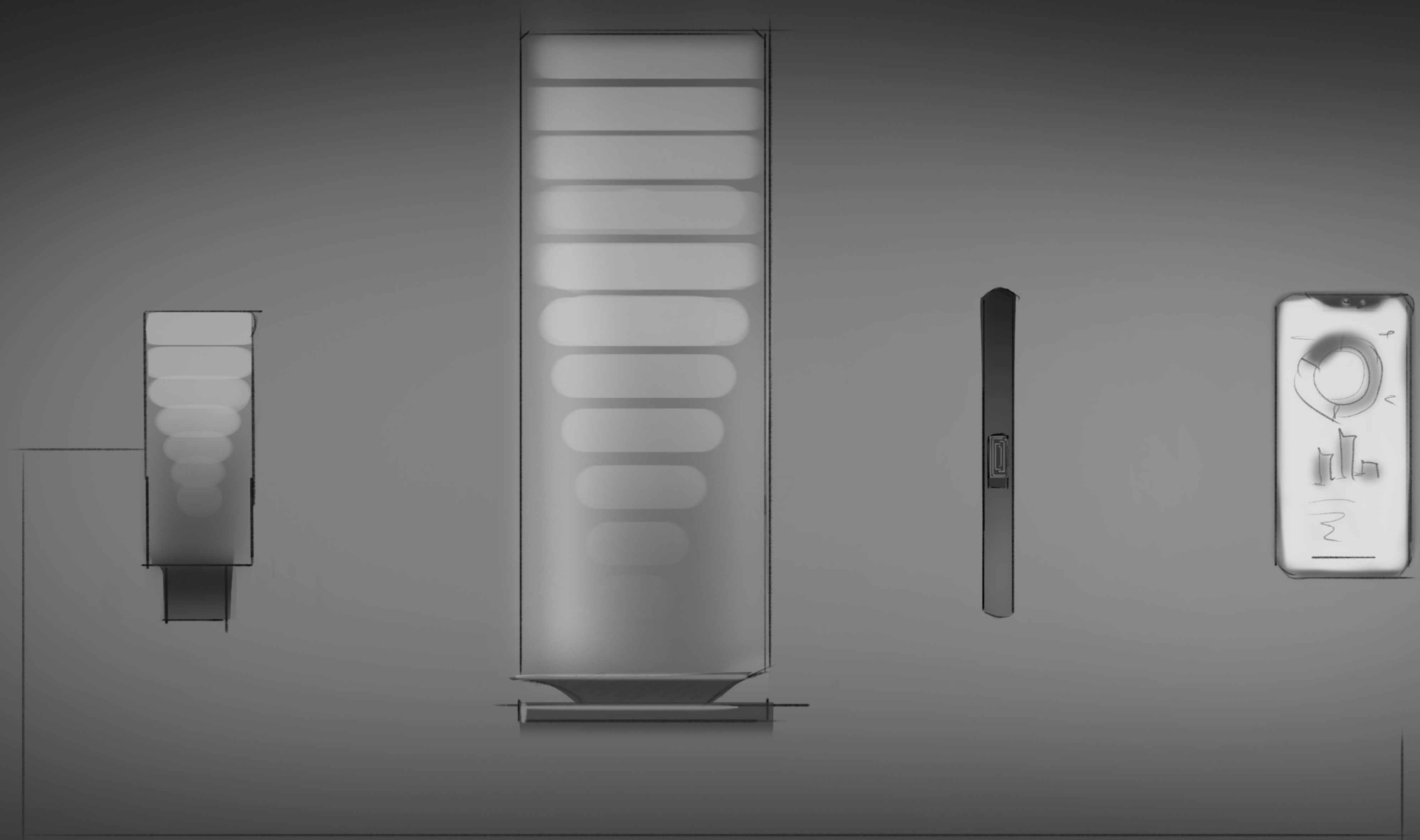
5.



Form Development







VELA

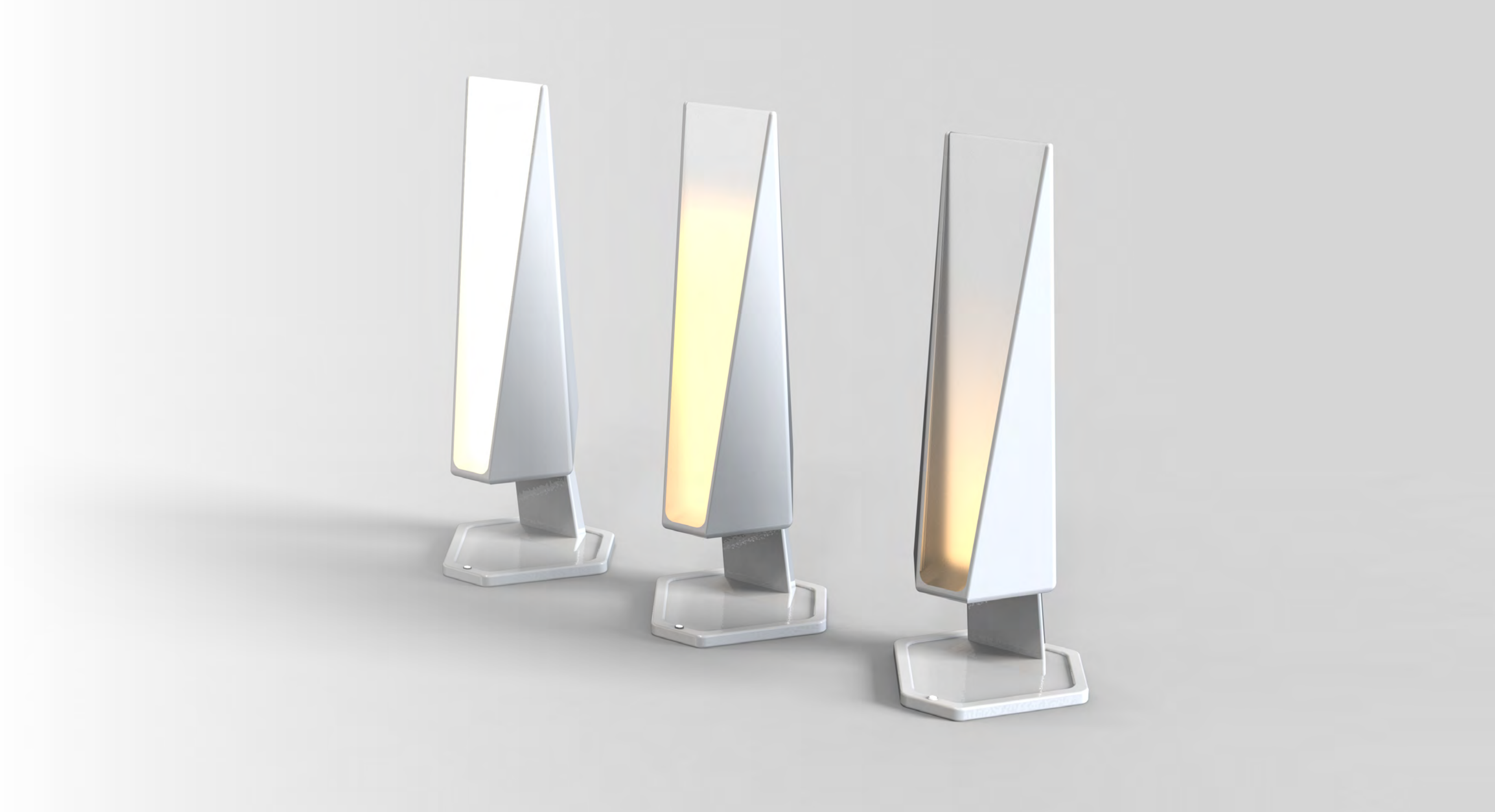
A Biometric Sleep Aid



ABOUT

VELA is a personalized sleep improvement system using a simple wearable biometric device, a bedside light, and a mobile app.





SLEEP SCHEDULE IMPROVEMENT

Using the app, one can set a “Sundown” timer. This can be programmed to be automatic and reoccurring. This feature helps prevent over exposure to light at night and helps produce the body’s natural production of melatonin, making you feel tired.

SOUND

For those who need "white-noise" or would like to fall asleep to relaxing sounds of their choice, VELA is equipped with a Bluetooth speaker.

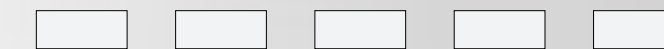
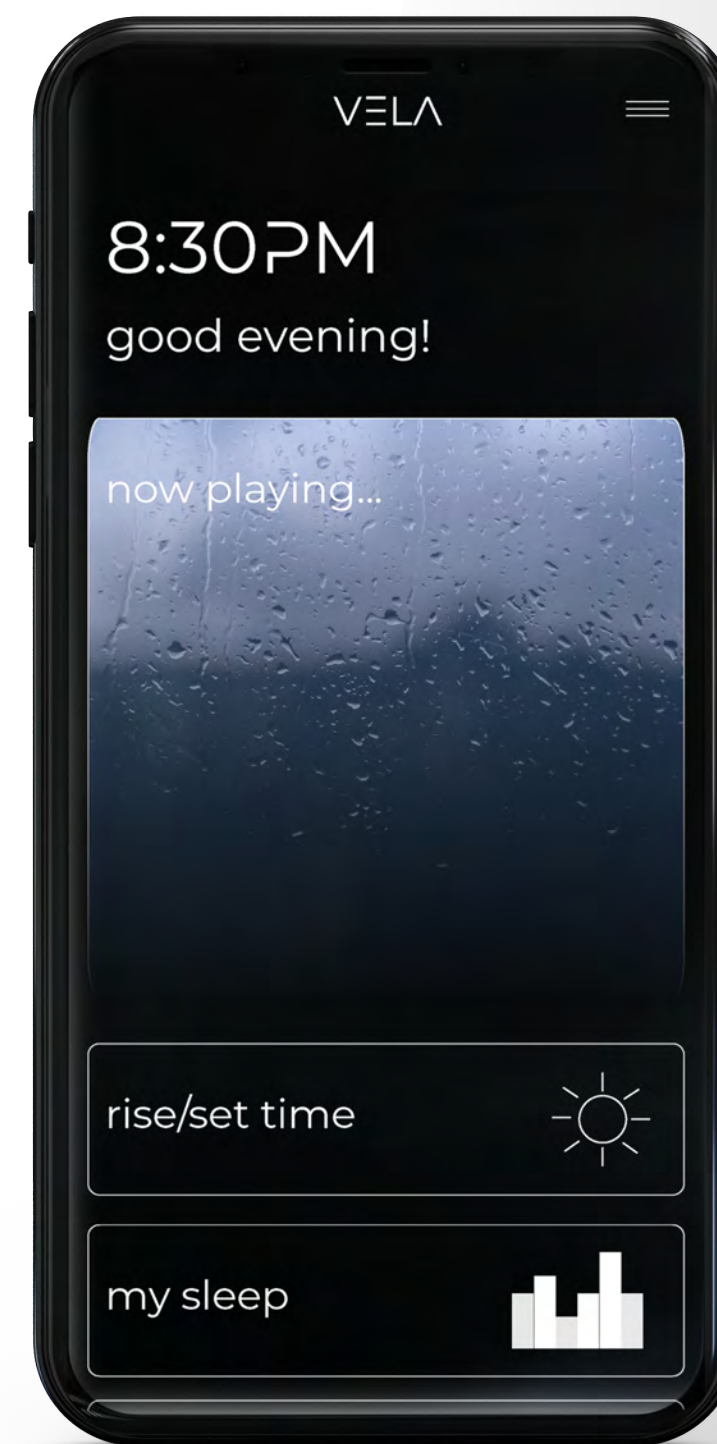
This is can also be used as an alarm clock, which can be set using the app aswell.



VISUAL IMMERSION

In addition to sound, VELA uses transparent OLED screens that can be set to abstractly animate preset environments popular to fall asleep to.

- Rain
- Campfire
- Waves
- Thunderstorm
- Wind

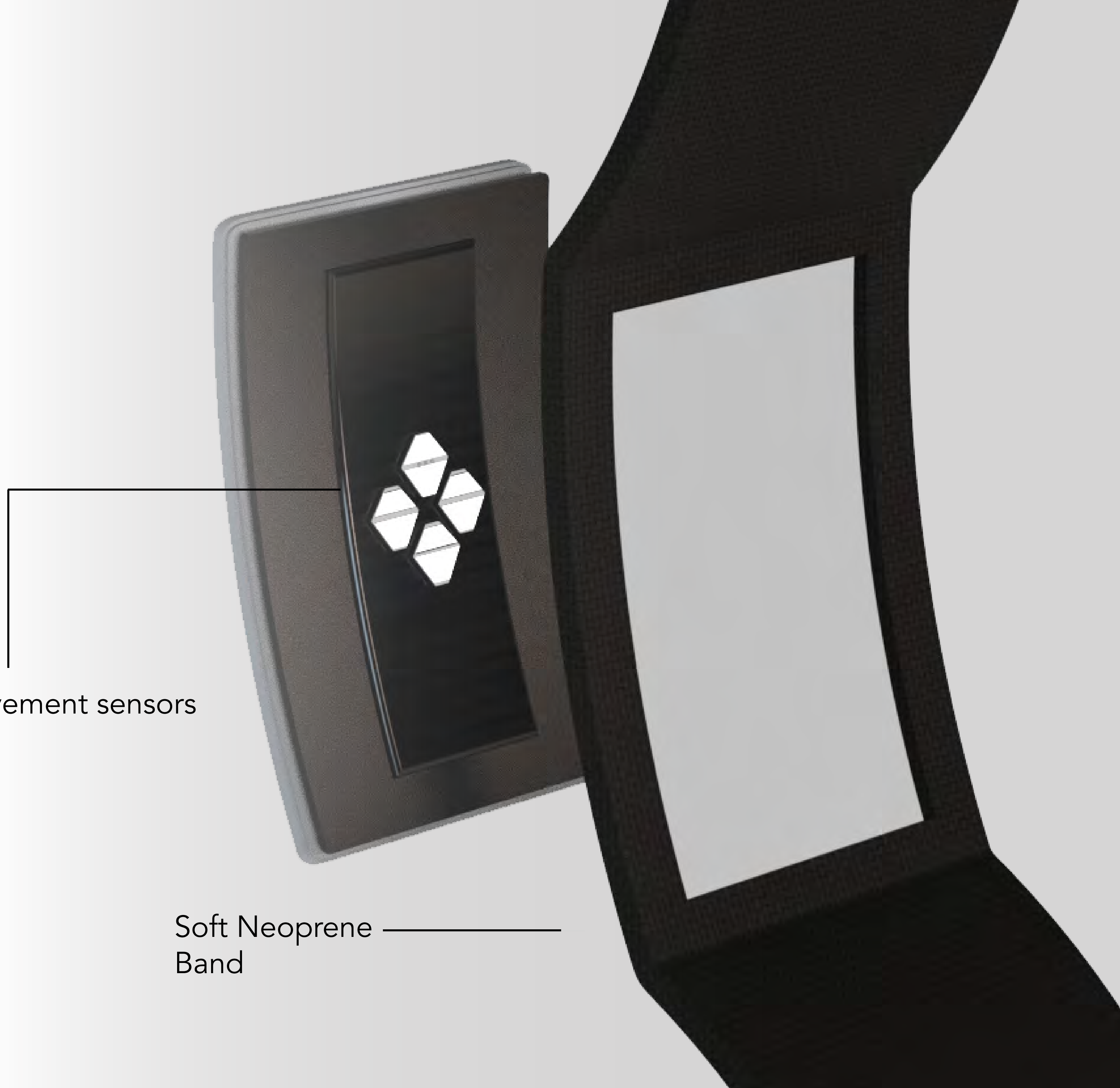


WEARABLE DEVICE

The wearable device is removable from its band and can be recharged on the lamp base.

Heart rate+movement sensors

Soft Neoprene
Band



HOW THEY WORK TOGETHER

The wearable tracks your sleep in real time throughout the night.

Using the app, you can set a wake up time and the wearable will communicate to the lamp when your at your lightest sleep cycle.

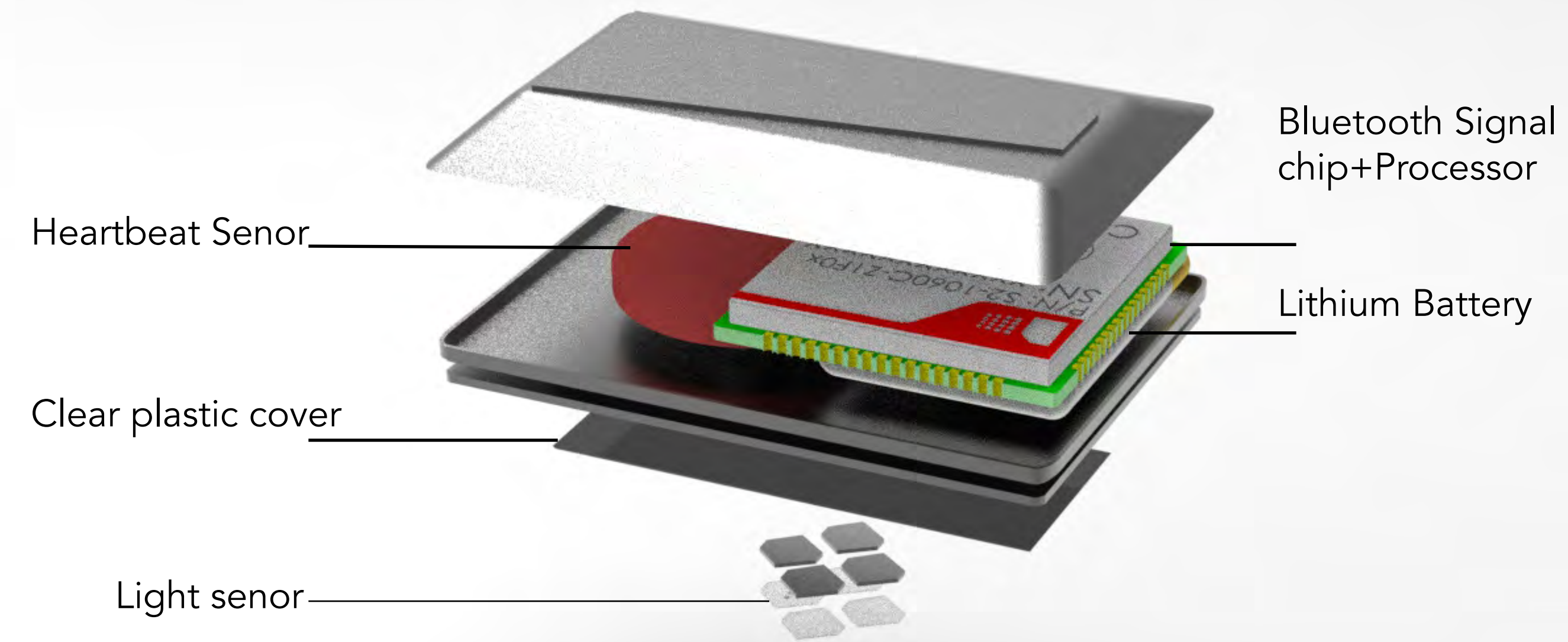
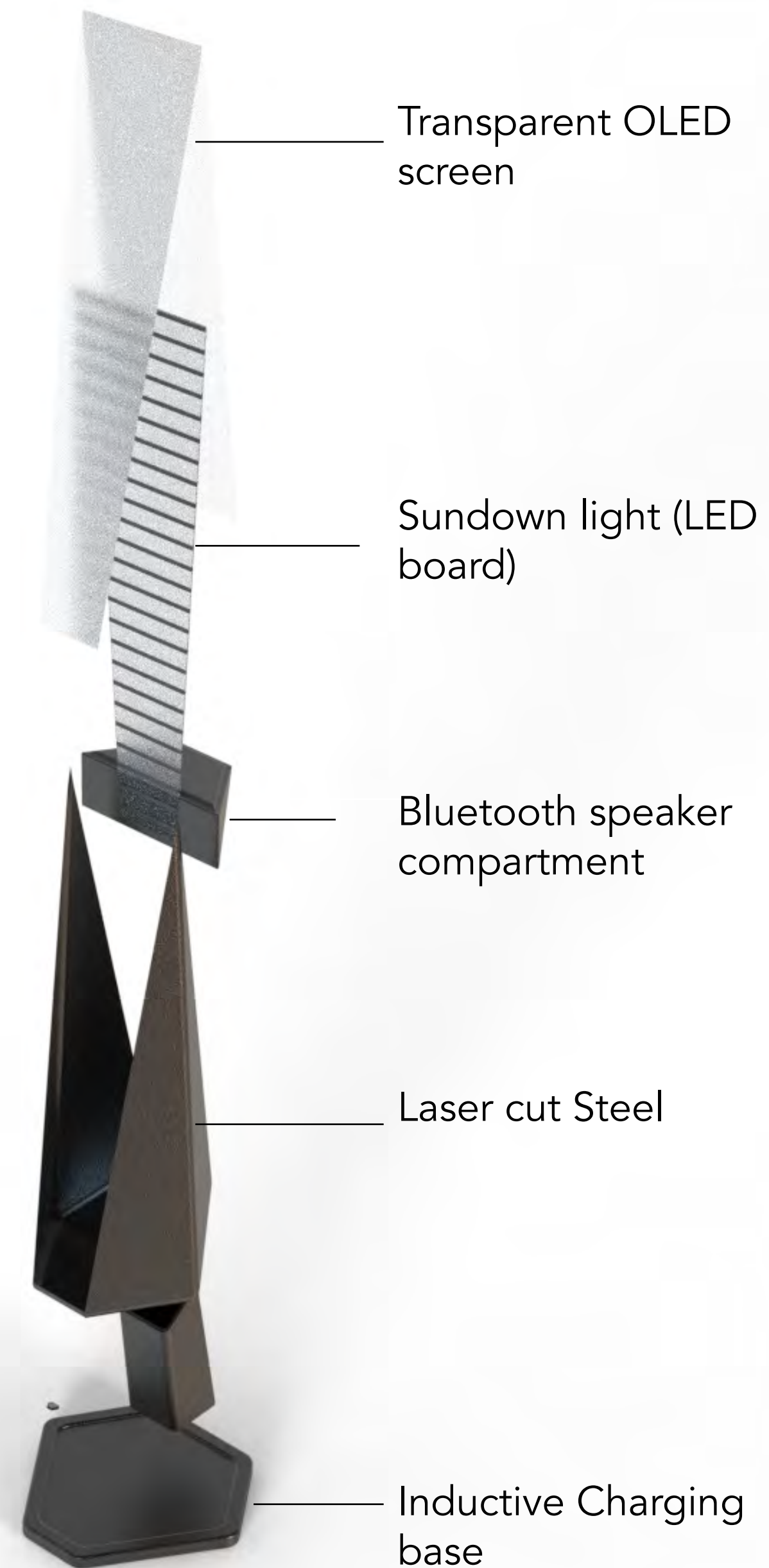
Example-You use the app to set a wake up time at 7:00am. The watch detects that you've entered a light sleep cycle at 6:30am, the lamp will wake you up then. This feature is designed to help you feel well rested right when you wake up

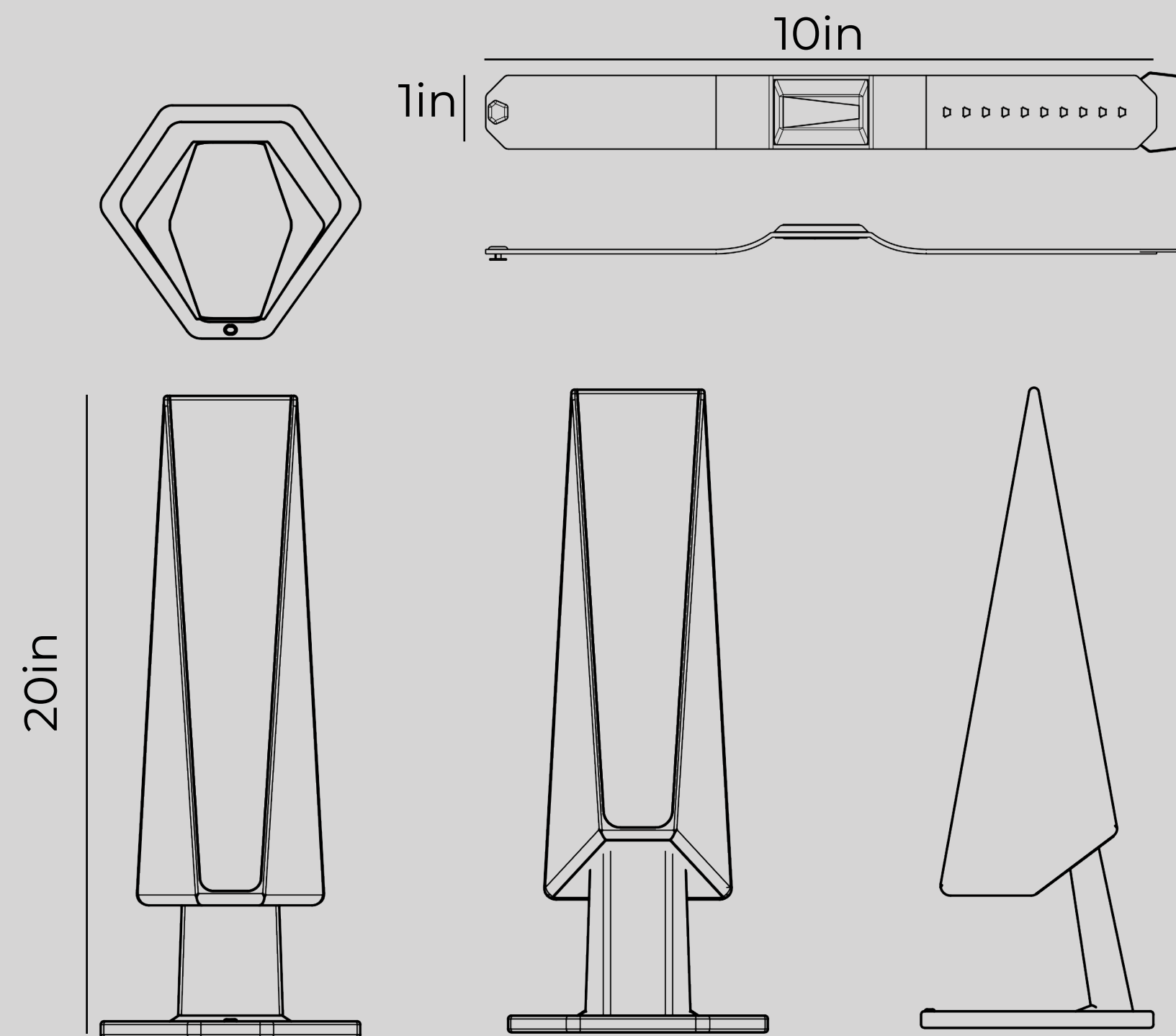


HOW THEY WORK TOGETHER

The wearable can also detect when your laying in bed awake (experiencing insomnia). The wearable can signal to the lamp to activate your favorite white noise.







THANK YOU

