

SMART LIGHTING

Team 5

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Overview

Motivation & Need



Overview

Motivation

Lack the welfare of residential facilities
for those who have hearing impairment



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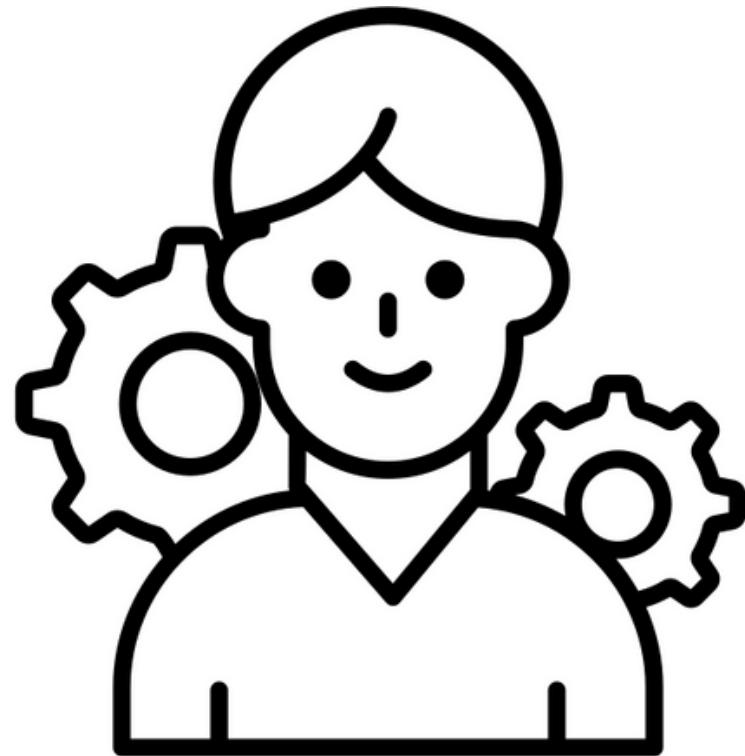


The importance of life patterns such as sleep patterns is being emphasized.

"The circadian clock is most sensitive to light from about 2 hours before usual bedtime and through the night, until about 1 hour after usual wake-up in the morning (this is the sensitive period). Exposure to light during these times will affect when your body naturally gets sleepy and is ready to fall asleep."
(The National Institute for Occupational Safety and Health, 2020)

Overview

Need



In order to improve the quality of life, customization with delicate control are required.

"Different lights and brightness have different effects on psychology. The effects of light can have a positive effect on a person as well as a negative effect. Therefore, customizing the environment allows the person to create an environment in which they feel better."

(Illuminating Engineering Society)

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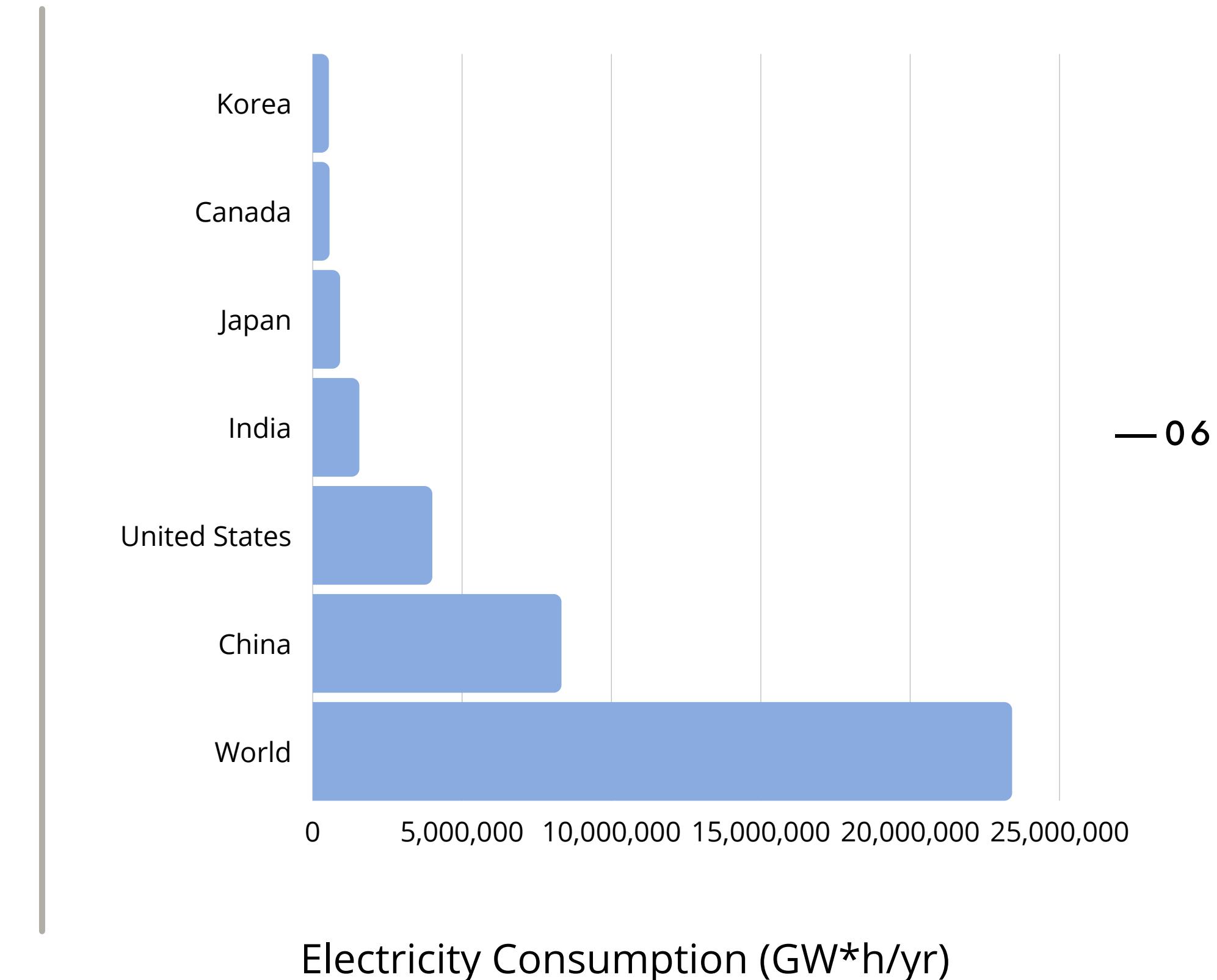
Develop a smart light system that moves with you, rather than controlled by a remote control



Overview

Need

Saving electricity in order to prevent this consumption from reaching the maximum.



Goals & Methods

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Goals & Methods

Goals

01

Lighting system
service for hearing
impaired person

02

Light automation for
sleep-wake circadian
cycle

05

Energy saving

03

Costume lighting
settings for MZ
generation that like
own customizing

04

Automation of lighting
system depending on
some situations.



Goals & Methods

Goals

01 Lighting system service for hearing impaired person

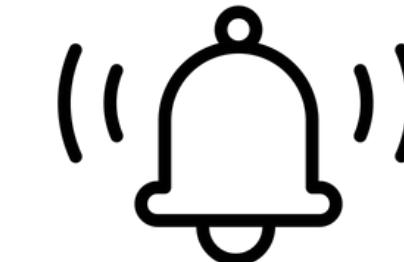
It replaces the function of an alarm by changing the color or brightness of the light.



someone visiting house



someone entering room

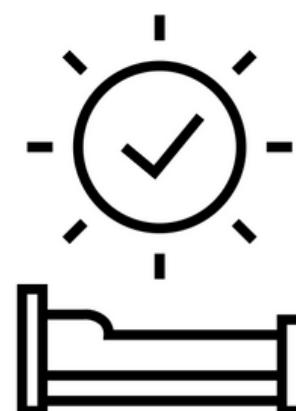


when the (video) telephone rings
for facetime or app notice (ex. kakao talk)

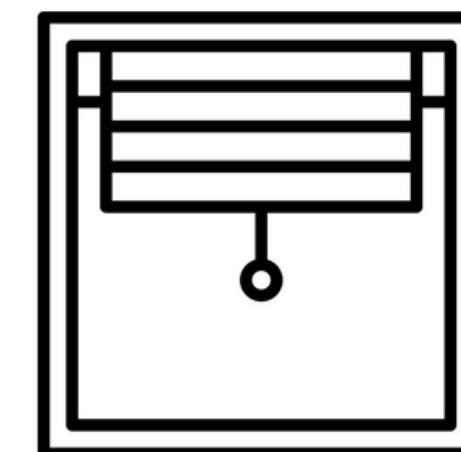
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02 Light automation for sleep-wake circadian cycle

Maintain sleep patterns by managing the user's sleep environment and calculating the appropriate sleep time



To sleep:
Change color and
reduce amount of light



To wake up:
Open the blind and adjust amount of light
in the room with artificial light

Goals & Methods

Goals

03 Costume lighting settings for MZ generation

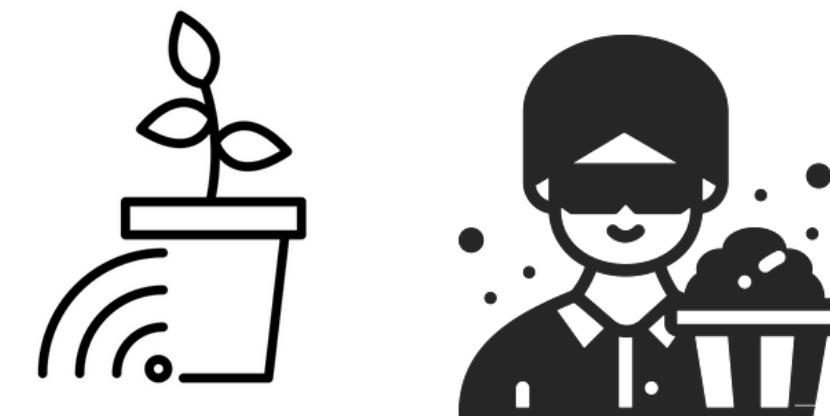
The lighting of each room can be set according to the purpose of the mz generation, which values individuality.



Set different lighting environments according to room's use or user's need

For example:

Plant study Watching movie Bedtime reading



Midnight snack



Proper light for baby



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Goals & Methods

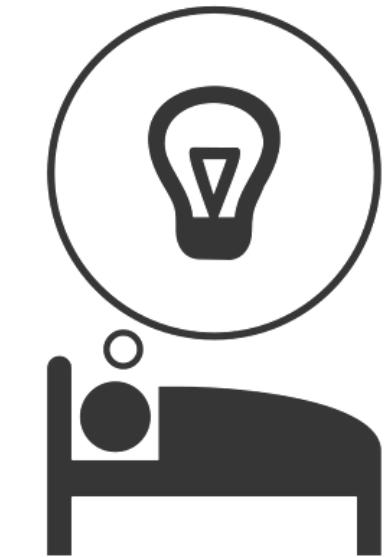
Goals

04 Automation of lighting system depending on situations

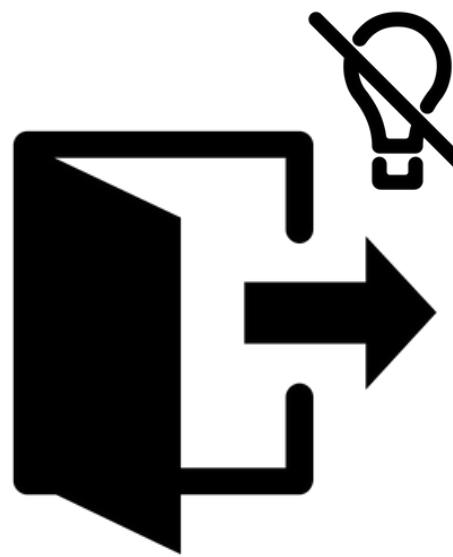
Lights that need to be adjusted one by one in life are automatically changed according to human movement.



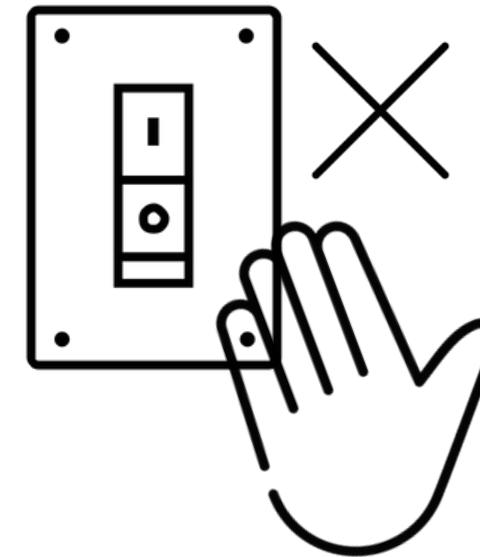
Maintain fixed brightness by measuring the amount of light inside the house



Simply clap your hand to turn the light off when you are already lying in bed.



Turn the light on&off automatically when entering&leaving the house.



No touching the switch before washing your hands by automatically turning on the bathroom light.

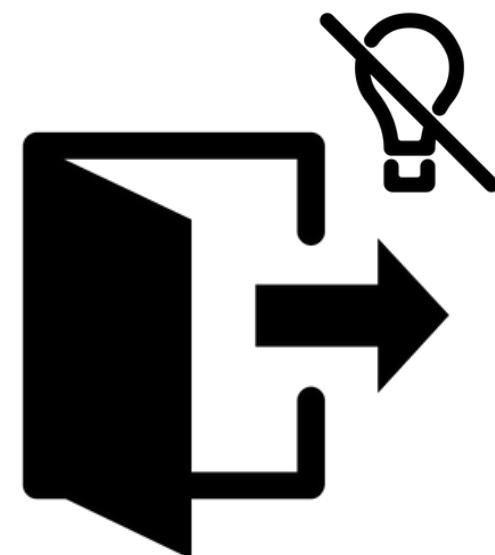
Goals & Methods

Goals

05 Energy saving



Maintain fixed brightness by measuring the amount of light inside the house



Turn the light on&off automatically when entering&leaving the house.



When you fall asleep while working on something, the lighting system detects you and turns the light off

Goals & Methods

Methods

INPUT

Light switch on/off

Link with doorbell

Link with smartphone (app)

Voice recognition

Link with doors

Link with smart speakers

Sensor : Calculate the amount of light

Goals & Methods

Methods

SERVER

Calculate amount
of light
appropriate for
the sleep time

Calculate and set
the sleep time by
given age

Only detect the
motion of human,
not animal like pet

Option values for
customizing

on/off motion sensor

sleepetime scheduler

color of light

brightness of light

position of light

Maintain
amount of light
inside a house

Goals & Methods

Methods

OUTPUT

Change the lighting color

Open and close the blenders

Change the brightness

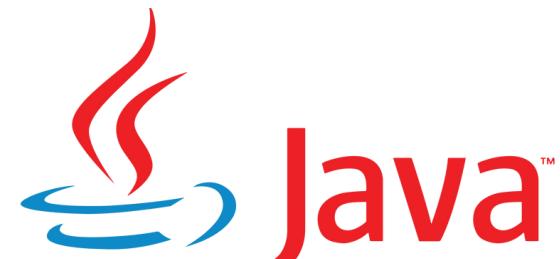
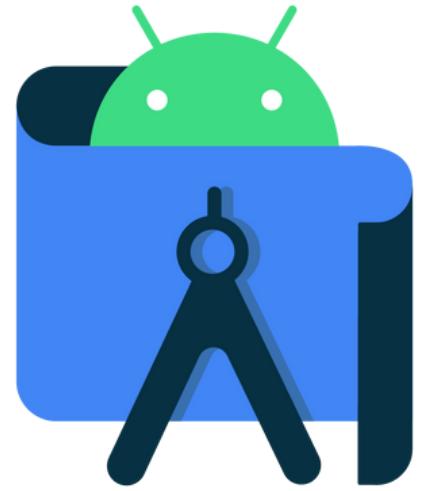
Turn the light on/off



Goals & Methods

Methods - Implementation

INPUT



PyTorch



SERVER



OUTPUT



Hardware

Project Plan

Role & Timeline

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Project Plan

Team Role



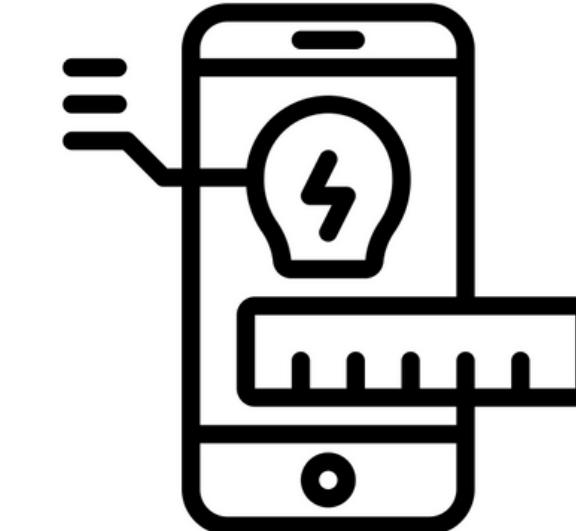
Light Control System

Aysun Ogut
유상범



IoT System

정성욱 이채은

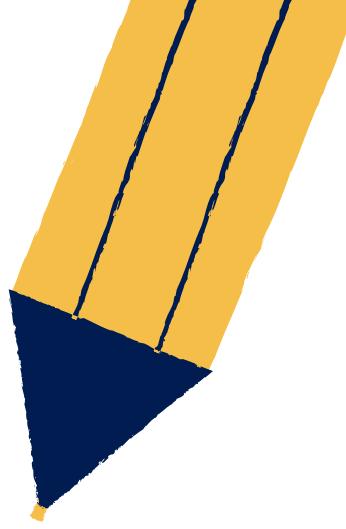


UI/UX

황정윤 Selin

Project Plan

Timeline



Contents

	Timeline												
	03/31	04/07	04/14	04/21	04/28	05/05	05/12	05/19	05/26	06/02	06/09	06/16	06/23

Requirement Sepcification

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Design

Component

Unit Test

Integration

Test

Maintanance



Expected Effects



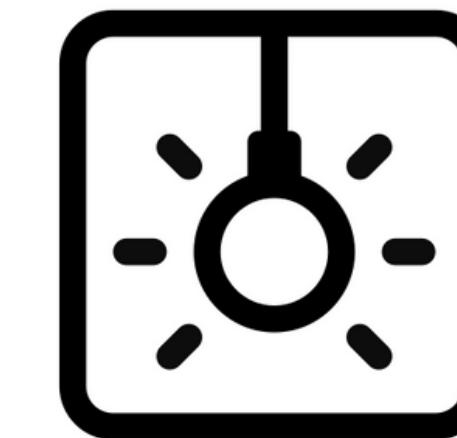
Expected Effects

Personal

Have a better sleeping experience ending with being more productive

With customizing settings, create a comfortable environment in home

Increase the convenience of life with automatic lighting system



Social

Give better quality of life for people with hearing disabilities

Eco-friendly

Reduce unnecessary electricity consumption

Thank You