



INSPIRATION

SAD: SEASONAL AFFECTIVE DISORDER



PERSONAL EXPERIENCE

I lived in Chicago for 4 years. During that time, I felt extremely depressed and enervated during the long Chicago winters. It was hard just to follow my daily routine.



FRIEND'S STORY

My friend once told me that on a frigid winter morning, he sat at his desk and inexplicably cried for 20 minutes. His story sparked my interest in what scientists refer to as Seasonal Affective Disorder (SAD).



DISCOVERY IN SCHOOL

Our school's wellness center offers artificial sunlight lamps to help students overcome seasonal depression.

I have many other friends and colleagues who have similarly complained of this problem. As such, I was inspired to design a device to help people overcome their seasonal depression.

APOLLO

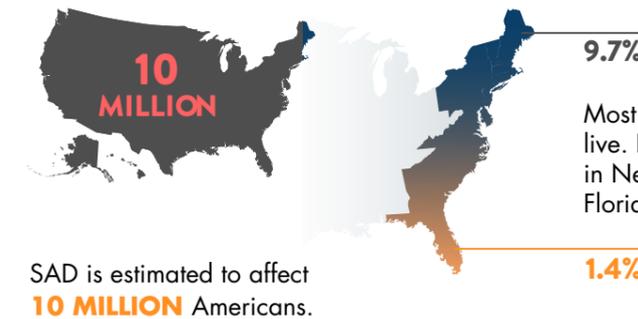
A combination of adjustable color-tinted films that attach to windows in a home and a mobile app to help people get relief from winter depression.

MARKETING

DEFINITION Seasonal Affective Disorder (SAD)

SAD is a **mood disorder subset** in which people who have normal mental health throughout most of the year exhibit **depressive symptoms at the same time each year, most commonly in the winter.** People may **sleep too much or have little energy.** SAD also happens in Spring and Summer. The condition in the summer can include heightened anxiety.

We are specifically targeting occurrences of SAD in the winter.



Most common the farther North you live. Prevalence ranges from **9.7%** in New Hampshire to **1.4%** in Florida.



SAD is more common in women than men. **60%-90%** of people who suffer of SAD are **women.**

SAD is most common between the ages of 18-30, but can develop at any age and without warning.

SIGNS AND SYMPTOMS (WINTER ONLY)

- Fatigue
- Difficulty with concentrating and making decisions
- Irritability
- Overeating and associated weight gain
- Negative thoughts and feeling of guilt
- Crying
- Loss of sex drive
- Withdrawal from social interaction
- Lethargy, disturbed sleep or narcoleptic symptoms

CAUSES

- A lack of exposure to light
- Stress from daily life & work
- Mental reasons

TREATMENT



LIGHT THERAPY

- a. Bright light therapy
- b. Dawn simulation



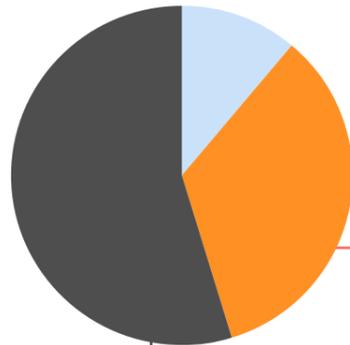
MEDICATION

(selective serotonin reuptake inhibitor, Modafinil, Vitamin D)



PHYSICAL EXERCISE

SAD IS OFTEN LINKED TO OTHER DISEASES



34% reported a close relative abusing alcohol.

55% of SAD sufferers reported a close relative with a severe depressive disorder.

USER RESEARCH

SELECTED USER

The primary user group is white collar workers and college students who live in large cities in the northern part of the globe, aged 20-30, and whose lives follow a solid pattern. They work from 9-5, and may be single or newly married.

Experience seasonal depression every day

Always stuck in a chair in front of a computer, every weekday from 9-5.

Dull, not energetic at all

It rains a lot during winter time.

Large scale window.

Gloomy weather and overcast city view can be seen through the windows. This influences the worker's mood.

Get lots of stress from work.

Age:
20-30

Occupation:
Student / White collar fresh out of school

Status:
single/no kids

INFORMATION INTEGRATION

TOTAL # OF INTERVIEWEES: 23

LOCATION

Chicago	14	New York	4	Vancouver	1	London	1
Columbia, IL	1	Toronto	1	Berlin	1	Most people who are affected by SAD live in the northern part of the globe.	

CLIMATE

Extremely Cold	19	Strong Wind	8	Frequent snowstorm	8	Frequent rain	8	Lack of sunlight	6
Long-lasting winter	4	Dry	2	Temperature changes a lot	1	Gloom	1		

Coldness, strong winds, snowstorms, and frequent rain are the main problems in the winter. A long-lasting period without adequate exposure to sunlight is also a major issue.

WHERE IT'S FELT

On the way to /from work/school	12	Home	10	Office	3
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On the way to/from work, or in the home or office are the places where people are affected by SAD the most.

WHEN IT'S FELT

Morning	14	Midnight	4	On the way	1	Weekends	1	At work	1	All the time	1
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Morning and night are the time when people are affected by SAD the most.

BODY LANGUAGE EXPRESSION

Become irritable 8 or impatient, lose temper easily	Weak, don't want to move 6	Capacity for language gets worse, become taciturn 6	Cry 3	Feel dull or distracted 1
Play the phone all the time 1	Listen to soft music 1			

When affected by SAD, people feel irritable and become impatient. They lose their temper frequently. They also cut down on their communication with others.

DURATION

Several hours 6	Until the weather clears up 6	The whole winter 5	Several days 2	A long time 2
Several minutes 1	One Day 1	Until distracted by other things 1	N/A 1	

The duration can range from several hours to the entire winter, with sunlight as the major factor. Whenever it's sunny outside, the symptoms of SAD are reduced.

AFFECTION

Lethargy 14	Don't want to get out of bed 13	Withdrawal from social interaction 10	Irritation 10	Bad sleep quality 8
Overeating and associated weight gain 8	Feel lonely 7	Feelings of hopelessness and worthlessness 6	Have difficulty concentrating 5	Thoughts of suicide 3
Fatigue 1				

When affected by SAD, people feel lethargic, can't sleep well, and don't want to communicate with others. They may overeat and get irritated more easily. They often do not have the energy to deal with daily routines.

IMPACT ON WORK

Unwilling to communicate 5	Lower efficiency 5	Become irritable or impatient, lose temper easily 4	Lower quality of work 1
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SAD also affects people's behavior at work. People usually find it difficult to communicate with others, are less efficient and become more irritated with their work. The work perform lower quality work.

IMPACT ON PERSONAL LIFE

Irritation 5	Weak, don't want to move 5	Become introverted 4	Indifference 3	Hurt Oneself 2
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In their personal lives, people affected by SAD get irritated easily and want to be left alone. Sometimes they are not even willing to move.

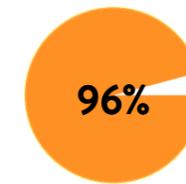
WAYS TO OVERCOME

Hang out and chat with friends 10	Find a distraction (books, music, TV, etc.) 9	Exercise 5	Eat sweet foods, overeat 3	Play games indoors 3
Tropical vacation 3	Bask in sunshine 3	See a psychologist 2	Busy with work 2	Deep breathing 1
Meditation 1	Study in cafeteria 1	Drink warm water, take a shower, and crawl in bed 1	Abstract mood, a lust of excitement 1	Shopping 1
Cry 1				

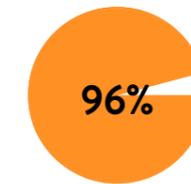
People most often think that hanging out and talking with friends, finding other distractions, exercising, and going on vacation to tropical places help them to get relief from their SAD symptoms.



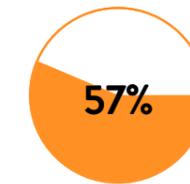
Everyone understood that the weather affects their mood.



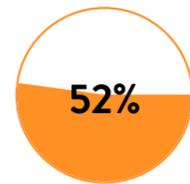
Everyone except for one person tried different ways to overcome their symptoms. The one person who didn't believes it's just a stage in her life, and that her symptoms will go away as she gets older.



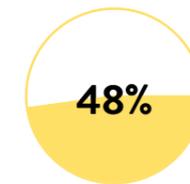
Almost everyone thinks that physical exercise helps to overcome SAD symptoms.



Over half of the people don't think that others can help them to overcome their SAD symptoms. The most that others can do for them is listening to them talk about their symptoms and experience.



About half of the people believe that having a pet will help.



Less than half of the people think they can control their temper.

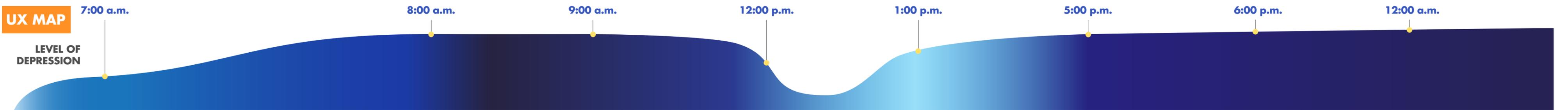


Not many people believe that light therapy will help. Some are even worried that long-term exposure to artificial light can lead to skin cancer.



Only four people believe that seeing a psychologist will help them to overcome their SAD symptoms.

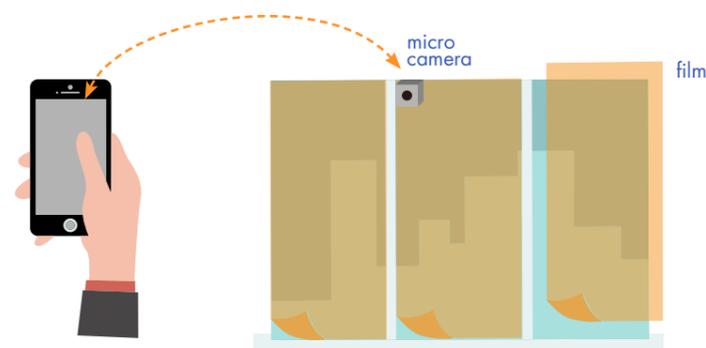
UX MAP



ROUTE	☀️ Get up	🍳 Eat breakfast / Get dressed / Do makeup	🚗 Rush to work	💻 Work	🍽️ Have lunch	💻 Work	🚗 Get off work and head home	🎮 Personal leisure time	🌙 Sleep
LOCATION	HOME	HOME	On the road / Public transportation	Office	Cafeteria / Restaurant	Office	On the road / Public transportation	Various Location (Home / Club / Gym / Cinema ...)	HOME
PROBLEM	<ul style="list-style-type: none"> ▲ Can't get out of bed even though she set several alarm clocks ● Feels grumpy Argues with husband for no reason ★ Has no interest in what will happen today 	<ul style="list-style-type: none"> ▲ Always eats the same thing for breakfast ● Stands in front of the closet for too long looking for the perfect dress to help brighten her day ★ Skips breakfast because she got up too late 	<ul style="list-style-type: none"> ▲ Feels uncomfortable squeezing herself into crowded trains / buses ● Gets bad temper on the way to work ★ Feels stressed trying to catch the bus / train ■ Feels lonely even though there are many other commuters on their way to work 	<ul style="list-style-type: none"> ▲ Lacks energy and feels depressed ● Feels irritable and shakes legs all the time ★ Inefficient, and makes a lot of mistakes ■ Doesn't want to communicate with clients or co-workers 	<ul style="list-style-type: none"> ▲ Dining experience was not pleasing. 	<ul style="list-style-type: none"> ▲ Lacks energy and feels depressed ● Feels irritable and shakes legs all the time ★ Inefficient, and makes a lot of mistakes ■ Doesn't want to communicate with clients or co-workers 	<ul style="list-style-type: none"> ▲ Feels uncomfortable squeezing herself into crowded trains / buses ● Feels lonely even though there are many other commuters on their way to work ★ Doesn't want to go home and instead wanders on the street ■ Gets irritable and kicks the fence on the street 	<ul style="list-style-type: none"> ▲ Refuses to engage in social interaction and wants to be left alone ● Alcohol abuse ★ Is apathetic to other people and pets around her 	<ul style="list-style-type: none"> ▲ Insomnia ● Poor quality of sleep
REASON	<ul style="list-style-type: none"> ▲ It's still dark outside when she gets up. There is not enough sunlight and it doesn't feel like the dawn has arrived. ▲ Had insomnia / difficulty sleeping last night ★ ● The weather has been cloudy for the entire month. She feels very depressed. 	<ul style="list-style-type: none"> ▲ Doesn't have time or energy to learn how to cook due to too much work and her SAD symptoms ● Tries to change her mood by dressing up prettier ★ Had insomnia / difficulty sleeping last night 	<ul style="list-style-type: none"> ▲ Because it rains a lot in the winter, other people's hair and clothing are often wet, which makes them and everyone else around them feel uncomfortable. ● Snow and sleet often freeze into sheets of ice on the ground. The roads are too slippery and it is sometimes too windy to be able to walk carefully. ★ The public transportation system is not well-organized. 	<ul style="list-style-type: none"> ▲ The sky is dark and overcast. Everything appears to be in gray scale. ● ★ The atmosphere in the office feels closed and stuffy. ▲ The office has large French windows, and the gloomy weather outside affects her mood. ★ Gets bored with routine jobs. ■ The lighting in the office is too cold. 	<ul style="list-style-type: none"> ▲ Carryout food is not hot enough, and she always gets a stomachache after eating. ▲ The clock is ticking while she eats, which makes her eat too fast. 	<ul style="list-style-type: none"> ▲ The sky is dark and overcast. Everything appears to be in gray scale. ● ★ The atmosphere in the office feels closed and stuffy. ▲ The office has large French windows, and the gloomy weather outside affects her mood. ★ Gets bored with routine jobs. ■ The lighting in the office is too cold. 	<ul style="list-style-type: none"> ▲ Because it rains a lot in the winter, other people's hair and clothing are often wet, which makes them and everyone else around them feel uncomfortable. ● Feels so tired after a full day of work. ● Becomes frustrated and anxious thinking about all of the housework and chores waiting at home. ● ★ There is nothing fun or exciting to look forward to at home. 	<ul style="list-style-type: none"> ● ★ The dull weather makes her feel depressed ▲ ● Lacks self-confidence 	<ul style="list-style-type: none"> ▲ ● Stress from work ▲ ● There's nothing that she looks forward to.
SOLUTION	<ul style="list-style-type: none"> ▲ Inject more sunlight into her room to simulate the feeling of dawn approaching ▲ Keep her bedroom warmer ▲ Cover windows with curtains or other items to prevent her from seeing the cloudy or rainy weather outside ★ Encourage her to take care of some plants at home ● ▲ Wake up to smooth / energetic music ★ 	<ul style="list-style-type: none"> ▲ An app can help her to regularly learn new things, such as cooking, by sending notifications and short video clips / tutorials to her phone ● An app can help her to keep up with the latest fashion trends ★ An app with various different menus can help her order breakfast delivered to her office 	<ul style="list-style-type: none"> ▲ Renovate the interiors of public transport vehicles to make them more comfortable (e.g., install green carpet, warmer lights, dehumidifiers, etc.) ★ ● Wear non-slip shoes ● Use an umbrella that does not block the user's view ■ Use wearable device that projects an image of a small pet leading and accompanying the user 	<ul style="list-style-type: none"> ▲ The company should provide snacks, sweets, and afternoon tea to brighten workers' moods. ▲ Cover the windows with curtains to block out the view of the dull weather outside and create a warm, comfortable environment inside. ■ Change the color tones of the light in the office to be warmer. ● ★ Encourage workers to bring their own hobbies to work, such as decorations, plants, or even pets. ▲ ■ 	<ul style="list-style-type: none"> ▲ Use a portable heating device for heating up food at any time in any place. 	<ul style="list-style-type: none"> ▲ The company should provide snacks, sweets, and afternoon tea to brighten workers' moods. ▲ Cover the windows with curtains to block out the view of the dull weather outside and create a warm, comfortable environment inside. ■ Change the color tones of the light in the office to be warmer. ● ★ Encourage workers to bring their own hobbies to work, such as decorations, plants, or even pets. ▲ ■ 	<ul style="list-style-type: none"> ★ Get an interactive device that prompts her to complete a mission every day. There should be a surprise waiting at the end once the mission is complete. ▲ Renovate the interiors of public transport vehicles to make them more comfortable (e.g., install green carpet, warmer lights, dehumidifiers, etc.) ● Get a plant or pet so that she has something to look forward to after getting home. ★ 	<ul style="list-style-type: none"> ▲ ★ Use social apps to find like-minded people and meet with them to chat and hang out ▲ ● Find online support groups ● ★ Get an interactive device that prompts her to complete a mission every day. There should be a surprise waiting at the end once the mission is complete. 	<ul style="list-style-type: none"> ▲ ● Get an interactive device that prompts her to complete a mission every day. There should be a surprise waiting at the end once the mission is complete. ▲ ● Aroma therapy ▲ ● Play soft soothing music

DESIGN CONCEPT

The design of the product is a combination of a micro camera, adjustable color-tinted film, and a mobile app that work together to lift up the users' mood and prevent them from developing **Seasonal Affective Disorder(SAD)**.



TARGET USER

The Primary user group is white collar workers and college students in large cities in the northern part of the globe, aged **20-30, whose lives follow a solid pattern.** They work from 9-5, and may be single or newly married.

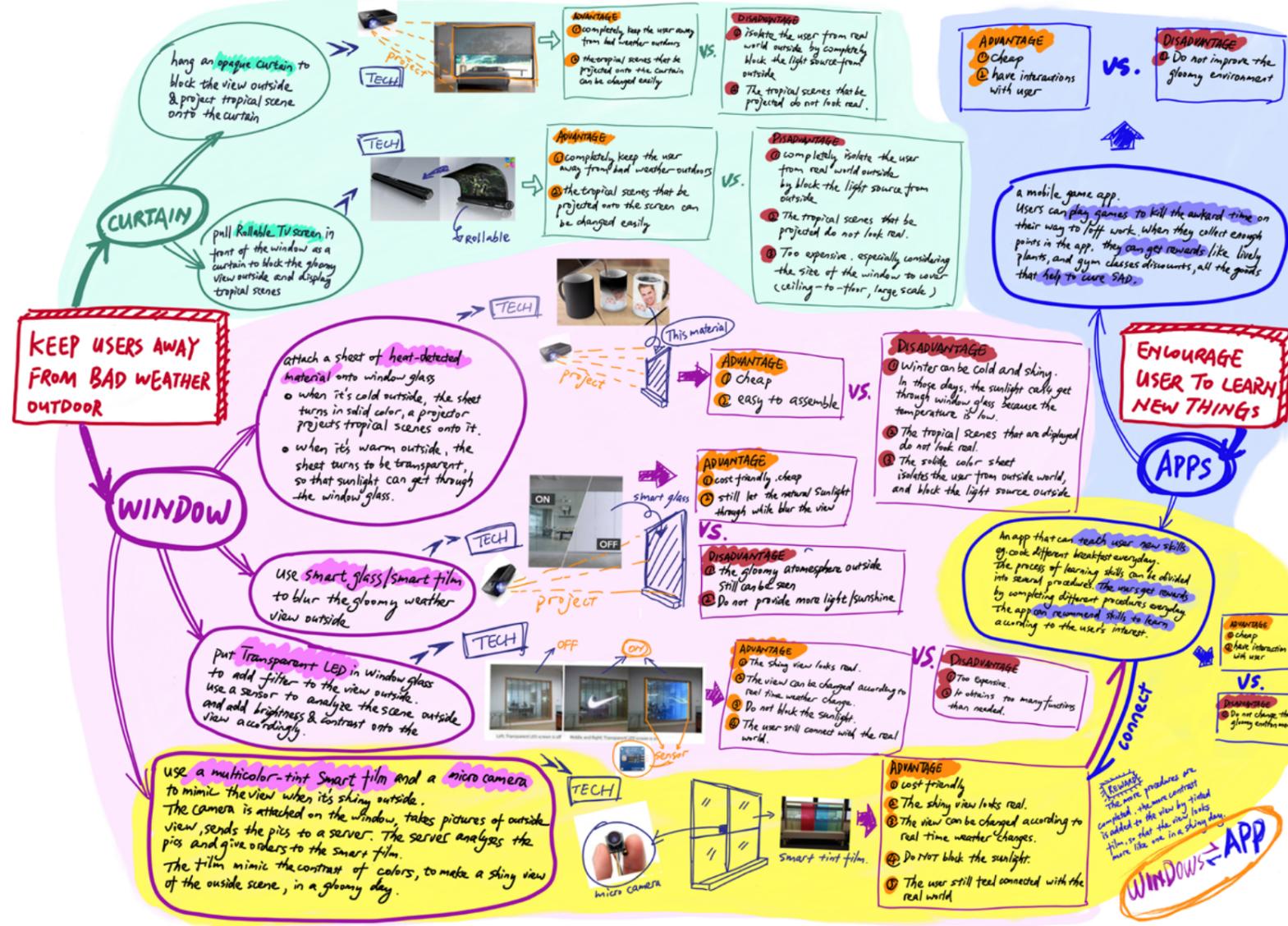


GOALS

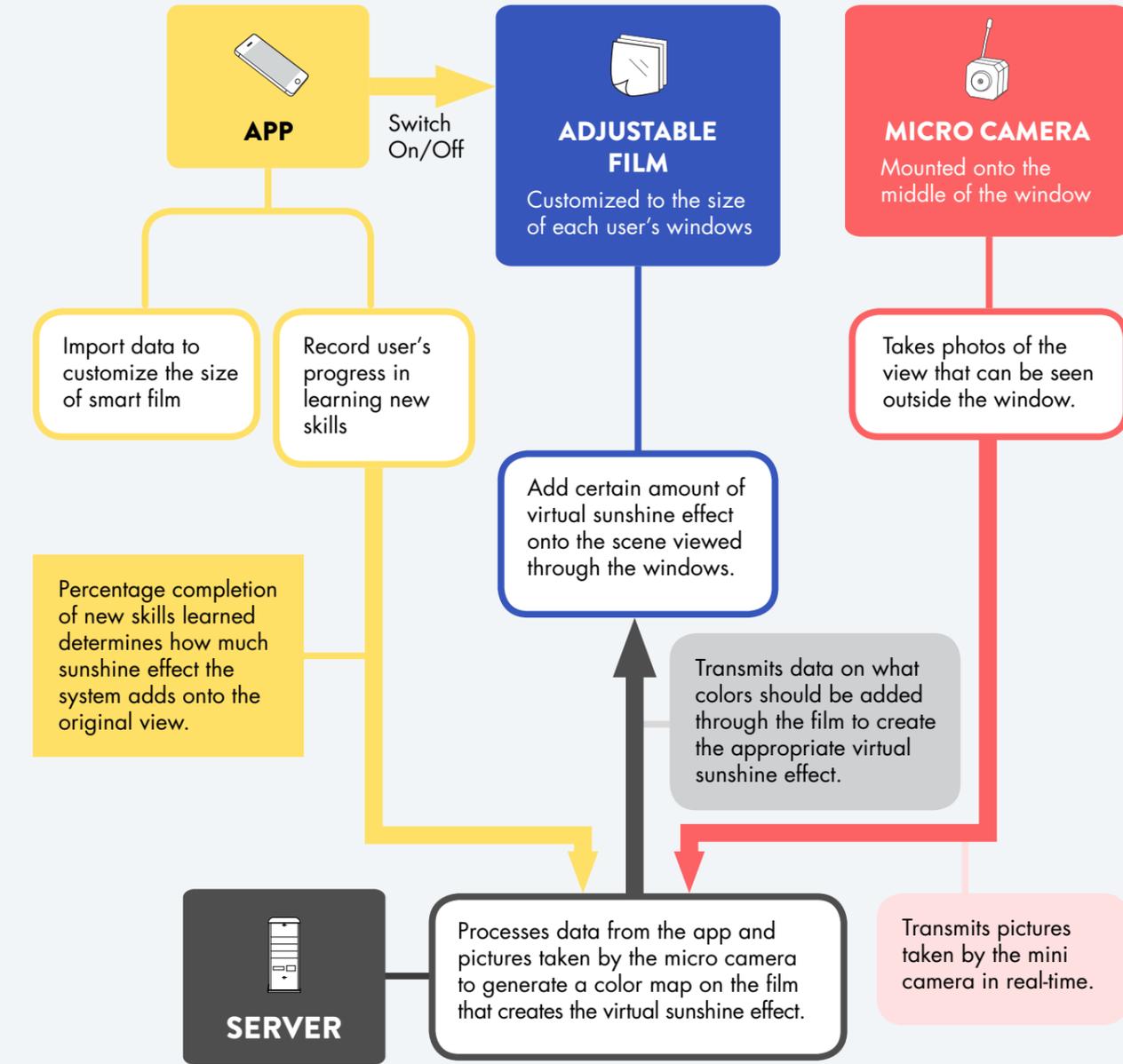
The goals of the product are to:

- encourage users to **learn new skills** on a regular basis, so that they will not feel aimless. They will **get a sense of achievement.**
- **provide more uplifting views and sunlight for users,** and keep them away from the gloomy weather and associated depression.

MIND MAP



INFORMATION STRUCTURE



DEVICE DESIGN

PRODUCT REFERENCE ADJUSTABLE COLOR TINTED FILM

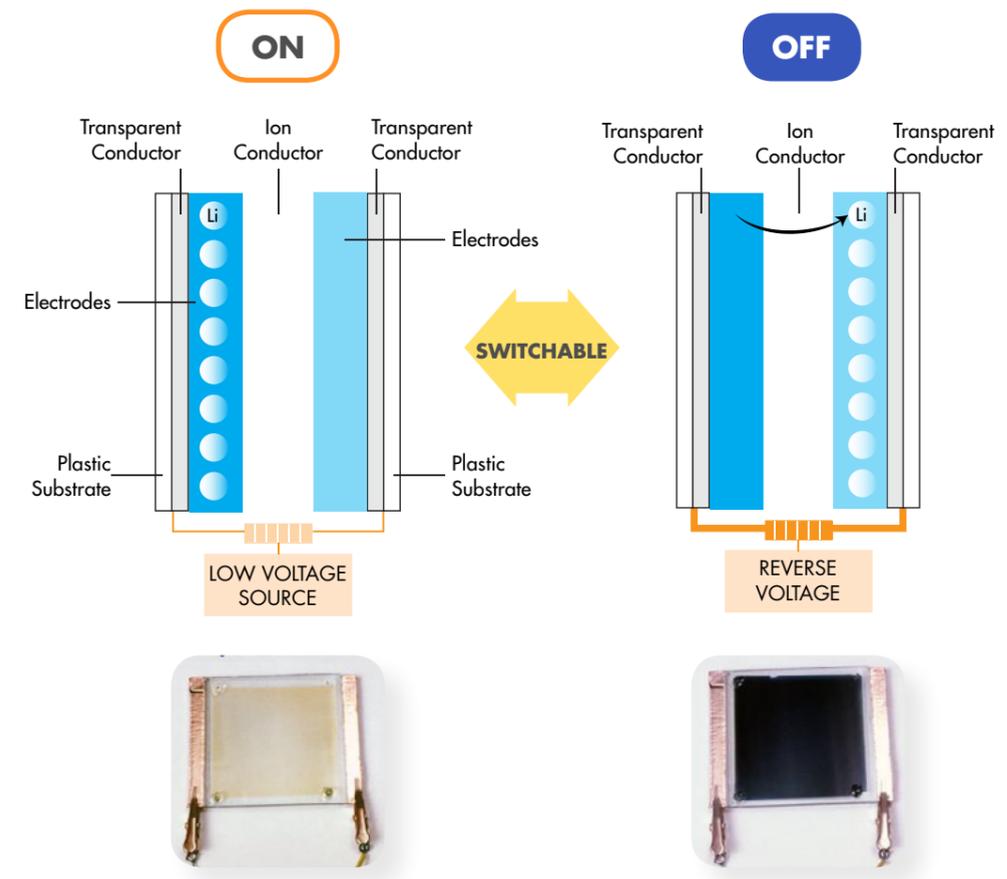


Photo: Electrochromic glass changes color under electric control:
Left: Here it's transparent and looks much like ordinary glass;
Right: Apply a small voltage and it turns opaque (blueish and dark). Photos by Warren Gretz courtesy of US Department of Energy/National Renewable Energy Laboratory (DOE/NREL).

FUNCTION:

1. private space



Off Mode



Completely Opaque

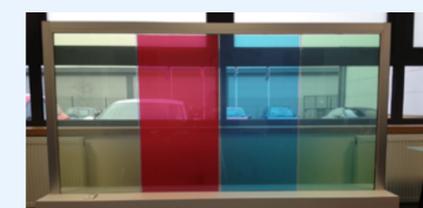


Partially Opaque (Area)

2. block the sunlight



Various Color options



Instead of placing a separator between the electrode layers, we could have an ELECTRO-CHROMIC MATERIAL (A DYE) that changes color when a current passes through it.

DEMONSTRATE EFFECT



ORIGINAL

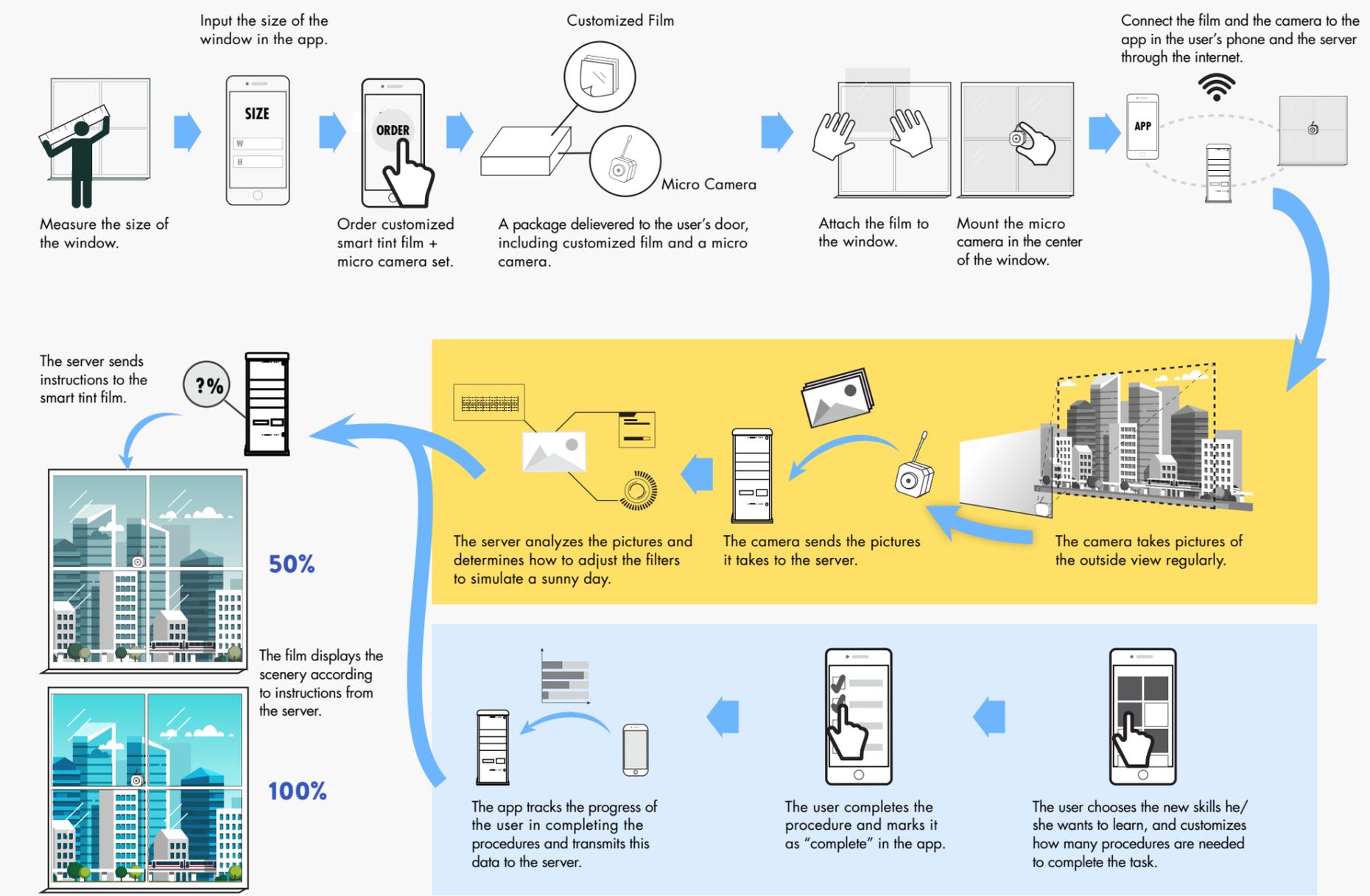
50%

100%



film

STORYBOARD



LOGO DESIGN

Apollo is the Greek god of the sun. In naming the device "Apollo," I want to recall the feelings of warmth from natural sunshine for people who suffer from winter depression.

KEY ELEMENTS



SHADES

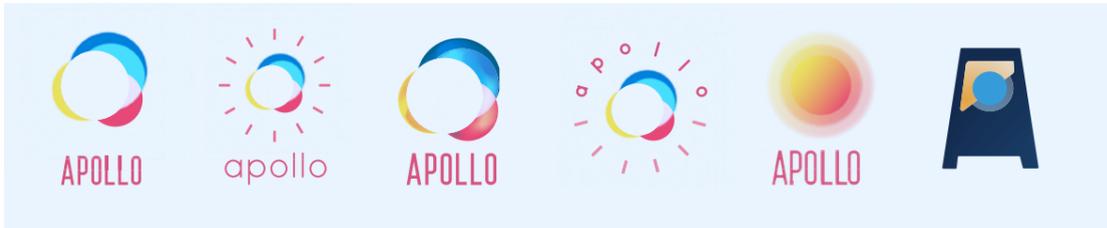


WARMTH



FILTER

DESIGN



APP DESIGN

Learn Skills

Users can set their daily goals of physical exercise, such as running, bike riding, etc. By accomplishing their goals, they can earn more "light on time."

Schedule

Users can manage the skill learning schedule.

Light Adjust

The adjustable color tinted film automatically turns on the maximum level of adjustable light based on the number of tasks completed by the user. However, each user can customize the light levels based on their specific needs.

