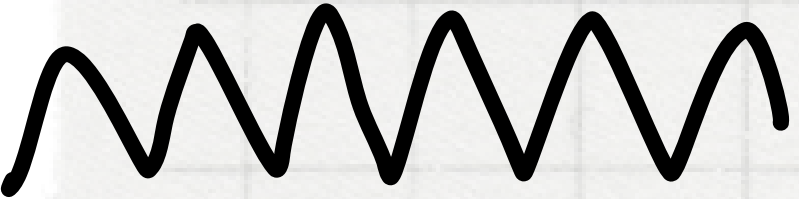


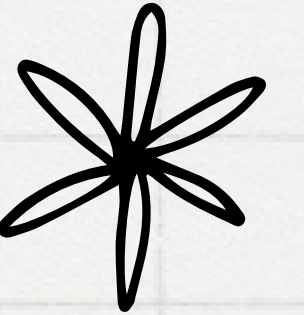
**National
Design
Project**

The title is written in a bold, black, rounded font with a white outline, centered on a piece of torn, olive-green paper. The paper is set against a white grid background. Surrounding the title are several hand-drawn doodles: a paperclip, a cloud, a starburst, a zigzag line, a leaf, a star, a rainbow, and two diamonds. The text 'National Design Project' is enclosed in a white hand-drawn oval.

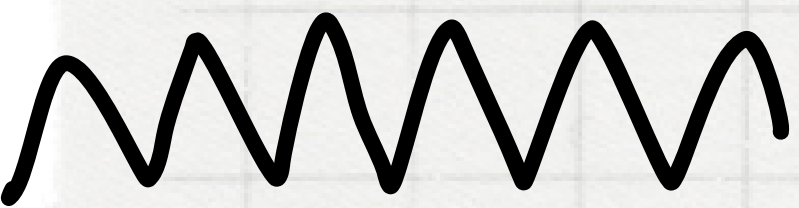
**BY: NAUFAL, CARISSA, SHIRAH,
KSHINTRA & KEYI (LVSS)**



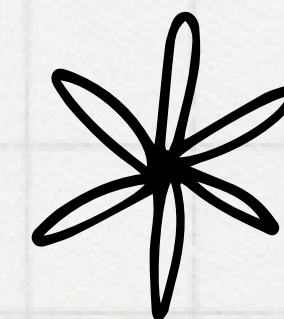
types of wellness



- **Environmental wellness**
- **Social wellness**
- **Workplace wellness**
- **Technology and Wellness**
- **Mental wellness**
- **Physical wellness**

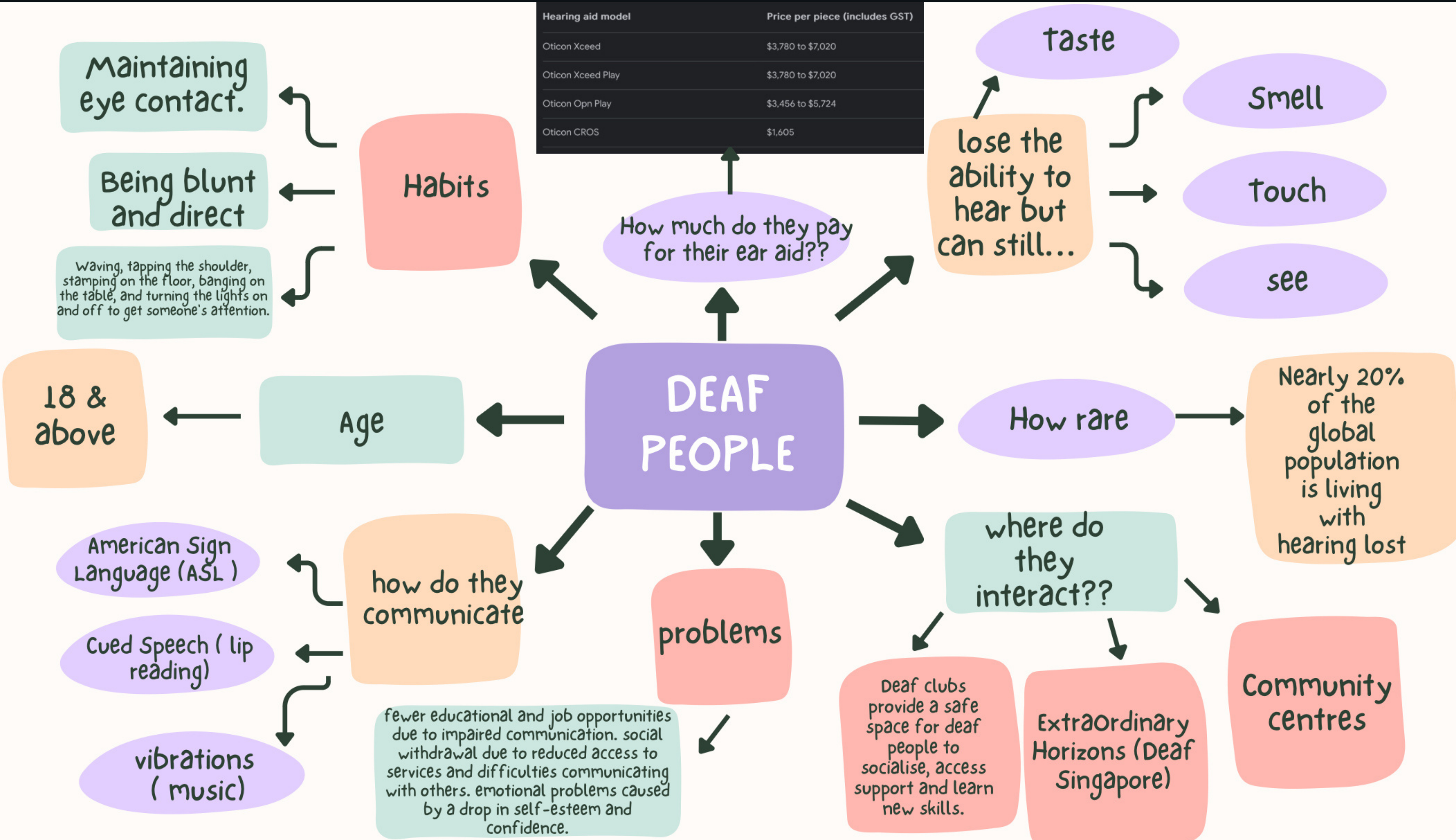


which wellness as a group
we are focusing on ?



- **Environmental wellness**
- Social wellness
- Workplace wellness
- Technology and Wellness
- **Mental wellness**
- **Physical wellness**

Hearing aid model	Price per piece (includes GST)
Oticon Xceed	\$3,780 to \$7,020
Oticon Xceed Play	\$3,780 to \$7,020
Oticon Opn Play	\$3,456 to \$5,724
Oticon CROS	\$1,605



Maintaining eye contact.

Being blunt and direct

Waving, tapping the shoulder, stamping on the floor, banging on the table, and turning the lights on and off to get someone's attention.

Habits

18 & above

Age

DEAF PEOPLE

lose the ability to hear but can still...

How rare

Nearly 20% of the global population is living with hearing lost

where do they interact??

Deaf clubs provide a safe space for deaf people to socialise, access support and learn new skills.

Extraordinary Horizons (Deaf Singapore)

Community centres

problems

fewer educational and job opportunities due to impaired communication. social withdrawal due to reduced access to services and difficulties communicating with others. emotional problems caused by a drop in self-esteem and confidence.

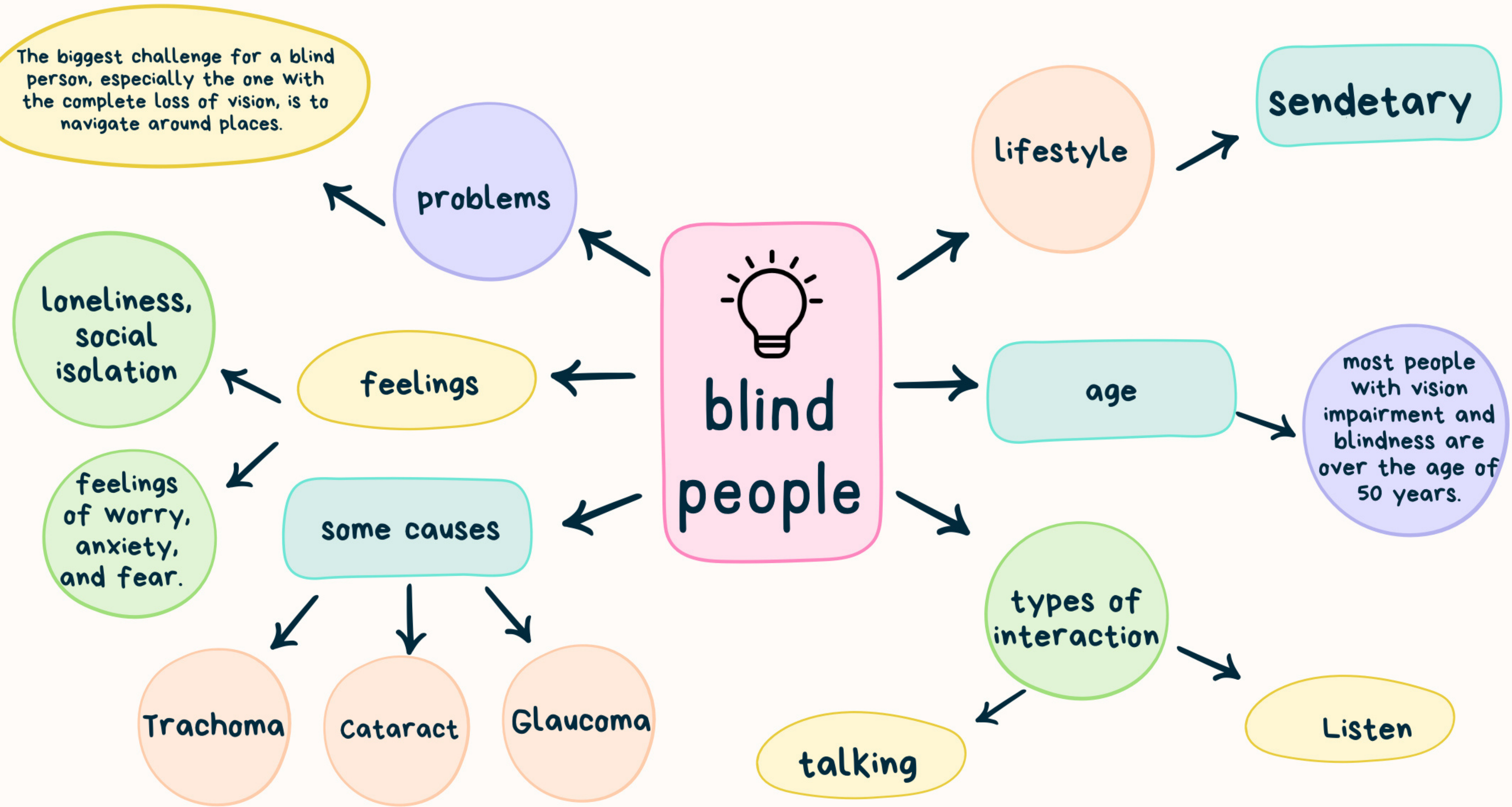
how do they communicate

American Sign Language (ASL)

Cued Speech (lip reading)

vibrations (music)

How much do they pay for their ear aid??





Deaf Adults

↳ Independent,
Less help

• Parents
are less
abled to
take care
of them

! Physical
Wellness

! Physical
Safety

↳ X hearing
- depend
on other
senses

! no time
to react
kind of
situation

↳ • might not
hear oncoming
traffic

↳ Sight

- lights
- motion

- bicycles, PMDs

↳ at
Park connectors?
Pavement?

↳ touch

- vibrations



Who is our persona?

End user:

Deaf and Blind people aging from 18>

Goals

ORIENTATION AND MOBILITY; READING, SUCH AS THE USE OF BRAILLE (RAISED DOTS FOR READING); AND INDEPENDENT LIVING.

Personality

MANY OF THE TRAITS THAT HAVE BEEN USED TO CHARACTERIZE DEAF PERSONS MIGHT ALSO BE USED TO DESCRIBE A PERSON WHO IS THOUGHT TO BE "IMMATURE." THREE TRAITS THAT HAVE BEEN USED CONSECUTIVELY ARE "IMPUISIVITY," "EGOCENTRICITY," AND "RIGIDITY."

Background

DEAF CULTURE CAN VARY DEPENDING ON THE COMMUNITY'S COUNTRY OF ORIGIN OR INTERSECTION WITH OTHER CULTURES. HOWEVER, SOME ASPECTS TEND TO STAY THE SAME EVERYWHERE. THESE CAN BECOME GREAT EXAMPLES OF DEAF CULTURE, SUCH AS COLLECTIVISM, USE OF SIGN LANGUAGE AND A DIRECT AND BLUNT WAY TO COMMUNICATE.

Frustrations

NOT BEING ABLE TO KEEP UP WITH THE CONVERSATION WITH OTHERS OR HEAR SAFETY SIGNALS

Interest

PARKOUR, TO FEELING MUSIC USING THE SOUND SHIRT, TO CALMER PASTIMES LIKE READING, GARDENING, OR SWIMMING.

Possible acts of sustainable efforts

VOLUNTEER AT SCHOOLS WITH DEAF AND HARD OF HEARING PROGRAMS AND RELATED COMMUNITY EVENTS.

Problems faced by our persona



They are unable to participate in conversations due to stigma, making them feel lonely, unexpressed, and socially marginalized. This results in chronic stress and depression.

The most common challenge faced by the Deaf is the lack of access to information. Information is often conveyed through verbal or auditory methods via direct interaction with people who do not use sign language or audio systems.

what is the new
problem to be
solved?

how might we...

reduce the chances of bicycles
hitting the handicapped at
parks/help the handicapped realise
if there's a bicyclist at park
connectors

What are our Objectives?

01

People who are handicapped
(blind, deaf) can enjoy the park without
worry

02

deaf and blind people
can be safe

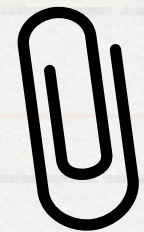
03

Encourage them to be more social in the
public without having to face issues

Hypothesis



The Deaf and blind would feel safe when on
the PCN



Methodology

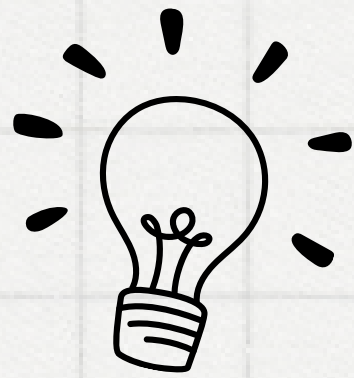
01

Understand their problems

02

Invent something that can help them

Our ideas!!



(Dual sensory loss)

Create a sensor to trigger noise and lights

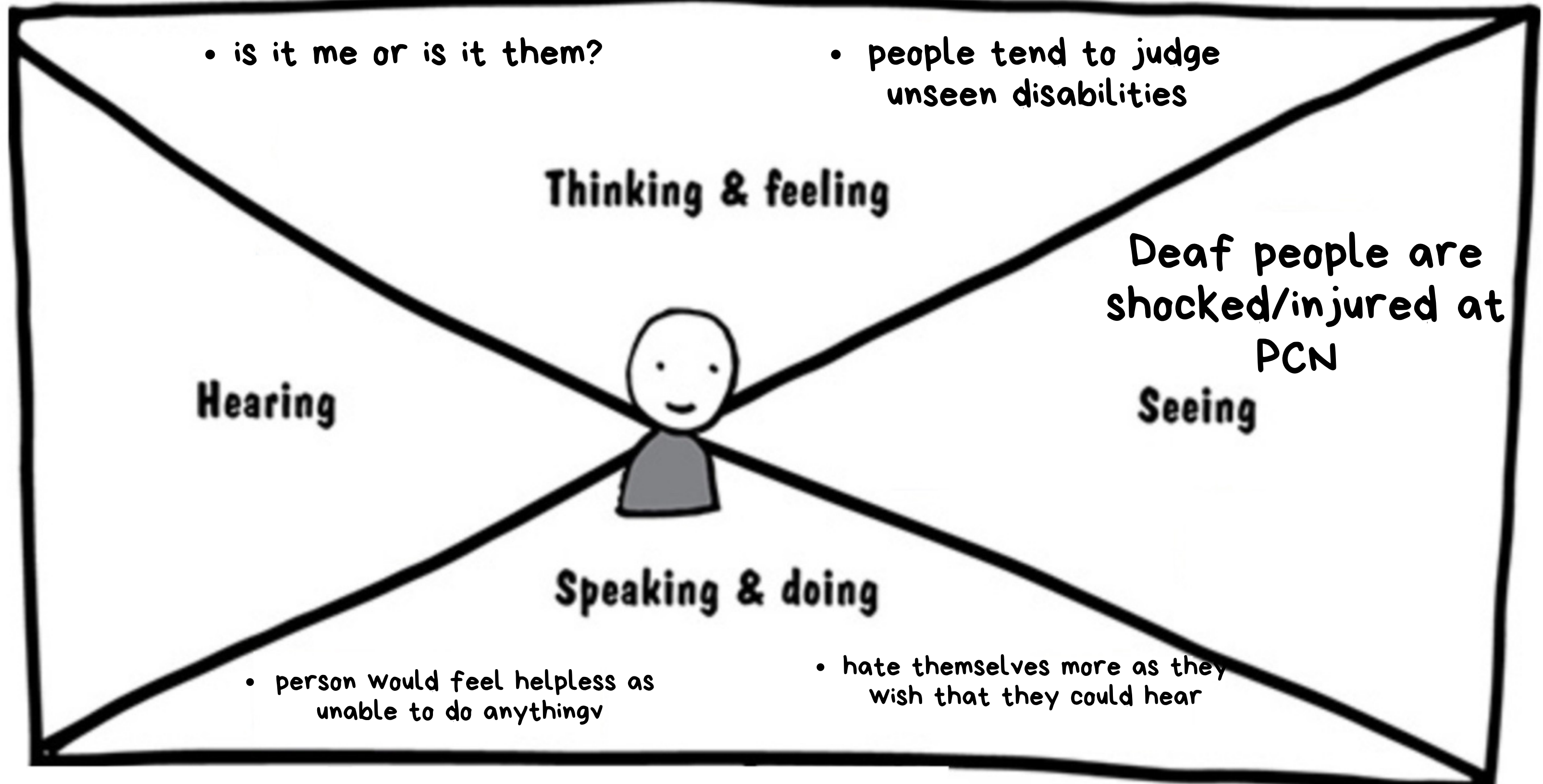
Invent/create a ring for deaf/blind people to notify them of danger

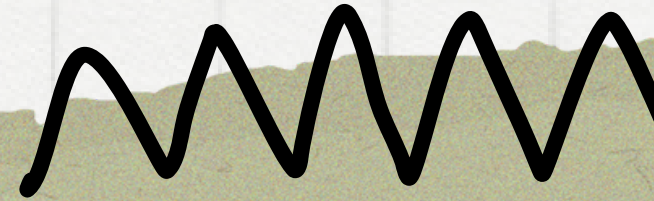


Empathize

3) Empathy Map

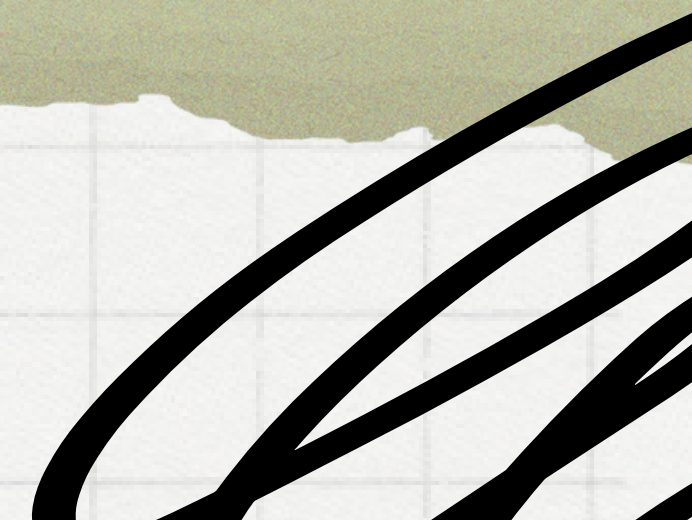
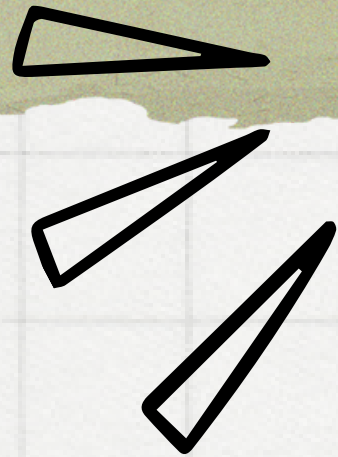
Empathy map





Prototype

(idea & sketch)

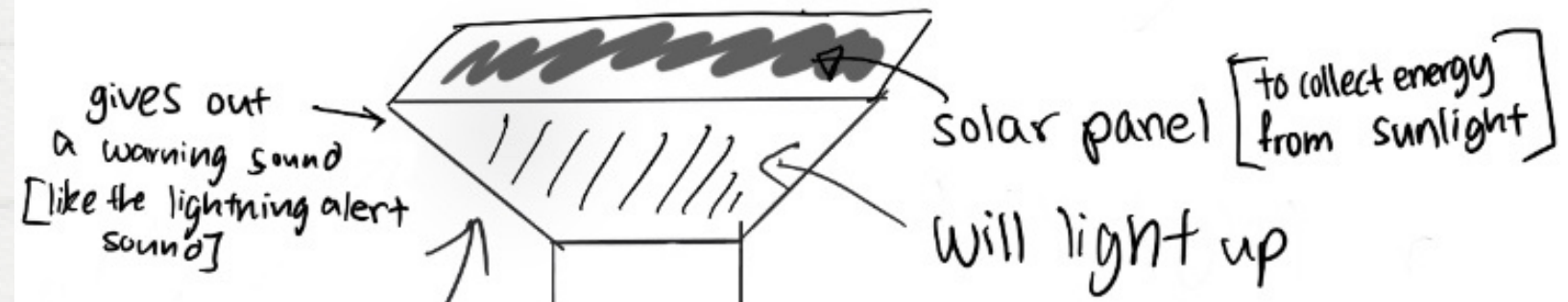


1st idea: Product that comes in 2 parts

Brand name → NCSK²
[2 lights]

Red light [7am - 6pm] [Light stand uses batteries]
Blue light [6pm - 7am] [Light stand uses the energy stored from the solar panel]

① Light stand

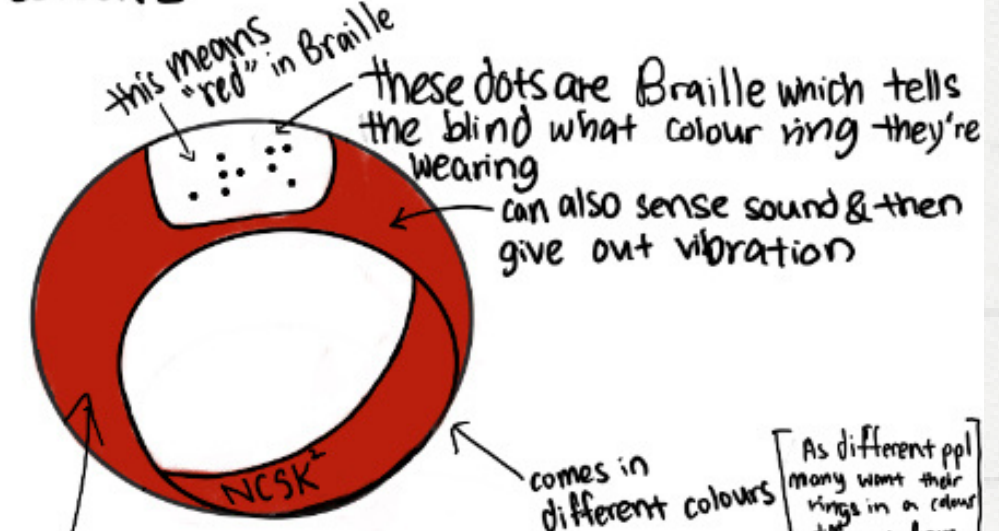


light stand that will light up & start blinking when it senses vibration and sound coming from bicycle

has a capacitor [to store energy collected from sunlight]
inside got a system that will send a signal to the ring (2) so that blind people who cannot see the light will still know a bicycle coming.

② Vibrating ring

- comes in different colours



the ring gives out vibration after receiving the signal from the light lamp

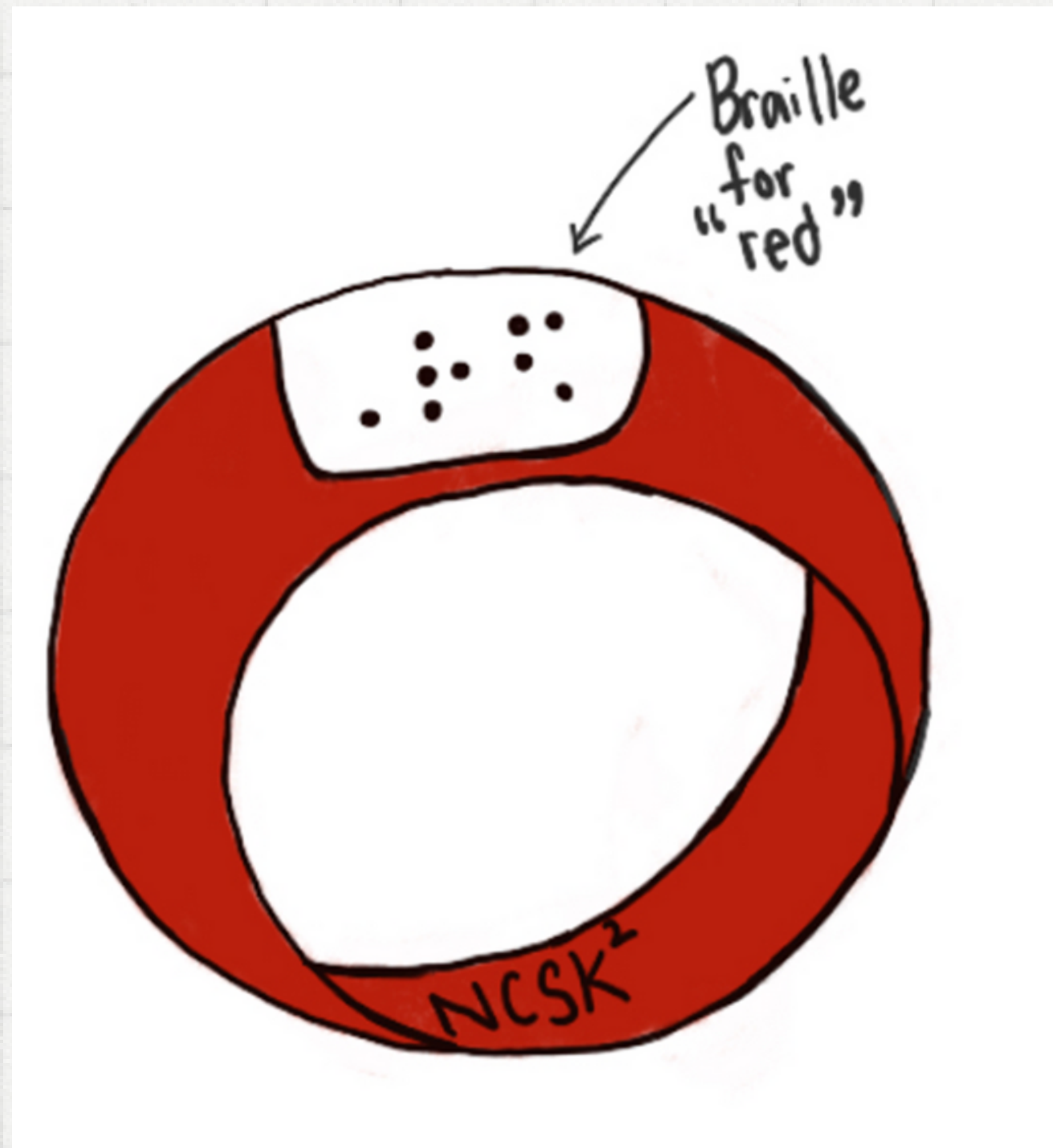
THE COLOUR OF THE LAMP

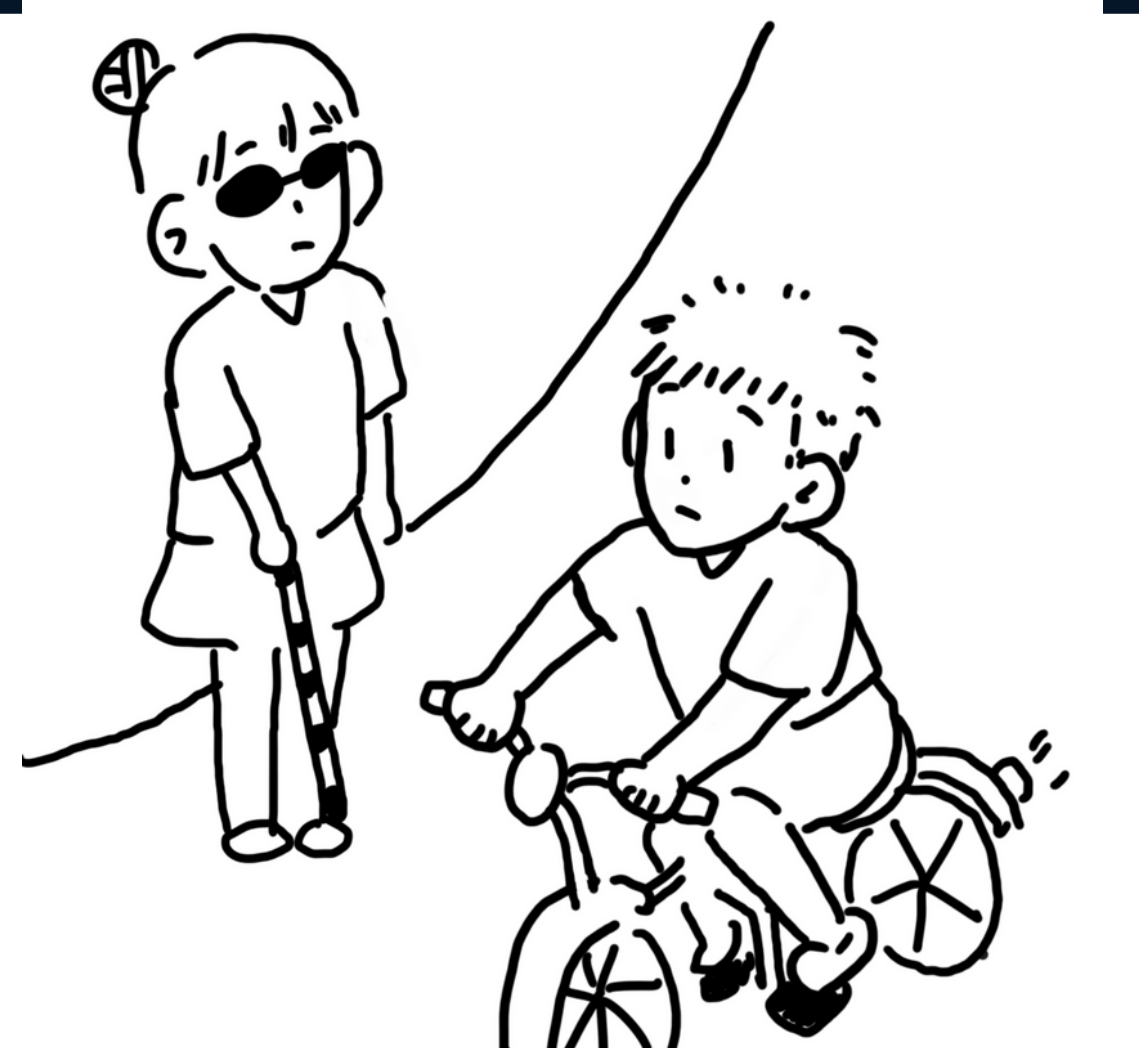
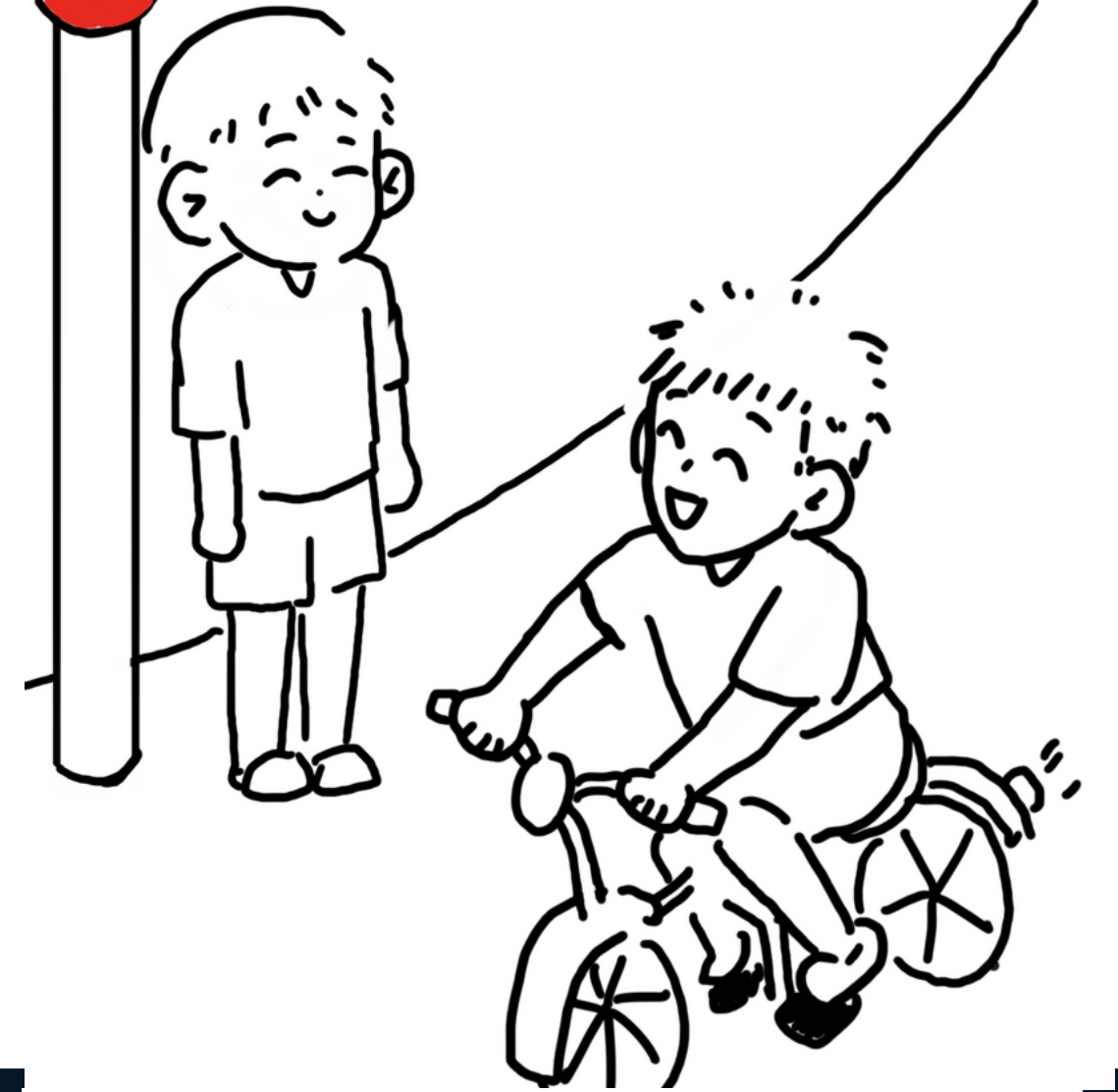
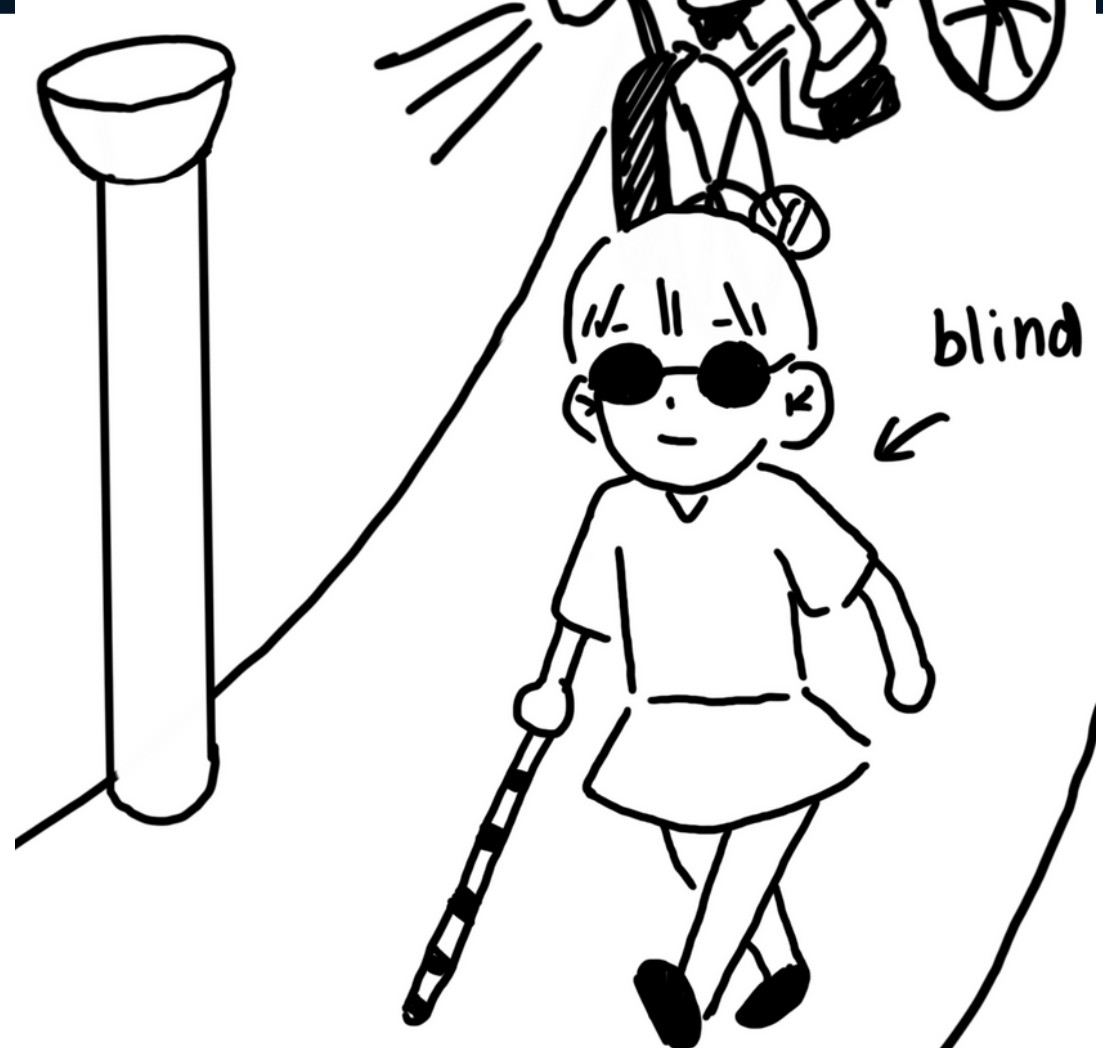
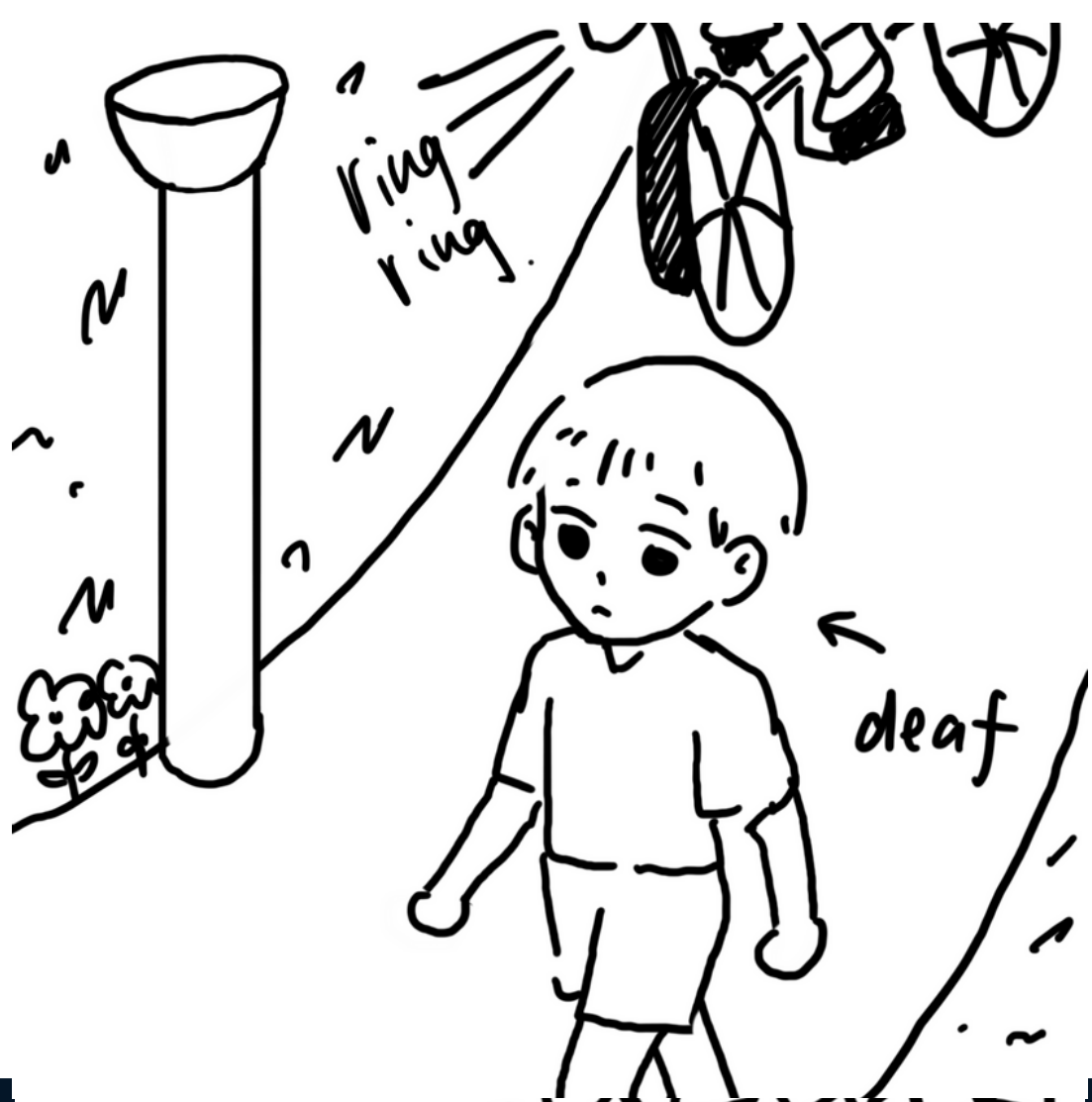


**Morning-Evening
(7am-6pm) operate
by electric board
through the cables**

**Evening-Morning
(6pm-7am).
Operated by
solar energy**

THE Ring





LIGHT STAND

Features:

Solar panel (to absorb sunlight)

Capacitor (to store the energy collected from the sunlight)

Vibration and sound sensors

has a system inside the pole which will send a signal to the ring when it light gives out sound

Colours for the light:

Red (from 7am to 6pm, light stand uses electrical cable to light up)

Neon Blue (from 6pm to 7am, light stand uses the energy stored from the solar panel (back up energy, will continue to use the electrical cable—on days when there is no sun))

How it works:

When a cyclist is nearing the light stand, the light stand will pick up the vibration and sound caused from it, light up and start blinking. It will also make a lighting alert type of sound. Then, send a signal to the ring so that the blind people who are wearing it will be alerted that a bicycle is nearing as the ring will start to vibrate.

How it works:

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Vibrating ring

Features:

come in different colours (as people may prefer to wear a different colour from others)

has Braille embedded on top of the rings (so that the blind people can identify the colour ring they're wearing)

Vibration sensor

Gives out vibration

How it works:

When the ring receives the signal from the light stand, it will vibrate to alert the user that a bicycle is approaching.

If they are not in the PCN and are somewhere else, the ring has its own sensor to sense large amount of vibration and start to vibrate to alert the user.



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MOT

PCN

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sound
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NCSK²