

# THINK PINK

DEPENDENCY TO INDEPENDANCY...

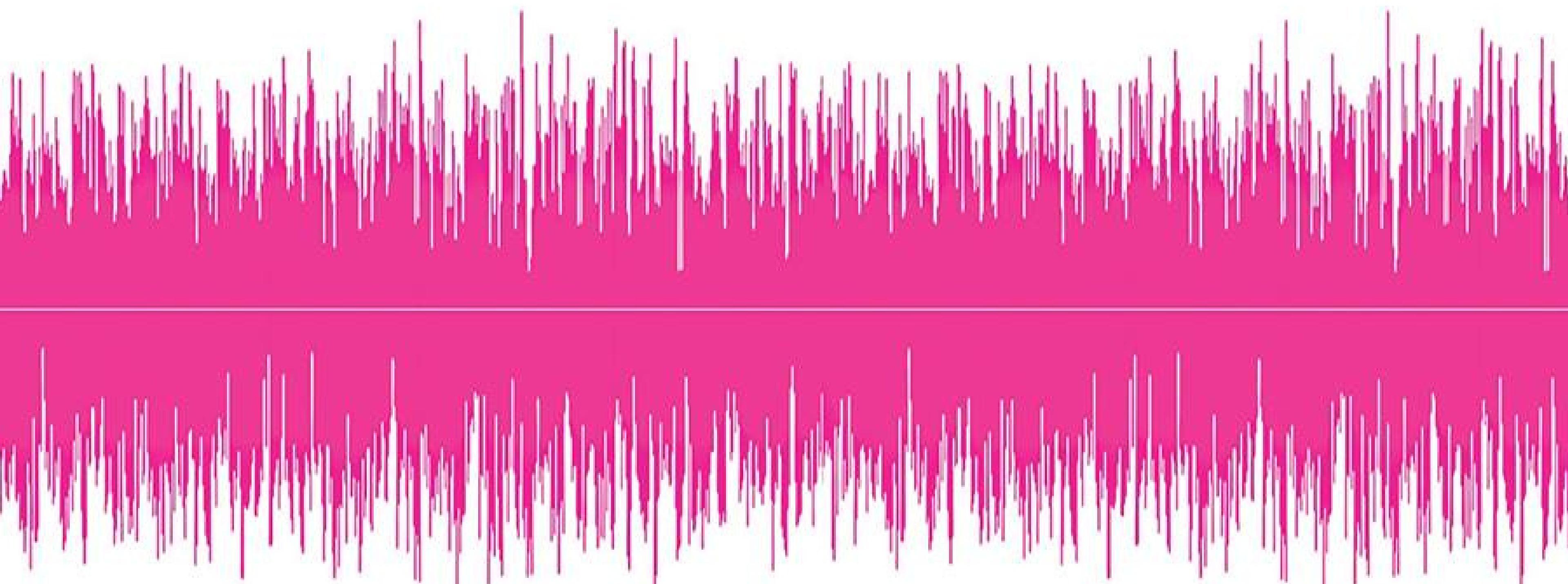
# *PRES*ENTATION OUTLINE

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# PROJECT OVERVIEW

THINK PINK  
(DEPENDENCY TO INDEPENDENCY)

NOISE ASSISTED AND SENSOR BOOSTED TECHNOLOGY  
FOR COGNITIVE IMPAIRMENT



# MOTIVATION

MOVIES BEING A PART OF LIFE AND OURSELVES BEING MOVIE LOVERS ARE ALWAYS INFLUENCED BY THE ACTIONS AND DEEDS IN THEM. MOVIES AREN'T JUST DRAMATIC. THEY DEPICT OUR LIVES. BEING BIOTECHNOLOGIST NEVER JUST BING WATCHED THEM. WE WATCH THEM EMOTIONALLY AND WORK ON THEM TECHNICALLY. ONE SUCH MOVIE WHICH RECENTLY INFLUENCED US DEPICTING THE PURE LOVE AND UNENDING CARE EVEN FOR AN ALZHEIMER'S AFFECTED PARTNER. THE STRUGGLE FACED BY THE PERSON AFFECTED AND THE EVENTUAL STRUGGLE OF CARETAKERS, FAMILY AND LOVED ONES. THE DEPENDENCY OF THE IMPAIRED PEOPLE MOVED US A LOT WHICH MADE US THINK OF AN ASSISTIVE TECHNOLOGY WHICH COULD ASSIST THEM AND FIND THE ULTIMATE SOLUTION!

"::::::::::::::::::: "DEPENDENCY TO INDEPENDENCY" ::::::::::::::::::::"

# PROBLEM STATEMENT:



There exists lot of difficulties and complications for a cognitive impaired people which include trouble remembering, learning new things, concentrating, or making decisions that affect their everyday life.

But the major worse impacts that we  
shed our lights are:

- Reduced rememberance
- Lack of focus
- Disability to perform tasks
- Lack of self care
- Dependency on care takers

Assisting them in these aspects will  
eventually lead to their wholesome  
betterment!

# PROBLEM STATEMENT

## AIM

To eventually find a hub of solutions that assist the  
cognitive impaired people

Ranging from a mild cognitive impairment(MCI) to  
severe ones like Alzheimer's

## EXISTING SOLUTION

- No drugs or medications are currently approved to treat mild cognitive impairment.
  - There exists some therapies that ease their complications which are only chances of probability.
  - As far as diagnostic uncertainty and the heterogeneous underlying pathophysiological mechanisms are concerned, only limited therapeutic options are currently available.
  - Some existing solutions include Disease-modifying pharmacotherapies like,
    - Cholinesterase inhibitors
    - Iodine therapy
    - Acupuncture therapy
- But most of the therapies are found to have some side effects

# OVERVIEW

To come up with a assisted technology (say a device) that helps in increasing and aiding the remembering capability and prevent / reduce the further complications in cognitively impaired people

For mild conditions like MCI, This can be an assisting technology that prevent or delay progression to dementia and Assist them.

For severe conditioned people( say Alzheimer's) functions as a complete assistive device.

# PROPOSED SOLUTION

# THE TRIPLE ACTION!

**#MEMORY**

**#FOCUS**

**#INDEPENDENCE**

# MEMORY

- People with cognitive impairment have trouble achieving what's called slow-wave activity during sleep, and that's a problem because that's when the brain consolidates memories.
- Studies proved that the intermittent sound stimulation which stimulated slow wave activity were the pulses similar to the pink noise.
- when they were listening to pink noise, they had longer periods of slow-wave activity.
- This increases the memory and prevents them from worsening further and assists them in coping up with the existing remembrance issues.

# **FOCUS**

- White noise can provide a soothing and relaxing background noise, which can maximize your overall focus.
- This white noise can help relax your brain while still allowing you to hone your focus on the task in front of you.
- Thus the decline in focus for the cognitive impaired people will be decreased

# **THEIR INDEPENDENCE**

Most of the severe cognitive impaired people depend on caretakers.

They lose their way, forget their needs and end up with a mess

Our innovation assists them by adding a sensor where

- For the people with mild cognitive conditions our device provides an alarm/intimation to do and remember things thereby assisting them in their routine
- the caretaker can eventually have a track of them and can assist them only when needed. This could in turn make the person independent and make them get help and assistance only when they need or only when they are in trouble.
- Thus this might be used by any range of people , from mci to worse conditioned people.

# Working mechanism

In cognitively impaired people , abnormal TAU Proteins accumulates and form tangles inside neurons and beta ameloid proteins clumps which slowly build up to form plaques between neurons . This ultimately reduces neural conduction and memory . these plaques are usually removed during the slow wave activity of the brain .

# EVIDENCE

People with MCI have trouble achieving what's called slow-wave activity and that's a problem because that's when the brain consolidates memories.

In the study, while people received intermittent sound stimulation which was basically pulses of pink noise. These people had longer periods of slow-wave activity. they also scored well on memory tests .



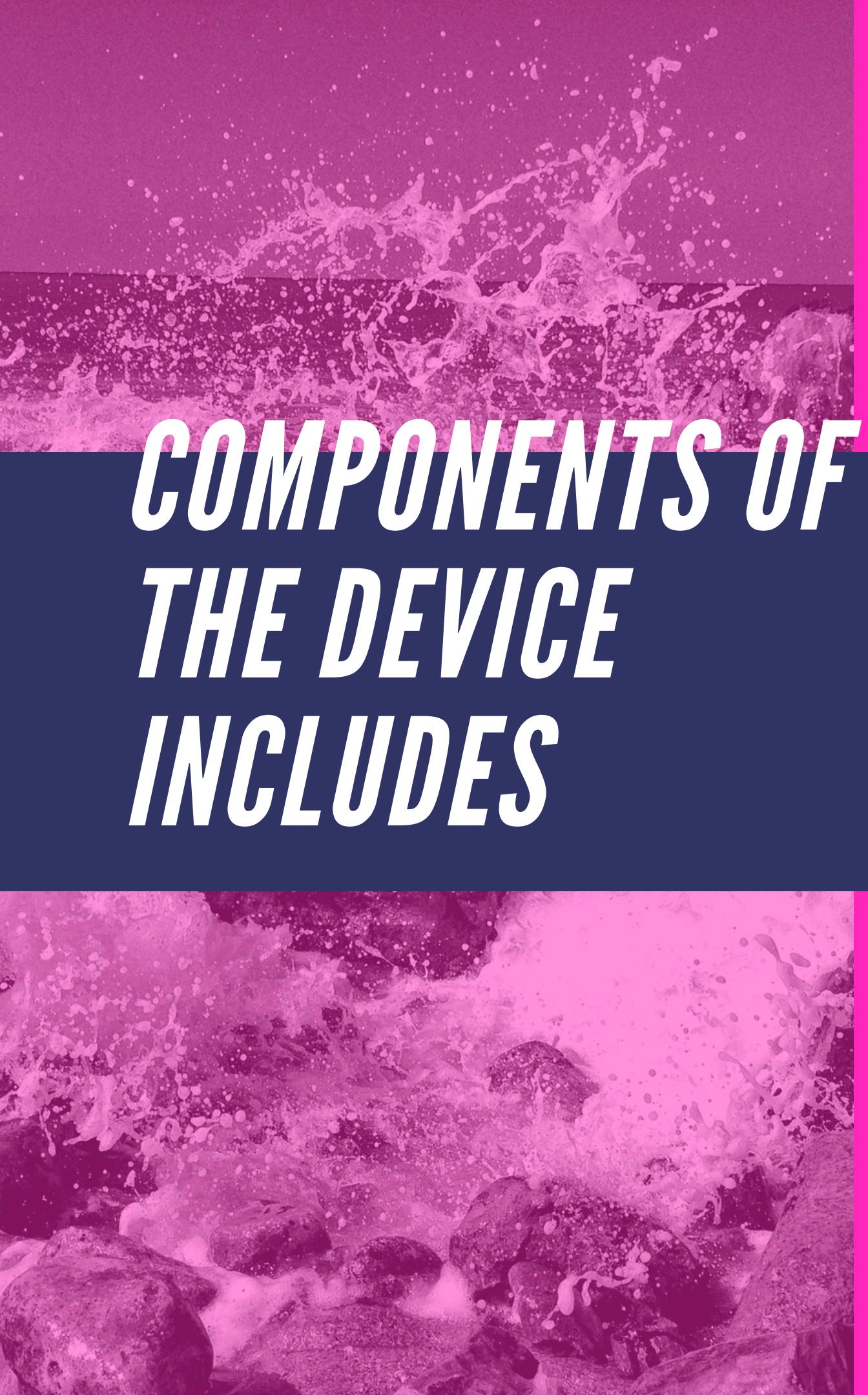
# **THE DEVICE AND IT'S WORKING**

## **THE HUB**

So all these three major factors gets hubbed and they assist and aid the cognitive people to the maximum extent!!!!

## **THE DEVICE**

A circular insulating strap which has all the working components embedded in it



# **COMPONENTS OF THE DEVICE INCLUDES**

The components include

- ☆☆A sound producing device ( can be adjusted to a speaker or even connected to a Bluetooth headphones )
- ☆☆Bluetooth integrant which supports the sound system
- ☆☆A location tracking unit which detects the location of the person and continuously notifies the caretaker to keep a track of the person
- ☆☆The cognitive impaired people will receive voice based notifications and alarms to get reminded of their activities. The input for this routine will be from the caretaker's end. So the caretaker can customise the notifying software

## **MODE 1( MCI )**

- **IT CAN BE MANUALLY OPERATED**
- **IT PLAYS PINK NOISE AND WHITE NOISE WHENEVER THEY WISH TO LISTEN .**
- **THE DEVICE PROVIDES A ALARM/INTIMATION TO DO AND REMEMBER THINGS THERE BY ASSISTING THEM IN THEIR ROUTINE**
- **THE INPUT OF THE ROUTIEN CAN BE CUSTOMISED BY THE CARETAKER .**

## **MODE 2 ( DEMENTIA)**

- **THIS MODE IS PARTIALLY AUTONOMOUS**
- **(I.E) IT PLAYS PINK AND WHITE NOISE IN INTERVALS BASED ON THE CONDITION OF THE PATIENT. THE CONDITION OF PATIENT SHOULD BE UPDATED IN THE DEVICE, WHICH IS BASICALLY THE SEVERITY OF THE PATIENT**

## MODE 3 ( ALZHEIMER'S CONDITION)

- THIS MODE IS FULLY AUTONOMOUS .
- SPECIALLY FOR ALZEIMERS CONDITION .
- THE DEVICE AUTONOMOSLY PLAY PINK AND WHITE NOISE IN REGULAR INTERVALS .
- THIS MODE IS ALSO EMBEDDED WITH ADDTIONAL LOCATION TRACKER SYSTEM THAT CAN BE MONITERED ALL TIME BY THEIR CARE TAKER

# *NOVELTY*

As we have seen, no one has created a hub of solutions for all the existing problems of cognitive impaired people.

This hub works wonders since it could improve focus, memory and could make them independent

It is the first noise assisted therapy for the cognitive patients and so could be a best assistive technology

This device can be effective and efficient for mild to moderate and moderate to severe people since it has automation as well as manual working.

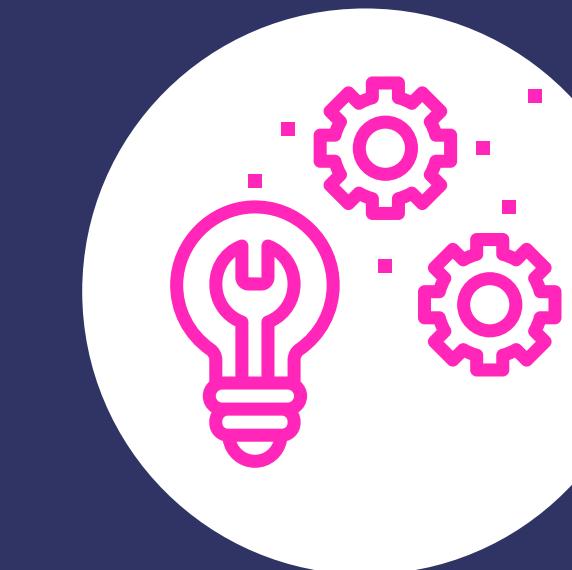
# BUDGET

- ☆☆ Insulating circlet with adjustors and battery - ₹ 800
- ☆☆ Sound producing device - ₹1000
- ☆☆ Bluetooth integrant - ₹ 500
- ☆☆ Location tracking unit - ₹1000
- ☆☆ Inbuilt softwares- ₹ 700
- total - ₹4000

# FEASIBILITY STUDY



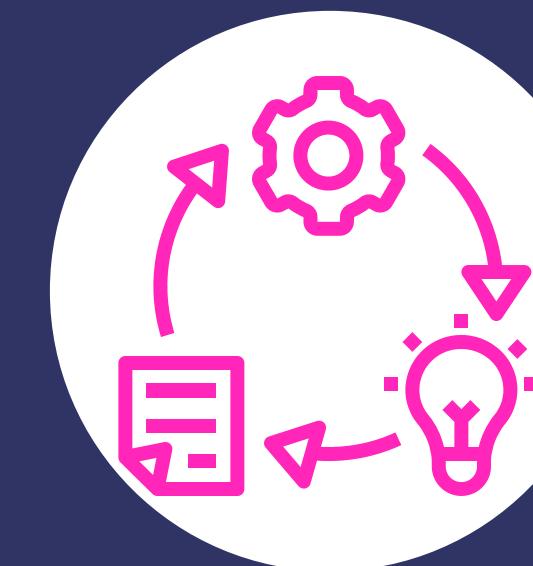
Economical  
feasibility



Technical  
feasibility



Access and usage



Operational  
feasibility



Demand and  
supply

*Thus our assistive technology helps the cognitive impaired with*

- *Highest efficiency*
- *No disadvantages*
- *Handy and portable*
- *Affordable and cost effective*
- *Easy to operate*
- *Maximal features that help their overall independent life*

# ADVANTAGES

*Stats say that around 80% of severe cognitive impaired people need a care taker and they find it difficult to assist and get assisted.*

*Thus this innovation of ours completely, effectively and efficiently aids the cognitively impaired people in every of the factors affecting. Thus the ultimate goal of ours is achieved.*

*"Dependency to independency"*

# OUTCOME

