

TECHNOLOGICAL
INTEGRATIONS

DESIGN BRIEF

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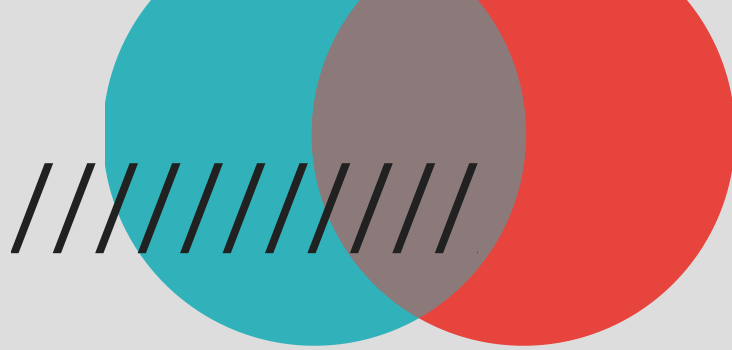
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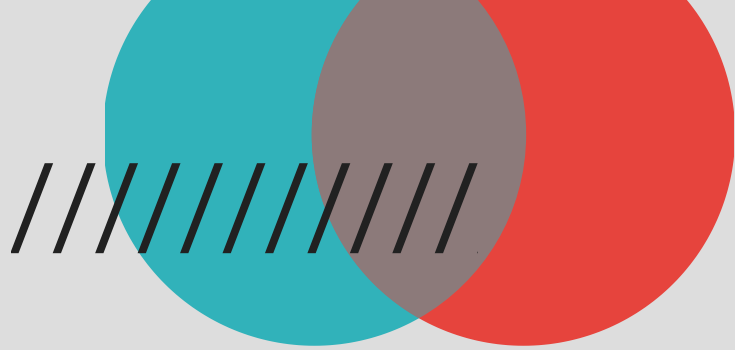
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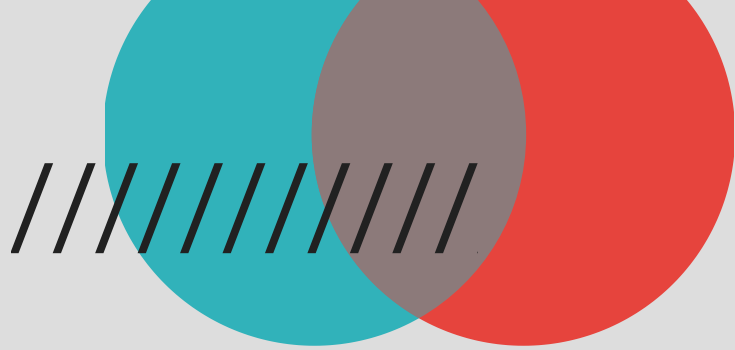
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PROJECT OVERVIEW



GENERAL OBJECTIVE

A Robot that will help you reduce your negative emotions and accompany in every situation.

SPECIFIC OBJECTIVES

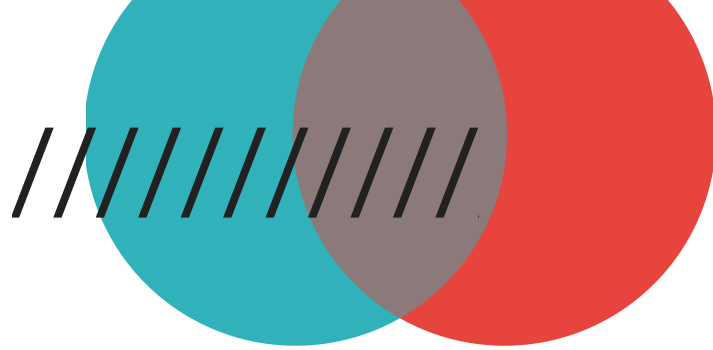
1. A companion for mental health that decreases depression and feelings of loneliness.
2. Help in times of stress and anxiety by transmitting peace.
3. A robot that will be your friend and wil share meaningful moments.

PROJECT SCOPE

- It will be a companion robot, it will not be a personal assistant.
- It will serve as a mental health content robot, but it will not provide specialized psychological help.
- It will be ther for you and make you feel accompanied, but it will not
- communicate verbally with you.



PROJECT OVERVIEW



EXPECTED RESULTS

A robot that will be your friend and company in your most important moments, also it will communicate with you through lights and sounds when you are close to him/her.

- The prototype of a Robot.
- Communication by lights.
- Communication by sounds.
- A companion for a daily life.
- A Robotic Friend.

NEED AND CRITICAL ASPECTS

- There are many persons that fight every day dealing with their inner emotions.
- Lot's of persons are victims of depression or anxiety.
- There are many kids that can't express themselves or have trouble around their media.
- There are many adults that can't enjoy a free - break because of their thoughts. (Anxiety and Stress).

STAKEHOLDERS INTERESTS

Team-members

- **Alessandra:** Create a robot that manages to create a feeling of well-being in difficult times, creating a connection between the robot and the person.
- **Aarón:** Develop a functional robot with identity.
- **Elena:** Develop a functional prototype of a robot that has the potential to mitigate mental health issues.

Professors: The creation of an alpha prototype (low fidelity)/simulation that integrates technological elements considering the results of our investigation and ideas, and to materialize these ideas for their communication and subsequent validation.

Potential Users

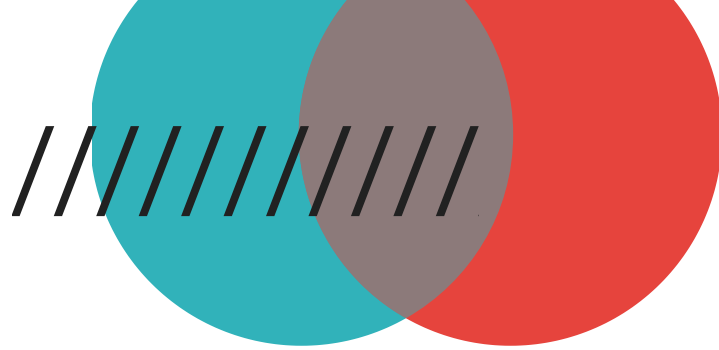
Children and young adults between 11 and 30 years old: To have a technological friend or a companion to interact with for sharing meaningful moments and making them feel emotionally better.

Others

Relatives: Being able to give your child or other member of the family a friend and support when he or she needs it.

Mental health and wellbeing companies: Have a tool to help them in treating mental health for young people that doesn't require a more specific or complicated treatment.

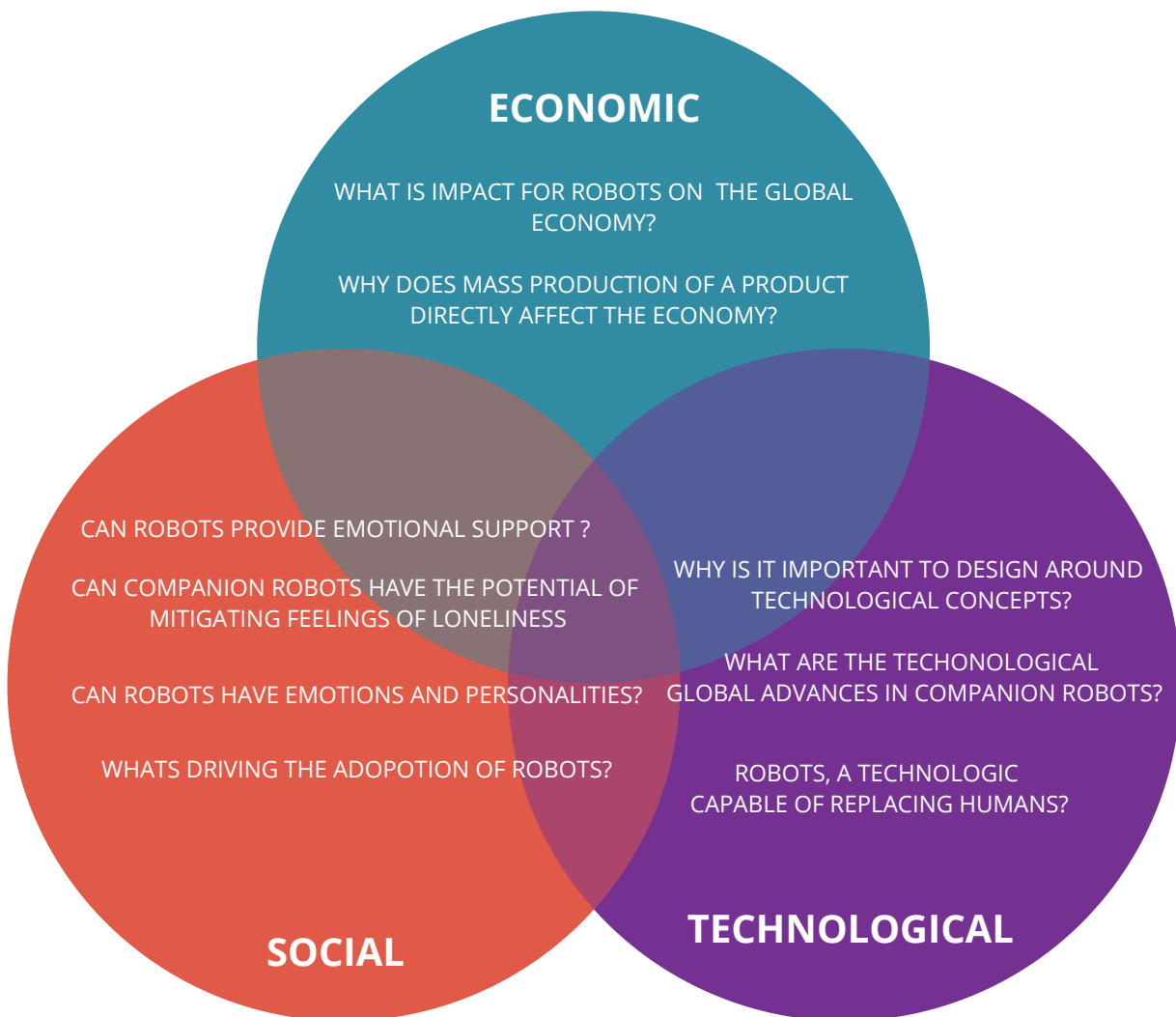
PROBLEM OR OPPORTUNITY



GENERAL DESCRIPTION

Mental health problems increase the likelihood of illnesses and situations that put the person at risk. Currently, depression and anxiety in young people have reached the top positions in mental health problems according to the WHO. Mental health is all about the perception of your life and your way of thinking. The person should be able to manage stress and make decisions. Mental health is no less important than physical health at any age.

RELEVANT INFORMATION



PROBLEM OR OPPORTUNITY

SET: SOCIAL



CAN ROBOTS PROVIDE EMOTIONAL SUPPORT ?

Currently there are robots capable of imitating human emotions, which have touch sensors, two cameras and four microphones capable of recognizing faces, responding to users and making eye contact, which has been very successful in emotional support robots for astronauts. The first test prototype has already been developed by Akin (the Australian technology firm that works with NASA) and demonstrates the ability of artificial intelligence to interact with humans and recognize emotions. Like many other AI systems, this robot uses deep learning to recognize patterns in human speech and facial expressions and relate them to emotions. Afterwards, they are programmed to respond empathically.

CAN COMPANION ROBOTS HAVE THE POTENTIAL OF MITIGATING FEELINGS OF LONELINESS



A study based on netnographic data collected by active users of the companion robot named Vector, shows that companion robots are capable of establish supportive relationships
Three potential roles of companion robots to mitigate different types of loneliness:

1. Personal assistant
2. Relational peer
3. Intimate buddy

Personal assistant: users interact with the robot to deal with their decreased social interactions and mainly perceive functional support like information, instructions. The HRI can be characterized as social utility, which helps reduce social loneliness. Users seem to look for social utility by companion robots in times of social isolation.

Relational peer: users interact with it to compensate for their lack of relationships and mainly perform hedonic activities, like having fun, joking, playing games, etc. They express enthusiasm resulting from a perception of social connectivity; such social connectivity support mitigates both social and emotional forms of loneliness. Users seek HRI to restore meaningful connectivity reduced due to infrequent interactions with their personal network.

Intimate buddy: users personify their robots, granting it a social identity and experiencing deep attachment, which mitigates the lack of intimacy. Humans are implicated in an intimate relationship that involves caring, feelings and more personal ties. In this role, the robot's social identity support reduces emotional loneliness

PROBLEM OR OPPORTUNITY



SET: SOCIAL

CAN ROBOTS HAVE EMOTIONS AND PERSONALITIES?

They are not sensitive to pain, nor slaves to hormones, this prevents robots from having real feelings. However, thanks to machine learning, artificial intelligence can simulate emotions.

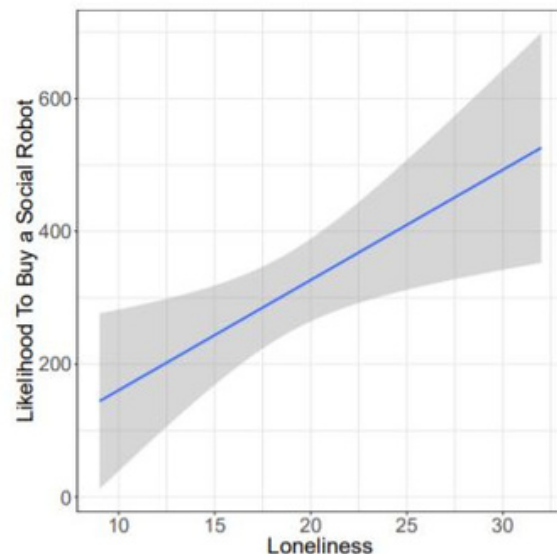
WHATS DRIVING THE ADOPTION OF ROBOTS?

The most preferred tasks for a companion robot

- Getting involved in games
- Helping in exercises or activities
- Getting involved in a chitchat
- Playing music
- Reminding people about tasks and events

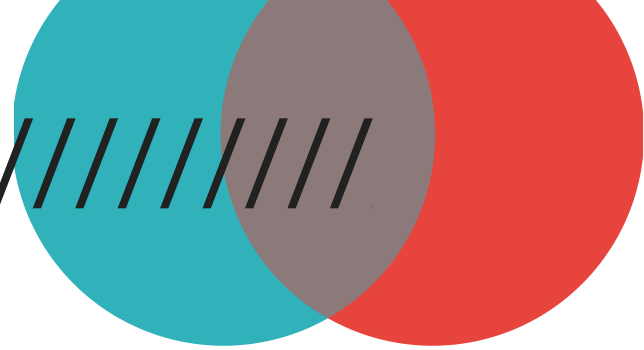
Preferred capabilities of the robots

- Facial and voice recognition
- Recognition of human emotions
- The ability to show emotions
- Having a specific behavior or personality



Reported likelihood to purchase a social robot based on the measured level of loneliness.

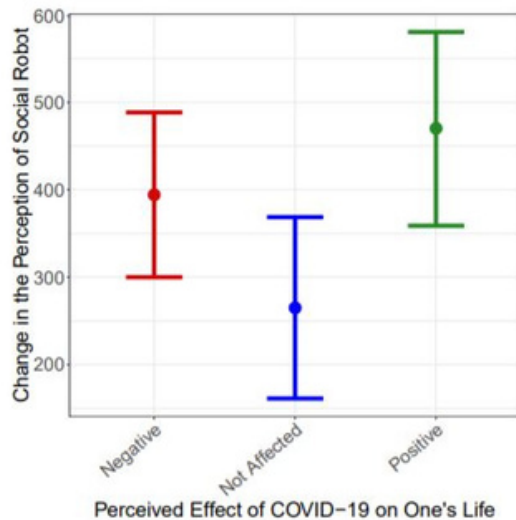
PROBLEM OR OPPORTUNITY



SET: ECONOMICAL

WHAT IS IMPACT FOR ROBOTS ON THE GLOBAL ECONOMY?

A 2018 PwC report predicted that it will contribute \$15.7 trillion to the global economy by 2030, of which 42% correspond to productivity increases and the remaining percentage to side effects of consumption



HOW THE PERCEPTION OF COMPANION ROBOTS HAS CHANGED DUE TO COVID-19?

Change in the perception of social robots as a result of the reported change in people's lives due to COVID-19. 95% confidence intervals are visualized. Both a positive and a negative change significantly increased the change in perception of companion robots.

WHY DOES MASS PRODUCTIONS OF A PRODUCT DIRECTLY AFFECTS THE ECONOMY?

Mass production as an economic process incurs fewer labour costs, materials costs, efficiently utilises resources, while at the same time decreasing total expenditure per product unit.

PROBLEM OR OPPORTUNITY



SET: TECHNOLOGICAL

WHY IS IT IMPORTANT TO DESIGN AROUND
TECHNOLOGICAL CONCEPTS?

Design and technology gives the skills and abilities to engage positively with the designed and made world and to harness the benefits of technology, furthermore, we are living in an age where everything around us is technological, as humans, we are making technology a tool that can help us in our daily life activities. For example: the internet of things.

WHAT ARE THE TECHNOLOGICAL
GLOBAL ADVANCES IN COMPANION ROBOTS?

- Recognize principal human emotions.
- Respond appropriately to moods as well as questions.
- Able to see, hear and speak.
- Respond to human touch and detects
- Motion or light.
- Perform different commands: play music, search showtimes, check traffic, weather or news reports.
- Express various emotions throughout the day.

ROBOTS, A TECHNOLOGIC
CAPABLE OF REPLACING HUMANS?

One of its limitations is precisely that robots do not understand the psychological meaning of emotions, they simply infer them from the behavior of the person and their facial expressions.

They cannot replace the work of a psychologist

PROBLEM OR OPPORTUNITY



INSIGHTS

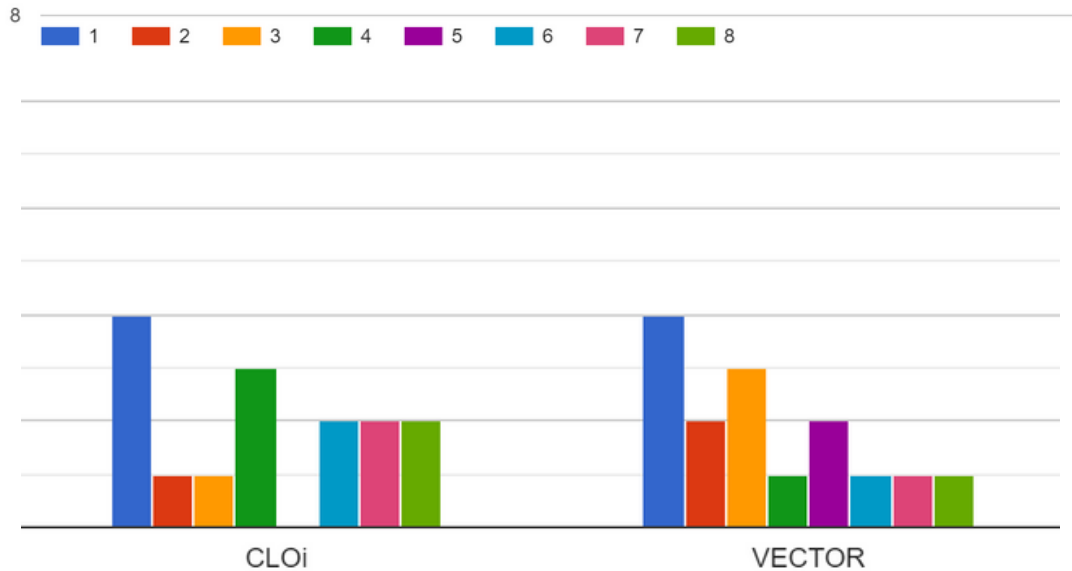
We use two tools to get the insights, a survey and card sorting. Thanks to this we collected the following insights.

1. The user preferred robots that had a friendlier and more tender appearance.
2. The user chooses the robot according to the one that transmits the most kindness and trust.
3. The user does not like that the robot has either very realistic shape or too simple that it seems without having utility, in the same way he does not like those who have very big eyes because it gives them the feeling that it really observes them at all times, something that does not give them confidence if
4. it's going to be their companion.
5. The user would prefer it to have a small size so that they can take it everywhere without problem.
6. Students are the ones who are more likely to present stress, depression, sadness, loneliness and anxiety.
7. Stress and anxiety are the emotions that predominate in students due to school load and pressure.
8. Negative emotions usually occur 1 to 4 days a week.
9. Most users tend to look for some distraction to eliminate negative emotions.

PROBLEM OR OPPORTUNITY

ANSWERS

Acomoda del 1 al 8 siendo 1 tu favorito y 8 el menos favorito. IMPORTANTE: No puedes poner a dos robots en el mismo número



¿Cuál fue tu favorito? y explica el por qué

15 respuestas

porque es pequeño y simple

Se ve adorable y amigable

Se me hizo muy tierno

porque se ve tierno y agradable

porque me gusta el diseño de la pantalla circular.

porque se ve muy adorable

porque se ve amigable

porque es el menos miedo da

porque me gusta el diseño de la pantalla circular.

pq se me hizo sp bonito y se q lo puedo llevar a todos lados

PROBLEM OR OPPORTUNITY

ANSWERS



¿Cuál fue tu menos favorito? y " explica el por qué

15 respuestas

Me daría miedo tenerlo en mi cuarto Porque se ve demasiado real

Creo que su diseño no es apto para considerarlo como de acompañamiento

Parece como si nomás me fuera a espiar. También Pingui da un poco de miedo

Astro, el diseño del robot no se me hizo agradable a la vista y se ve con poco equilibrio, fácil de caer

ZCool porque parece que no tiene ninguna función

Vision porque da mucho miedo

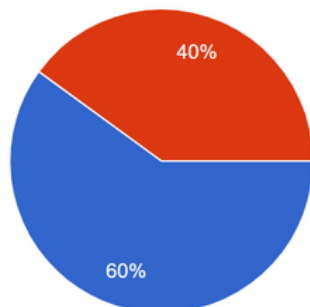
CLOi pq sus ojos me dieron miedo

Visión, porque parece una cámara de vigilancia tal cual

Astro, no me agrada el hecho de que tenga forma de Niño

Si pudieras tener un companion robot que preferirias

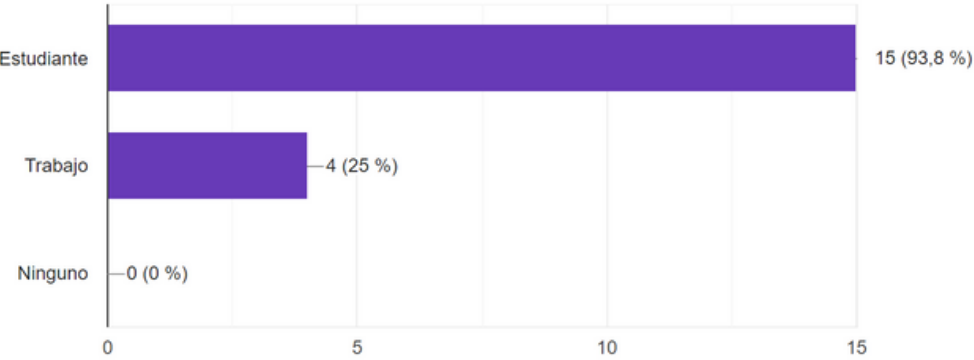
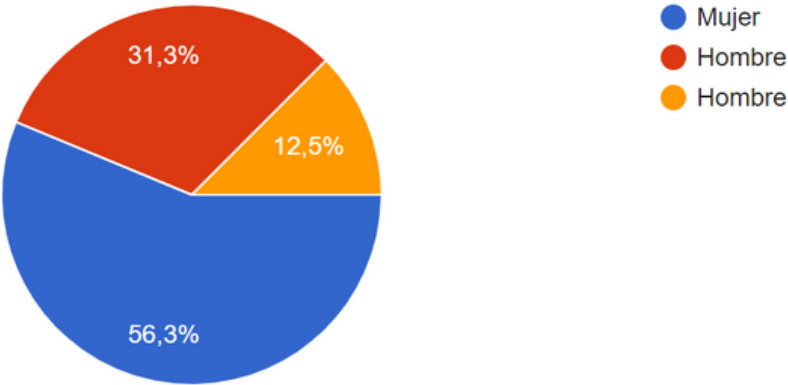
15 respuestas



- Que fuera pequeño del tamaño de mi mano para poder guardarlo y llevarlo a donde sea
- Que fuera pequeño pero de un tamaño visible, como de unos 20 cm

PROBLEM OR OPPORTUNITY

ANSWERS

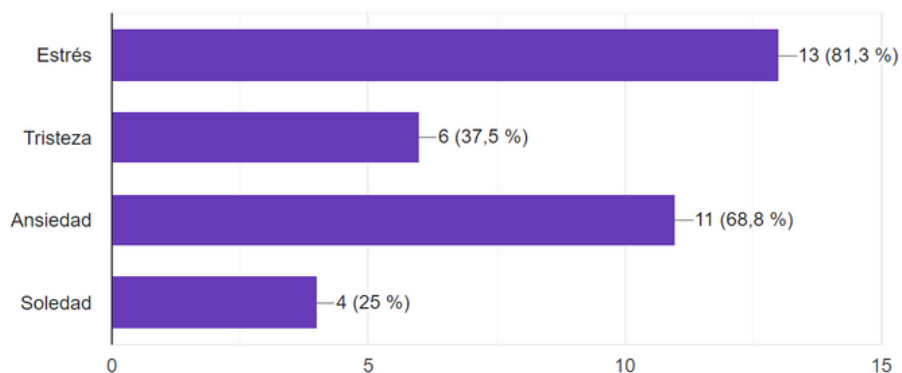


PROBLEM OR OPPORTUNITY

ANSWERS

Selecciona las emociones que sientes más a menudo

16 respuestas



¿Qué te da calma en esos momentos?

Mis pasatiempos

Mi perrita

Escuchar música

Enfocarme en otra cosa, distraerme y no pensar en el problema

Escuchar música, ver películas o ver shows de comedia

El Running

Pasar tiempo con mi familia, amigos, etcétera.

Hacer ejercicio

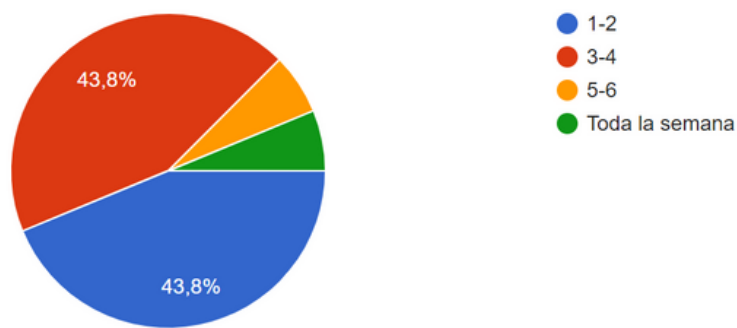
Distraerme en otras cosas o hablar con mis amigos

PROBLEM OR OPPORTUNITY

ANSWERS

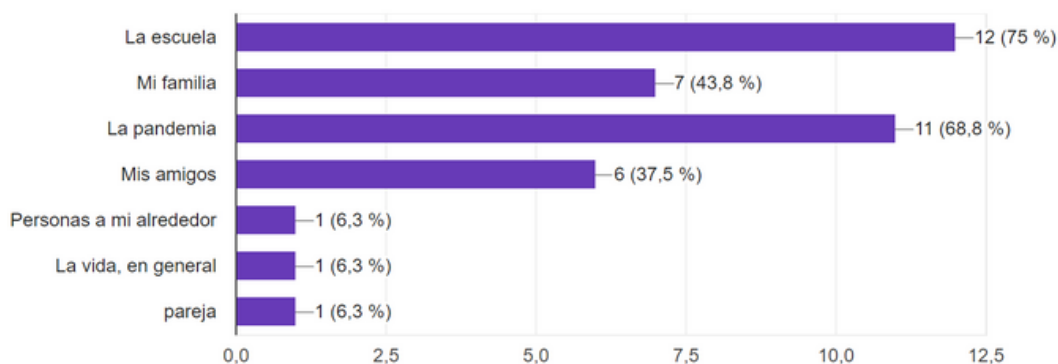
¿Cuántos días a la semana te sientes de esta manera?

16 respuestas



¿Qué te causa estas emociones?

16 respuestas



PROBLEM OR OPPORTUNITY

PERSONA 1



Carla Estrada
12+

OCCUPATION: Student

LOCATION: México

AGE: 12

CREATIVE

CURIOUS

SMART



I want to have a friend to keep me company whenever I need it

Backgrounds

Carla Estrada, a 12-year-old girl of Mexican nationality. She is starting middle school and at the same time going through several changes in her life: adolescence. In her house live her dad, her mom, her little sister and Carla.

Behavior

Sometimes she feels lonely and sad, she comes to feel that no one understands how she feels and that confuses her a lot. At school he has friends but she is also very shy.

Objective

Find a way for Carla to bring out her emotions and thoughts whenever she wants, being certain that she will not be judged or told her secrets.

Motivation

- Have a friend at home.
- Being able to talk to someone/something.
- Having a Confidant

Frustration

Her parents don't let her have pets, her sister is very young and she wouldn't understand her either because their concerns are different.

Activities

- Go to school
- Do her homework
- Go to her swimming practices
- Play
- Listen to music

Personality



miro

PERSONA 2



Javier López
18+

OCCUPATION: Student

LOCATION: México

AGE: 18

ORGANIZED

AMBITIOUS

SMART



I want to have a friend a companion wherever I need it

Backgrounds

Javier Lopez is 18 years old and a college student. He has recently moved to another city to study and that has caused him to have to adapt to many changes: being foreign and a freshman.

Behavior

In his city it used to be very social but now in a new city it has become more shy, he is having a hard time adapting to the pace of work and having to live alone in an apartment. Sometimes he feels very overwhelmed and although he has managed to make friends he comes to feel alone, because he misses his family and friends.

Objective

Find a solution so that Javier does not feel the emptiness of his apartment, and has company that encourages him in his moments of stress and loneliness.

Motivation

- Have a friend accompany him wherever he needs to go
- Being able to talk to someone/something.
- Not feeling alone at home.

Frustration

He doesn't have time to take care of a pet.

Activities

- Go to class
- Do his homework
- Cook and clean
- Watch movies and series.
- Listen to music
-

Personality



miro

PROBLEM OR OPPORTUNITY

PERSONA 3



**Alicia
Torres**

25+

OCCUPATION: Worker

LOCATION: México

AGE: 24

RESPONSIBLE

PUNCTUAL

CLEVER

ORGANIZED



I want to have a friend at my house, every time I get home, I arrive very stressed

Backgrounds

Carla Estrada, a 25-year-old girl of Mexican nationality. She is working at Petstar factory. She recently moved from Chihuahua to the State of Mexico.

Behavior

Sometimes she feels lonely and sad. She's always at work. Doesn't have time for herself. The work is consuming her. Can't have pets. Spent most of her time at work.

Objective

Find a way for Carla to bring out her emotions and thoughts whenever she wants, being certain that she will not be judged or told her secrets.

Motivation

- Have a friend at home.
- Being able to talk to someone/something.
- Having a Confidant

Frustration

She work's to 8:00 a.m. to 7:30 p.m. She doesn't have enough time to enjoy a peaceful time.

Activities

- Wake up very early.
- Go to work at a factory.
- Listen Music.
- She spent all the day at her work.
- Arrive to home at 8:30 p.m.
- Repeat.

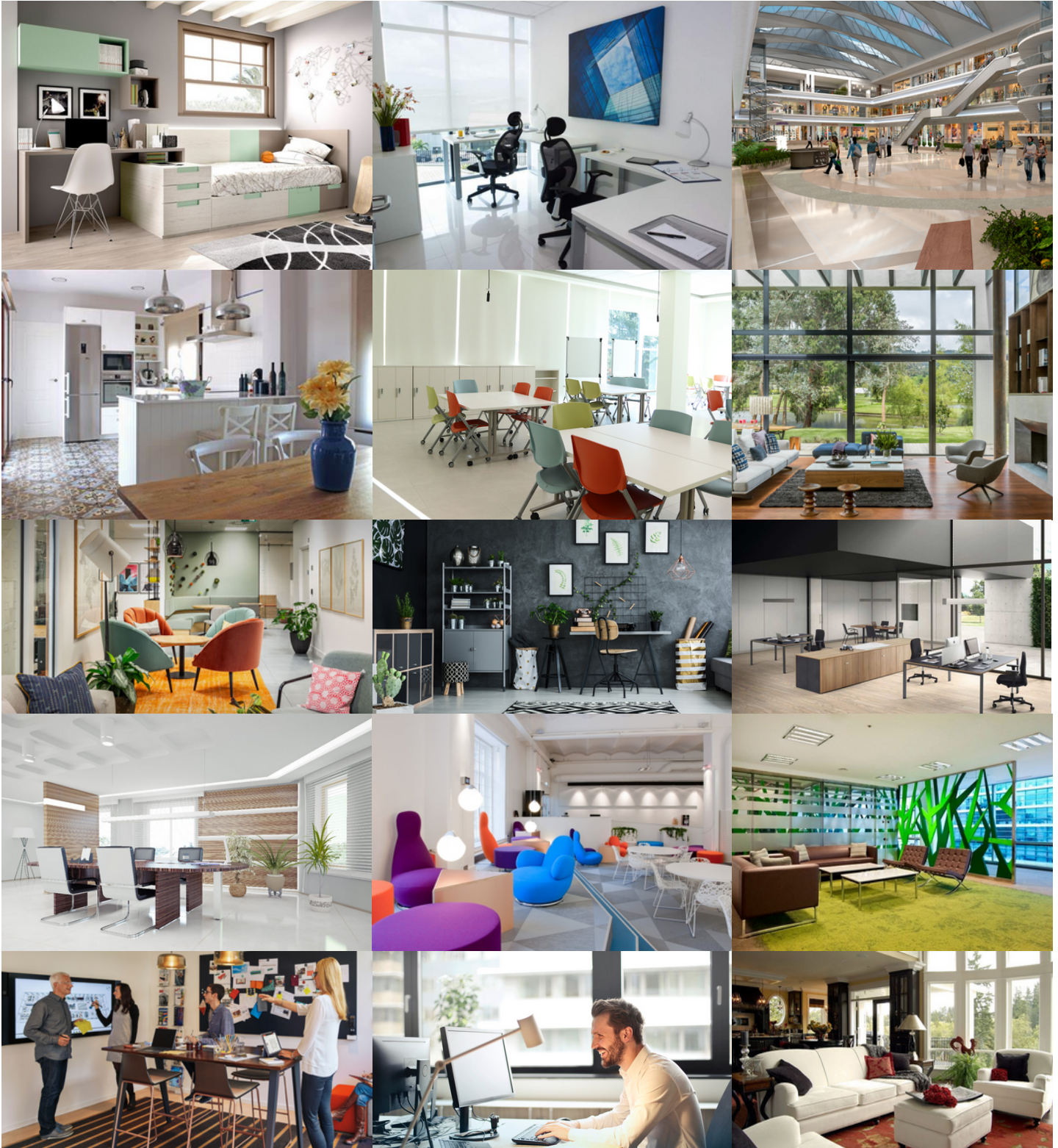
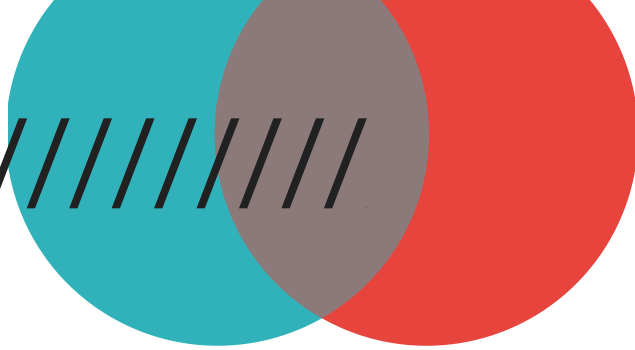
Personality



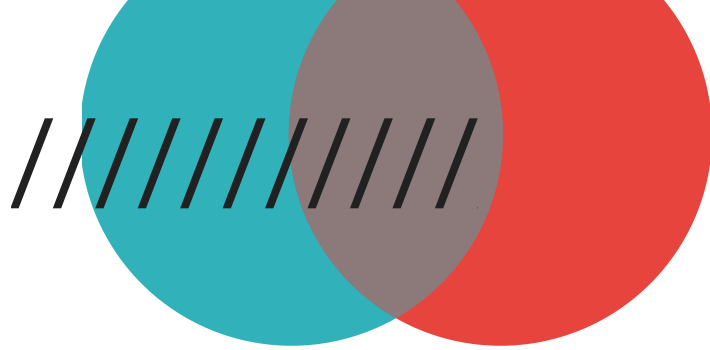
miro

PROBLEM OR OPPORTUNITY

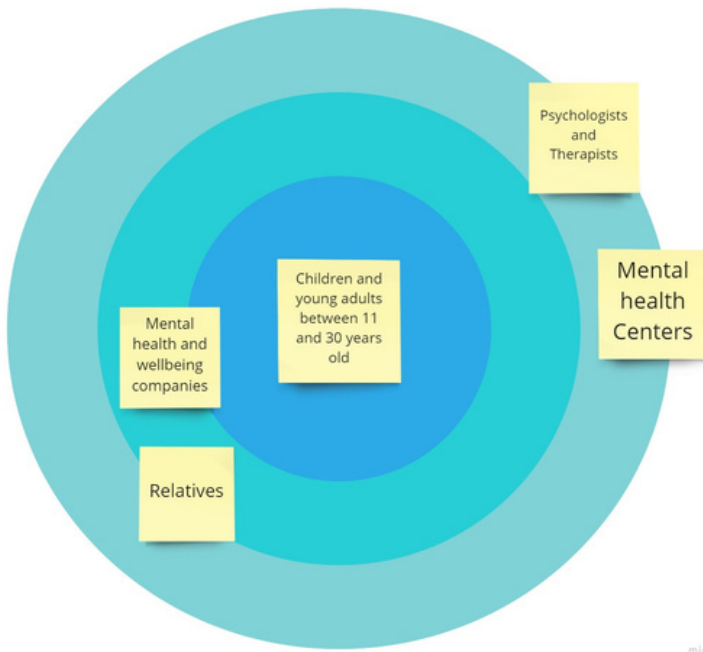
USER ENVIRONMENT



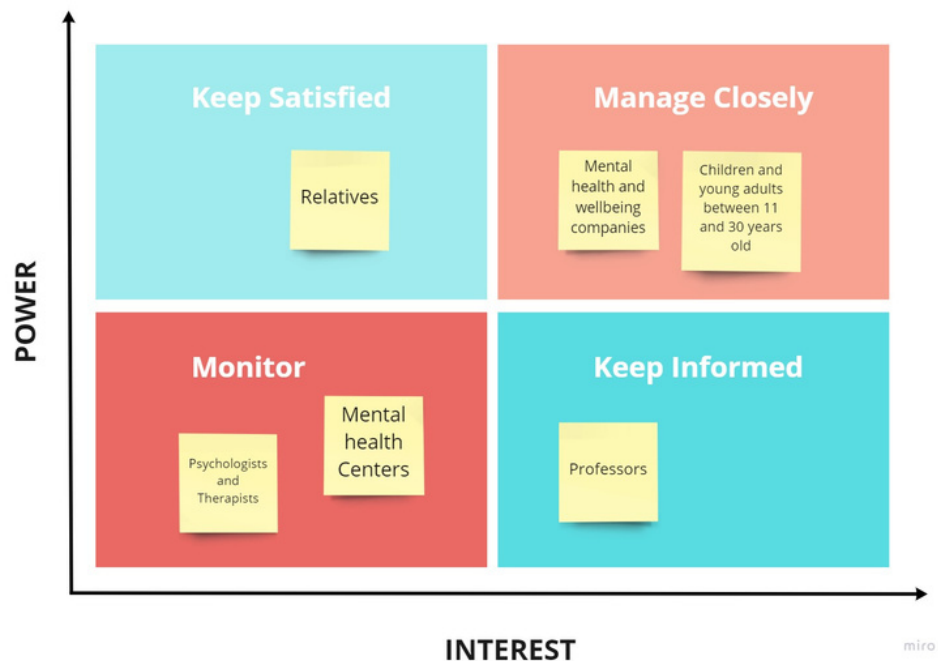
PROBLEM OR OPPORTUNITY



STAKEHOLDER MAP

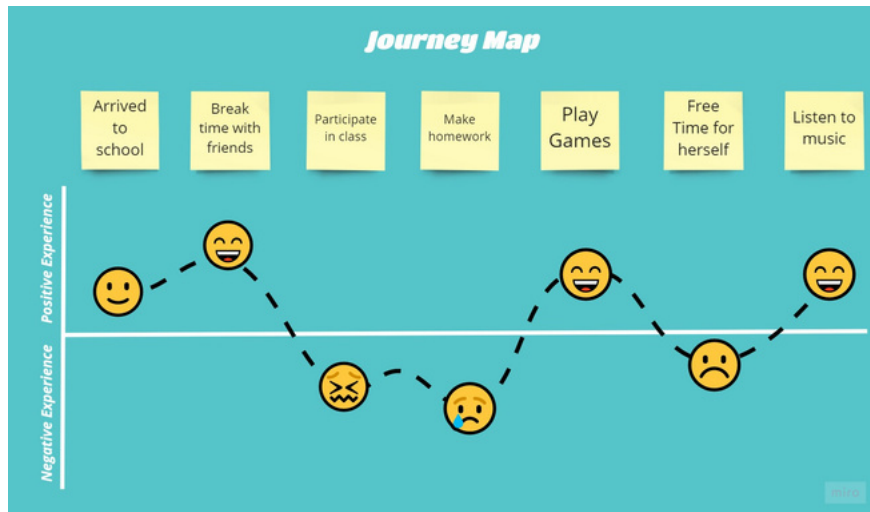
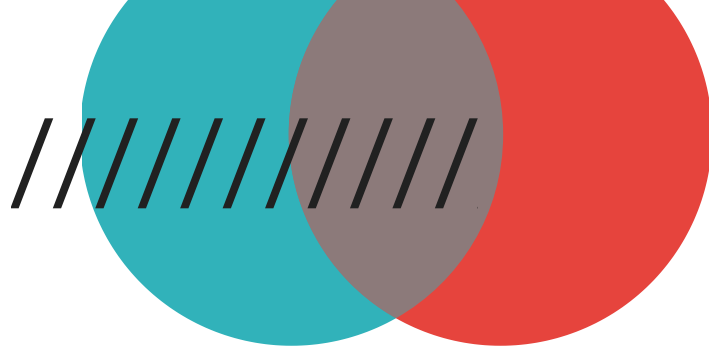


STAKEHOLDER MATRIX



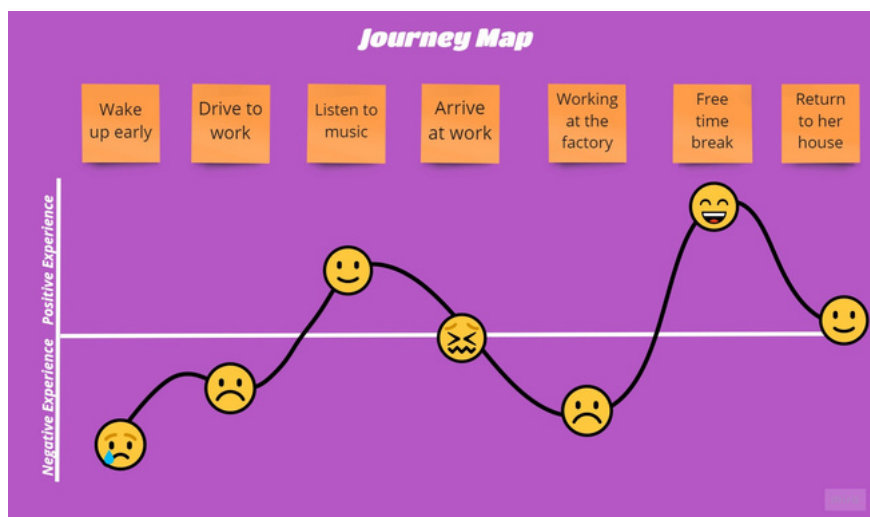
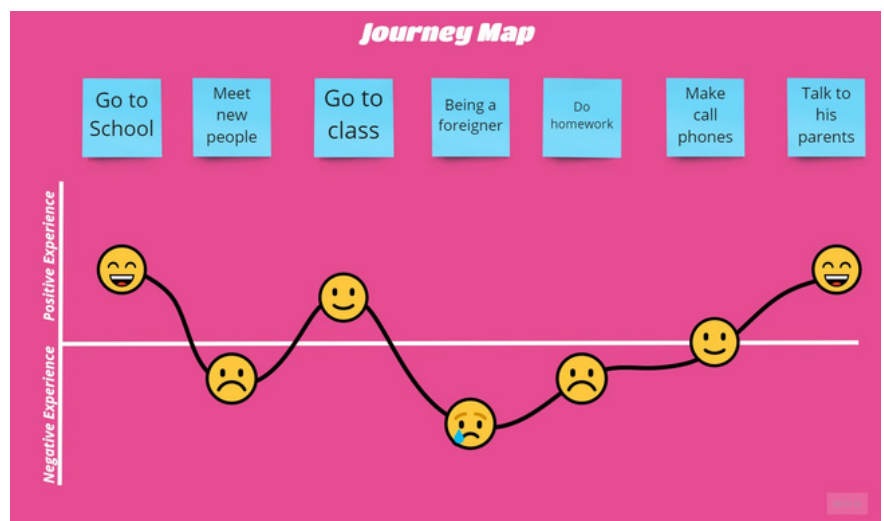
PROBLEM OR OPPORTUNITY

USER/ CUSTOMER JOURNEY



POTENTIAL USER
AGE: 12

POTENTIAL USER
AGE: 18



POTENTIAL USER
AGE: 25

REQUIREMENTS



FUNCTIONAL



Sensory
Appeal

SENSORY APPEAL

The robot will appeal to several senses such like hear, sight and touch trough color lights, specific sounds and textures, with the objective to provide diferent sensations that will help to mitigate negative emotions in times of need.



Integrates

INTEGRATES

This robot has the purpose to combine different elements to create one single product able to decrease negative feelings by transmitting peace, plus being valuable friend. This robot should be able to easily integrate in the life of any user without making drastic changes in their routines.

EMOTIONAL OR PSYCHOLOGIC



Wellness

WELLNESS

The main objective of this companion robot is to provide mental health by decreasing depression and feelings of loneliness, also helping in times of stress and anxiety by transmitting peace. Creating a robot that will be a friend and will share meaningful moments.



Reduces
Anxiety

REDUCES ANXIETY

Provides help to reduce feelings of anxiety by using nice textures, calms sounds and different colors. It can be used in variety of situations , such as a difficult problem at work, before taking an exam, or before making an important decision.

REQUIREMENTS



Design

DESIGN / AESTHETICS

The design and the aesthetic of the robot will appeal different positive emotions from the users.

The design must transmit peace, confidence, amability and cuteness, creating an entirely unique personality.



Attractiveness

ATTRACTIVENESS

The design of technology and more specifically robots design attracts people's attention because it looks new and advanced. When this is combined with a certain personality or more human characteristics, it makes people curious about the product.

SOCIAL OR LIFE CHANGING



Motivation

MOTIVATION

The robot will help the users to feel positive and with company so they can feel motivated and able to complete different task through the day.

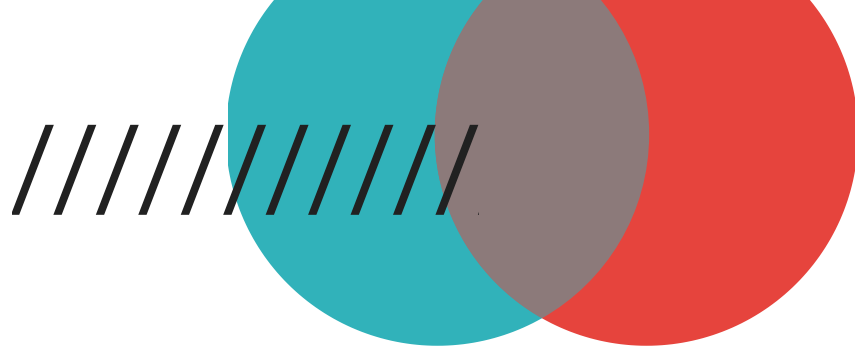


Provides Hope

PROVIDES HOPE

The robot will provide hope so the users can feel that they won't be alone, depressed or stress for a long time. With the robot they will know that there will always be someone for them. This product will be a valuable companion, able to share meaningful moments and will help to maintain positive emotions in the users everytime they need it.

REQUIREMENTS



SOFT ATTRIBUTES

- Adorable and friendly appearance design.
- The combination of shapes and colors transmits confidence and tranquility to the user.
- It presents a pleasant design for the senses such as sight, hearing and touch.

HARD ATTRIBUTES

- The robot should be small in size according to the preferences of the users.
- It should also be light in weight so users can have the possibility to carry around everywhere.
- The design of the robot should be easily to transport and with a good quality to prevent any damage caused by the environment during the transportation.

DESIGN CRITERIA

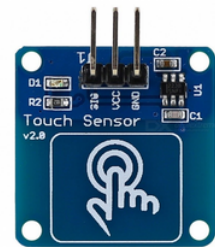
TECHNOLOGY



RIP Sensor



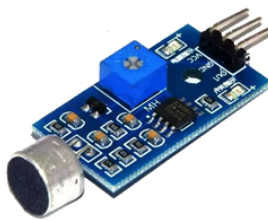
LED lights



Touch Sensor



Proximity Sensor

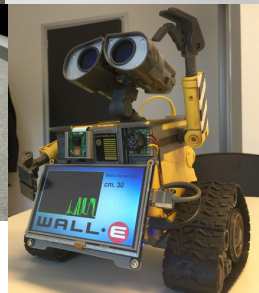


Sound Sensor

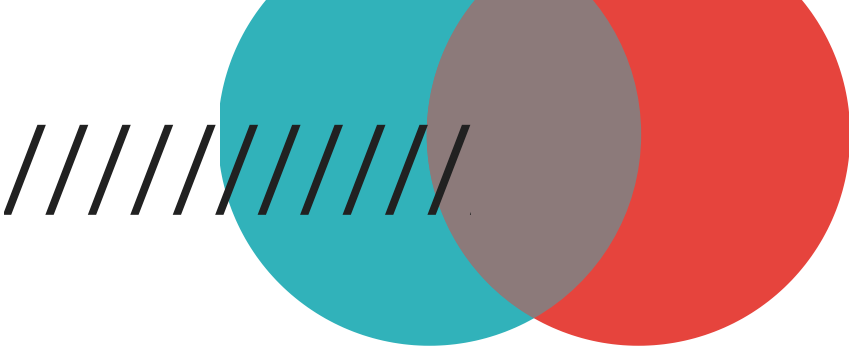


Pulse Sensor

A decorative graphic consisting of a series of parallel diagonal lines. The lines are black on a white background, transitioning into a teal-colored section, and finally into a grey section on the right.



DESIGN CRITERIA



AESTHETIC

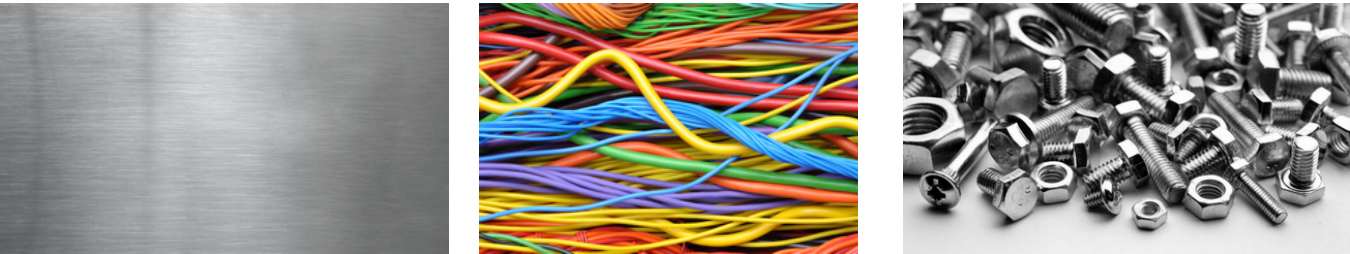
COLOR PALETTE



TEXTURES



MATERIALS



DESIGN CRITERIA



ACCEPTABLE SOLUTIONS



UNACCEPTABLE SOLUTIONS

