

Group Nasa4

Ana Carolina Carvalho de Siqueira Melo	up201800057@fe.up.pt
Marconi Ponte Pereira	up201800459@fe.up.pt
Pedro Miguel Faria Vilaça	up201809103@fe.up.pt
Tiago Miguel Delgadinho Simões	ee12074@fe.up.pt
Wilson Ismael Leite Candido	up201100675@fe.up.pt

Fundamental challenge or problem to be addressed

We discussed many ideas to address to our next assignment, and when we talked to the teacher we decided to approach about autism. Autism Spectrum is a disorder that has different characteristics, but one of the most remarkable is the lack of interaction of the person with other people. Autism is so complex and behaves in different ways that is known to be an spectrum because of the particularities. Today Autism affects 1 in 59 children around the world.

"If you've met one person with autism, you've met one person with autism".
- DR. STEPHEN SHORE¹

DESIGN THINKING METHODOLOGY

The methodology for the development of this process is based on the one of the most recognized methods in use today: the design thinking process. It was developed by IDEO in 1991, by David Kelley, Bill Moggridge and Mike Nuttall in California, USA.

¹ <https://www.autismspeaks.org/what-autism>

The core of this process is prototyping. The prototype helps the team members, clients, marketers, experts and end users to visualize and test much before spending time, money or reputation. The IDEO innovative approach is based in 5 phases:

- **Phase 0 (“Understand/Observe”)**: understand the client’s business and find out about the feasibility of a product;
- **Phase I (“Visualize/Realize”)**: choosing a product direction based on ideas, technologies, and market perceptions;
- **Phase II (“Evaluating/Refining”)**: the team enhanced design prototypes through testing functional prototypes;
- **Phase III (“Implement/Detailed Engineering”)**: the team completed product design and verified that the final product worked and could be manufactured;
- **Phase IV (“Implement/Manufacturing Liaison”)**: team ensured smooth product release to manufacturing as the product moved from the shop floor to the client’s factory lines.

As it can be seen, this is a very collaborative way of establishing visions and techniques that have a multidisciplinary participation, lots of failures (which are considered very important as a company culture) and it may end up creating more valuable results.

DESCRIPTION OF DESIGN THINKING PROCESS: BindedBy - increase awareness of the other

PHASE 0: Understand/Observe

Synthesised current project knowledge from the Discover and Define phases and outline next steps

The objective of the second assignment was, in the beginning, an idea to help autism communities in underdeveloped countries to understand and help professionals and families with information about this disorder. This is a distinct disorder, very difficult to identify due to the scarcity of medical tests to diagnose it. Besides this, parents face a very hard time to assume that something bad is happening to their children and do not look for medical advisory. When symptoms start to become more common and strong as time passes, parents have different reactions. These parents behavior may be common regardless of place or affluence, but when there's a source for help, the ones who have more resources and are concerned with their children development can start to act in a more proper way. However, there's a fear that many parents who never heard anything about this disorder and have less resources in terms of medical assistance, education and information access, may start act in aggressive ways with their children or even abandoning them to their fate².

Due to the fact that underdeveloped countries has low access to medical doctors but have access to mobile devices and connectivity, we sought to explore this path. We started the search for counseling from experienced professionals and institutes that could be already working with this issue.

According to the Inclusion of People on the Autism Spectrum Disorder in Europe (IPA+)³, the needs of parents during the diagnosis require specific details to understand:

- Reactions to diagnosis differ from family to family;
- All families need accurate information about autism and services available for the child;
- Local parents support groups;
- Access to parent training and education;
- Education for carers and other professionals involved with the child;

As per the same guideline, to cope with the stress after results from diagnosis, parents should look for information:

- To deal with stress (Harris, 1994):

² <https://toronto.citynews.ca/2016/10/25/autism-abandonment-one-mothers-wrenching-decision-give-son/>

³ <http://ipa-project.eu/>

- Effective coping skills (parent training)
- A good social support network
- Family cohesion

As we can see, a good social support network has a connection with this project. We started to look for professional advisory to see if we were in a good path.

The first professional feedback was from Dra Sofia, psychologist, from APPDA Norte from Porto. She said that mobile or computer applications are not normally used by autism patients, mainly for those under 6 years. Until 6 years old the recommendations are the use of therapy and reduction of use time for children with visual distractions such as televisions, tablets and cell phone.

Technology are used mostly by patients that follows the ABA methods of therapy. There are many types of therapies for this disorder: "TEACCH" and "ABA" are the most known, but there are many professionals that believe in a personalised way of intervention, trying to understand how the autism functions in each patient, so as it is known that autism behaves differently in each person.

The observation phase was somewhat difficult in this part because the lack of information and also because of the complexity and depth of the topic. For the interest of time, we focused on the "A good social support network" and aimed to provide a mean for creating awareness in public establishing more personal connections.

Highlight innovation @touchpoints

- Use technology to facilitate communication and engage people, creating more awareness about the autism disorder;
- Help establish more friendship and camaraderie between people, to create more cohesion in their feelings;
- Raise awareness about the International Autism Day in 2019 and beyond;
- Help to connect professionals and families in this activity by the same attributes.

PHASE 1: Visualize/Realize

This project aims to create meaningful bonds between people through web conference and share it via social media.

Short description:

What: a webconference page where people will meet and answer the question: look each others eyes: "When I look into your eyes, I see_____". After 30 seconds, they will answer the question. If they answer the same word, there will be a screen capture and it will be sent by email to both, so they can update their pictures in social media profiles.

WHY: improve engagement and awareness of autism, especially in the Autism World day

WHO: anyone who has connection to some autism friend or relative.

Next steps:

1. program the basic user interface with detailed steps;
2. Test;
3. Make adjustments.

PHASE 2: Evaluating/Refining

We started developing the concept using a free and open source called webRTC. It's a set of Application Program Interfaces(APIs) that enable audio and video communication inside a web browser without the need to download plugins or native applications.

We used some sample source code and started adjusting to our current needs.

We tested our website, worked on a mockup version. With the existing version, there's a need to send the number of the virtual room in order to connect with another person. There's also a constraint: to connect people in different places, this application

would need a server to handle the metadata and the process of signaling between clients. It would involve a lot of coding and resource allocation. As a group, we decided to prototype the webconference in peer-to-peer mode, established in the same network segment.

Professor feedback during class:

- System that detects eye contact between users - we are using time to limit the experience;
- Forms asking some questions: age/gender/ location
- Use cluster of words to find similar/synonymous words;

PHASE 3: Implement/Detailed Engineering

Continuing the test of the website, mockup version, solving the bugs that appeared, trying to understand how to match the pictures and testing word clusters for the experience. We also need to figured out how to put the control timing for the videos and how to take the picture by the end of the 30 seconds experience.



Binded By

There are many problems that are faced by people with autism, especially children. The lack of communication and understanding between people can lead to discrimination and social separation. This is why we created BindedBy: to increase awareness of the other. If you share the same feeling, you can become part of a global community of supporters and carers of autism in the World Autism Awareness Day (April 2nd, 2019). You can start here.

CONTINUE →

Me or we?
Which is it?
Do I choose to be me
Or to become part of we?
What if by being me
I can be a better
Part of we?
What if by being part of we
I can become a better me?
Maybe it should be me and we
Me and we can be so much fulfilling
Than me or we.
Nurture both.

Fig. 1: homepage BindedBy

Professor feedback during class:

- Cluster of the most used words on the experience;
- Association of the image with the text, so the person can share on social media the experience.
- Data from participants and how many times that world was been shown.

PHASE 4: Implement/Manufacturing Liaison

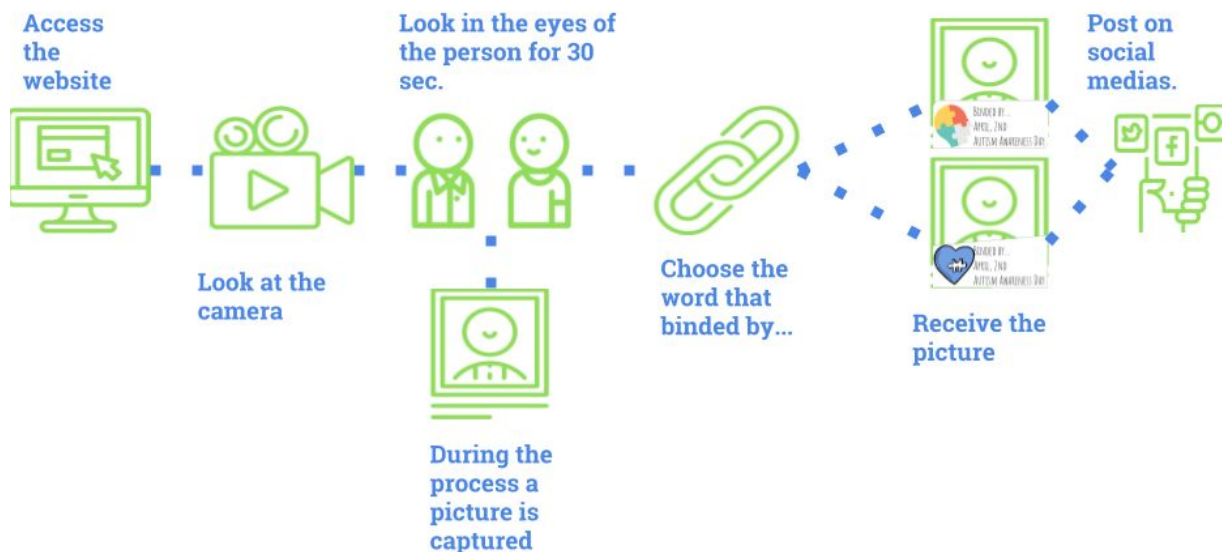


Fig. 2: Customer Journey - UX

The web conference was prepared to sport a webconference between 2 persons. This conference will feature the following characteristics:

1. It will have a limited duration of 30 seconds
2. It will connect them and after the time pass, each will select the feeling they had about the other during the conference;
3. If the words match, the system will take a screenshot of the participants and put a transparent frame with the logo "Binded By".

4. This picture can be set as a profile picture in social media, preferably in the World Autism Day (April 2nd, 2019)

Step 1

1



[Share this link](#) to a friend of you and start a 30 second videoconference.

Step 2

2



Watch each other in the eye and try to focus on the inside (not what you see, but who you see).

Step 3

3



Answer the question: "When I look into your eyes, I see _____". If there's a match, we will generate a picture of both of you with the Autism puzzle piece, so you can set this picture as your preferred social media profile.

START →

Fig. 3 Step by step of the interaction

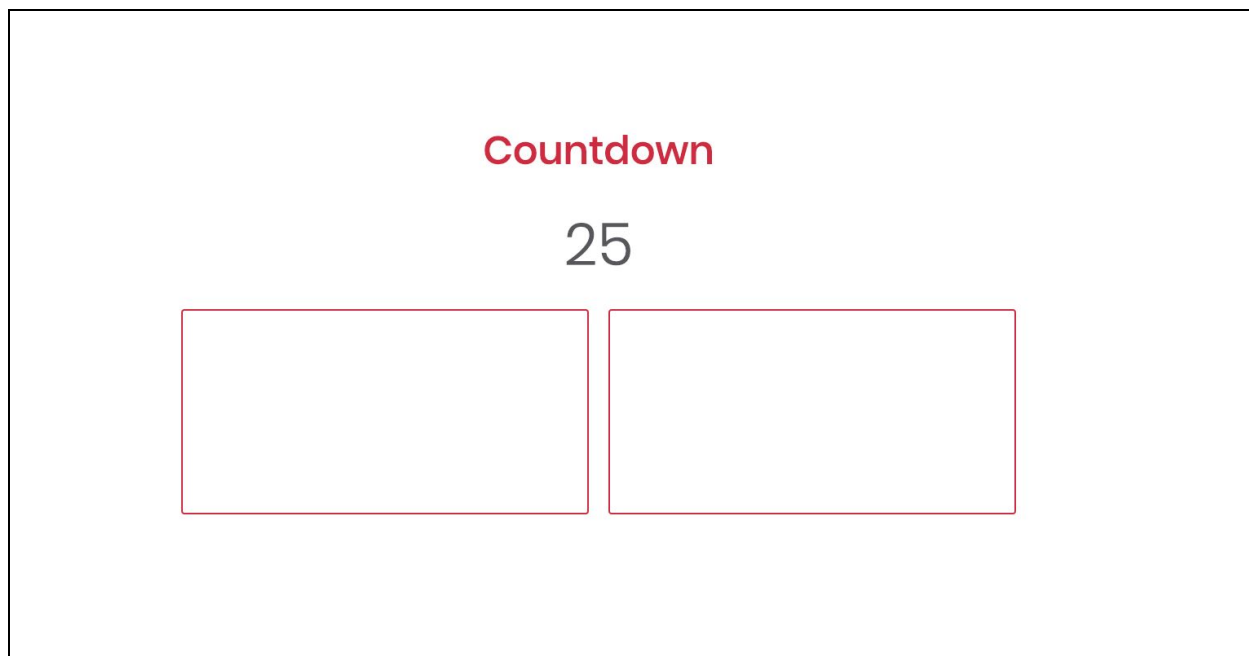


Fig. 4 Web conference with 30-sec countdown

We are binded by...

Which word discribed better what you thought/felt about the other person?*

Choose one.

- ✓ Love
- Sympathy
- Empathy
- Kindness
- Fun
- Beauty
- Adventure
- Courage
- Friendship
- Sensibility
- Generousity
- Cleverness

Fig. 5: Form to choose words and complete the experience

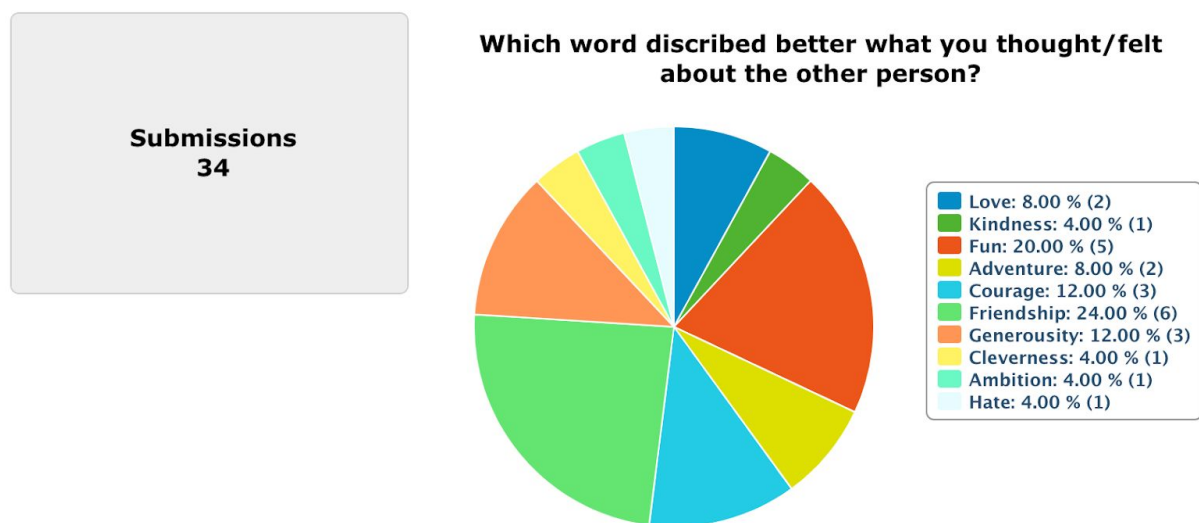


Fig. 6: Number of submissions

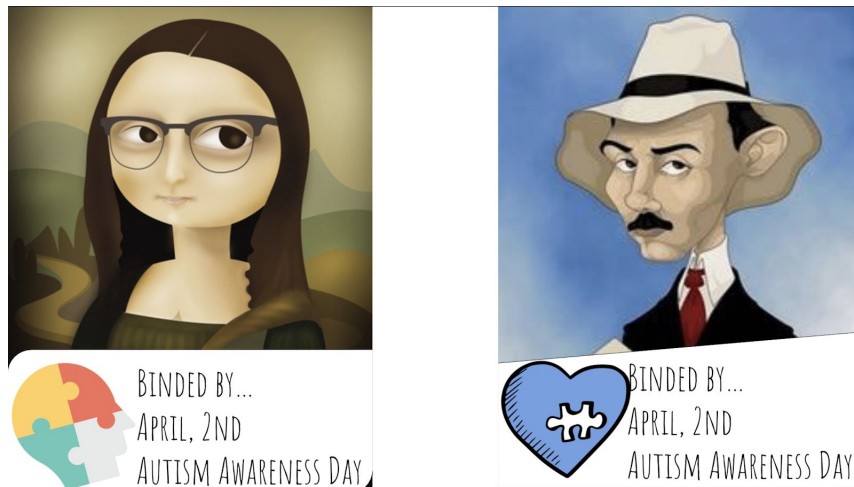


Fig. 7: Generated picture of the conference (sample) (can be downloaded and used in Facebook social profile)

Issues and Concerns:

- Asynchronous connections need a server to mediate different clients web conference, taking care of signaling and metadata exchange, so it can enable clients in different network segments to interact and use this application.
- The screen capture process may need more code development to support this feature. On the other hand, the GDPR aspect can prevent the sharing of each others pictures without consentment. This site may feature a privacy policy to enable the use of screen capture pictures.
- For the ribbon picture frame to work, the user must change it by himself. The authentication button via Facebook process had some issues within the website context. It may request more code and debugging activities.
- For the intent of registering, a full user registration may be needed to be incorporated in this application, such as name, email and other relevant information which can be collected from social media profiles like Facebook, Instagram, Twitter and Google+ accounts. It will need a usage policy as well as a privacy policy within the context of GDPR regulation.

Marketing Contents: Binded By - increase awareness of the other

The marketing idea is to release a teaser in facebook, webpages or other social medias of autisms associations webpages, in order to promote the website Binded By and the service of those institutions. Teaser Video is available on <https://www.powtoon.com/online-presentation/gjqRX38ELi2/?mode=movie#/>

A teaser sample designed by the working team is as shown below:

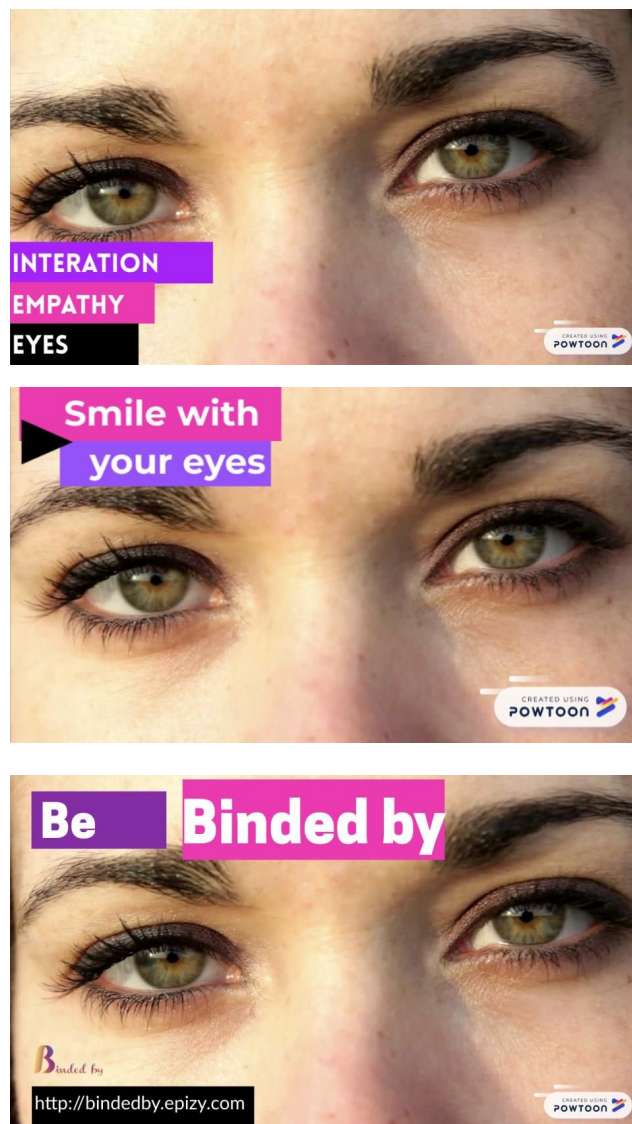






Fig. 8/9/10: Images of Binded by teaser.

The brand is colourful in order to catch attention to the name, we chose to do an handwriting font in order to get a personal touch and can be easily applied.



Fig. 11: Logo.

Communication Plan:

Target Audience		Internet users in order to promote empathy and Autism awareness.
Communication Objective		The purpose of the website is to promote empathy on the virtual world, and through the experience attempt people about autism.
Design of Communication		Throughout a experience of interacting with different people, you should be connect to people and to express how this experience was you define a word to the binding to this person of the interaction experience.
Communication Channel		The experience will be promoted on social medias of autism association or other that want to help on AST awareness.

FINAL CONSIDERATIONS

The engagement with this project is to help and create a awareness about the Autism Disorder, as informed at the beginning of this report, the initial purpose was to create a tool that would help the diagnosis and identification of some autism characteristics.

During class and discussion with the Professor, we decided to develop a website to promote empathy between people and bind them. The final ideia is to promote interaction through people and create a awareness to Autism Spectrum.

Along the process, the users will access the website and during 30 seconds another person's image will be projected, during this process a picture will be taken, at the end of the experience the person should choose a word that binded by the other person. As a gift the users will receive a photo to post on social medias.

As a group we hope that the interaction proposed for the assignment will help to spread and aware about autism and also promote empathy between people in a fun way. Nowadays, virtual interactions promotes the lack of empathy between people, and sometimes forgetness of a simple act that is to look in each other's eyes.

We hope that users will have a pleasant experience through this lovely interaction.

"Listen with your eyes for feelings".

- Stephen Covey

BIBLIOGRAPHIC RESEARCH

Autism disorder diagnose

<https://www.virtua.org/articles/why-autism-spectrum-disorder-is-so-hard-to-diagnose>

What is Autism

<https://www.autismspeaks.org/what-autism>

How WebRTC Is Revolutionizing Telephony. Blogs.trilogy-lte.com (2014-02-21). Retrieved on 2019-01-07.

<http://blogs.trilogy-lte.com/post/77427158750/how-webrtc-is-revolutionizing-telephony>

Mixed Signals with Socket.IO and WebRTC

<https://blog.jscrambler.com/mixed-signals-with-socket-io-and-webrtc/>

Facebook for developers

<https://developers.facebook.com/docs/facebook-login/web>

Facebook Frame Studio

<https://developers.facebook.com/products/frame-studio>

Exhibit 1

Technology specifications

Website:

Apache webservices

123FormBuilder

Javascript support