# HUMAN CENTERED DESIGN COMPETITION

## Stage 1: Inspiration

## Submission deadline: 30th January, 2023

**Digital eye muscles exercise for amblyopia :**

**Shanzay jan (2019-PID-15):**

Mechatronics Engineering Department UET Lahore and MADE Foundation USA bring you the Human Centered Design Competition. The aim for this competition is to foster innovation among the students of UET Lahore and create sustainable solutions that create real impact and generate viable business.

The human centered design consists of three main stages:

**INSPIRATION**

In this phase, you'll learn how to better understand people. You'll observe their lives, hear their hopes and desires, and get smart on your challenge.

**IDEATION**

Here you'll make sense of everything that you've heard, generate tons of ideas, identify opportunities for design, and test and refine your solutions.

**IMPLEMENTATION**

Now is your chance to bring your solution to life. You'll figure out how to get your idea to market and how to maximize its impact in the world.

Figure 1: The three stages of Human Centered Design

The three stages of our competition represent these three stages of the Human Centered Design. For stage 1 of the competition, the participants must submit a concept note regarding the problem they intend to solve.

Please remember that your solutions should be desirable, feasible and viable for them to have a true impact. In one sense, the three stages of the Human Centered Design tackle the conversion of your idea into a desirable, feasible and a viable solution.

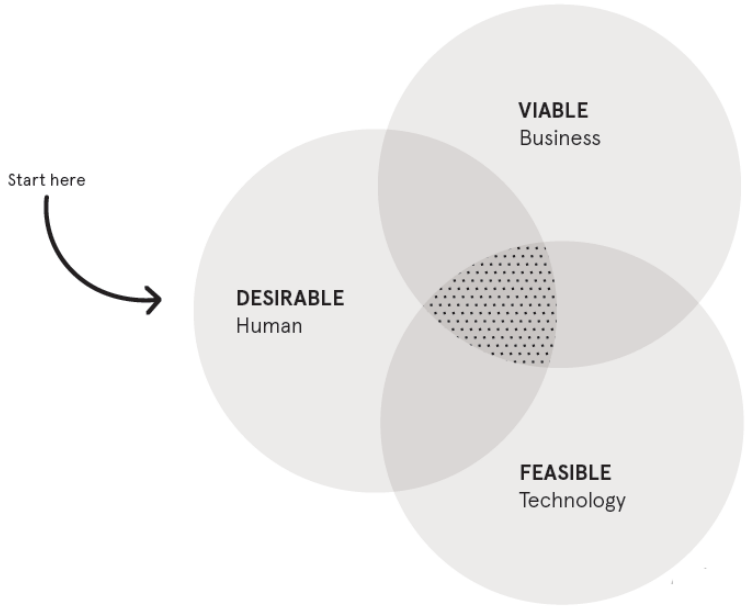



Figure 2:Ingredients of an impactful solution

INSPIRATION

The Inspiration phase is about learning on the fly, opening yourself up to creative possibilities, and trusting that if you remain grounded in desires of the communities you're engaging, your ideas will evolve into the right solutions. You'll build your team, get smart on your challenge, and talk to a staggering variety of people.

**STEP 1: Frame your Design Challenge**

Organize your thoughts and really think about the challenge and problem you are trying to solve. ask yourself: Does my challenge drive toward ultimate impact, allow for a variety of solutions, and consider context? Dial those in, and then refine it until it's the challenge you're excited to tackle. Don't keep it too narrow or too broad. Go through these thoughts again and again until you have reached a viable conclusion. A quick test we often run on a design challenge is to see if we can come up with five possible solutions in just a few minutes.

Answer the following questions after giving it careful thought iteratively.

**What is the problem you are trying to solve?**

Apart from the problem description, try answering who faces it? what is the frequency of occurrence? why the currently available (if any) solutions lacking? etc.

Amblyopia also called lazy exercise is a disorder of sight in which the brain fails to fully process input from one eye and over time favors the other eye. It results in decreased vision in an eye. Amblyopia is the most common cause of decreased vision in a single eye among children. Early detection improves treatment success. Almost 2% to 3% of the worldwide pollution is affected with amblyopia in which 1.46% is only of children. Without treatment amblyopia typically persists so treatment in early stages is necessary. For most children the ophthalmologist gives the instruction of eyedrop, patching or eye drops. But all these require plenty of persistence and encouragement for parents because children are not easily opting or getting used to for these instructions.

**1. Take a stab at framing it as a design question, in one line.**

Provide visual exercise to the amblyopia patient through some digital and physical games.

**2. Now state the ultimate impact you're trying to have.**

We are trying to engage the children through some visual exercises so that it will be a fun time for them. Persistence in using eye patch or glasses can come only through this way for children.

**3. What are some possible solutions to your problem?**

Think broadly. It's fine to start a project with a hunch or two, but make sure you allow for surprising outcomes

For the treatment of amblyopia, persistence is the key factor during any precautionary measure that you are taking such as eye drops, eye glasses or eye patching. But for children persistence is a difficult task. So, we can bring some sort of persistence by engaging them to some visually exercise games that can be physical or digital as well. In this way they can enjoy their treatment.

**1. Finally, write down some of the context and constraints that you're facing.**

They could be geographic, technological, time-based, or have to do with the population you're trying to reach.

To create visual exercise, we require some coding skills and digital equipment's for proper designing of the visuals that would engage the children without any ambiguity or hurdles. The budgeting that we have done is approximately goes to the Rs.20000 which may become a constraint in our project.

2. Does your original question need a tweak? Try it again.

**STEP 2: Create a Project Plan**

**3. Decide on your budget and staff. Do you have everything you need to complete the challenge?**

We should have approximately Rs20000 for the project. The staff we have must be specialized in technical and design field moreover an eye specialist also.

According to our budget it will be very difficult to install the original model so we will make a mini understandable model.

**4. Identify who will to visit to understand the problem better. How will the visits be arranged?**

To understand the problem better we will visit Doctor an eye specialist. She deals the kids that are the patient of congenital squint.

We will visit her personally by mean of local transport.

**5. Look at the core members of your team and determine what they're good at and what they're not so good at. List their core capabilities here:**

| | |
|---|---|
| Shanzay jan | Structural and visual Designer |
| Yusra Naveed | Technical designer |
| Bakhtawar malik | 3d artist |
| Usman mughal | coder |

**STEP 3: Secondary Research**

Along with the interviews and surveys, there will be moments where you'll need more context, history, or data than a man-on-the-street style Interview can afford. It's time to start learning about the broader context.

1. **List recent innovations in your particular area. They could be technological, behavioral, or cultural.**

Recent technological advances in amblyopia treatment provide alternatives that can be used alone or in combination with standard-of-care treatments (**patching, atropine, and Bangerter filters**), with the potential to improve compliance and vision outcomes.

2. **What alternate solutions are available in your area? Are there any that feel similar to what you might design?**

Therapies related to amblyopia is already present but because as the research say people don't take a treatment as enjoying activity. People are tired of treatments more quickly we turned therapies into an enjoyable game.

3. **What is your value addition in the existing solution, your unique selling point?**

Our unique selling point is that we have developed the game for amblyopic patients which are alternative of bored treatments. Research says people get tired of treatments and feel exhausted due to it. We make this game to be played at home without any guidance. Two problems majorly concerned first to present treatment as game so people might not get tired of it.

**STEP 4: Interviews**

There's no better way to understand the hopes, desires, and aspirations of those you're designing for than by talking with them directly. Interviews really are the crux of the Inspiration phase. Whenever possible, conduct your Interviews in the person's space. You must categorize your extreme audience, and your main target audience and get samples from both in your interviews. It is also necessary to interview field experts who can guide you about the deeper context of the problem.

For a detailed guide on interviews, please refer to the "Field guide to the Human Centered Design" by IDEO. https://www.designkit.org/

Fill in the following interview guide:

**Open General**

**What are some broad questions you can ask to open the conversation and warm people up?**

1. What is your amblyopia condition?
2. What are your current symptoms?
3. Do you have any medications?
4. Do you have any family history regarding this disease?
5. How long has this been going on?

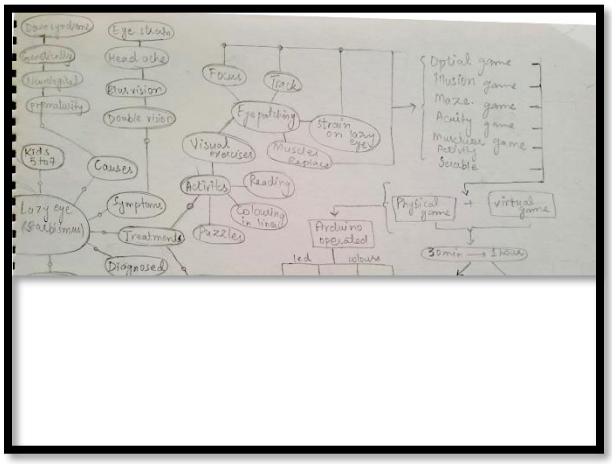
**Then Go Deep**

**What are some questions that can help you start to understand this person's hopes, fears, and ambitions?**

1. What you currently wear for this treatment?
2. Describe what you dislike about you current visual solution?
3. How many hours you can easily use the glasses or eye patch?
4. Do you have any special vision needs?
5. How does you feel before or after using the

**STEP 5: A pictorial collage**

To showcase your efforts towards the human centered design, add a pictorial collage here that may showcase the problem, the people facing them, the interview process, design sketches, the work environment, etc.




**STEP 6: Summarize**

**Summarize your initial findings here. Discuss about the following after reflecting on your efforts:**

Amblyopia is the most common cause of decreased vision in a single eye among children mostly from 5 to 7 years of age. Early detection improves treatment success. This is done using eyepatch if with the eyepatch child will do some visual exercise for some specific range of time then it will ultimately forces the displace muscles of a lazy eye to come into its place and the vision can get better. So to engage child in this treatment we propose the digital game to enhance the learning skills as well as to do some visual exercise on child eye. Without treatment amblyopia typically persists. So, treatment in early stages is necessary.