

Suggested Design Process

The Problem

To effectively solve a problem like the challenge, it is crucial to deeply understand the issue at hand. As the first step in your design process, build a solid knowledge base that you can easily refer to later in the competition. Some steps to approach it are:

- Contextualize the problem by reviewing the materials provided in the Design Challenge folder to grasp the full scope of the problem.
 - Spend ~ 15 minutes with your team listing questions about the problem's background to guide your research.
- Divide research tasks among your team, utilizing credible sources like Google Scholar, PubMed, etc. Expect follow-up questions and multiple research rounds. Log findings in a shared document for easy access.
 - Take note of competing technologies. Understand what works, what doesn't and where your solution can provide intentional improvement.
- Define your "needs criteria." Establish a list of clear conditions that your solution must meet. Use the Challenge document's key considerations and design constraints to guide this step.
 - Ex.

Need to have	Nice to have



Brainstorming

Brainstorming is where your team converts its understanding of the problem into a broad spectrum of potential solutions. While thinking of ideas comes naturally, a structured approach is efficient and thorough.

- Set a time frame (Ex: 35-45 minutes) for the brainstorming session and suspend extended conversation until the end. Treat it like a spring; get down as many ideas as possible while postponing discussions until the end.
- Write down everything that crosses your mind, no matter how unconventional or silly.
- Push for ideas beyond the obvious. Try to reach for ideas at all of the edges of the solution space.
- Consider drawing— a quick sketch can get a concept across quicker than words alone.

Solution Selection

Choosing the right solution is crucial for your project's success, so be diligent in your considerations:

- Compare each potential solution with the challenge document and your team's key criteria.
- Reflect on existing solutions. You want to make sure that your design offers a clear improvement, if not an entirely new solution.
- Maximize your team's strengths (Ex. CAD, circuits, coding, etc.)
- Keep Make-A-Thon's limited timeframe in mind. Choose a solution that is both achievable and compelling, ensuring you have a strong, well-supported presentation.

