# Redefine ⚙ ◉ ◐ ◑

Redefine game controller for inclusive gaming

People with disabilities face significant challenges and barriers when playing video games, namely due to controllers that are not able to adapt to their needs. This often leads to a poor gaming experience. Similarly, e-sports players struggle to maximize their performance with standard controllers that lack customization options tailored for competitive gaming.

Our investigation into the experiences of these extreme users—disabled gamers and e-sports athletes—revealed common pain points with current game controller interactions.

Through a benchmarking analysis, we discovered various professional and inclusive controllers, homemade adaptations, and other peripherals aimed at creating more accessible and adaptative solutions. However, these alternatives still do not fully align with the conventional design of a game controller or are not widely available in the market. In response to these challenges, Project Redefine adopted a Human-Centered Design approach to develop a more inclusive and adaptable game controller. Our process began with conducting interviews and observing gaming sessions with these extreme users.
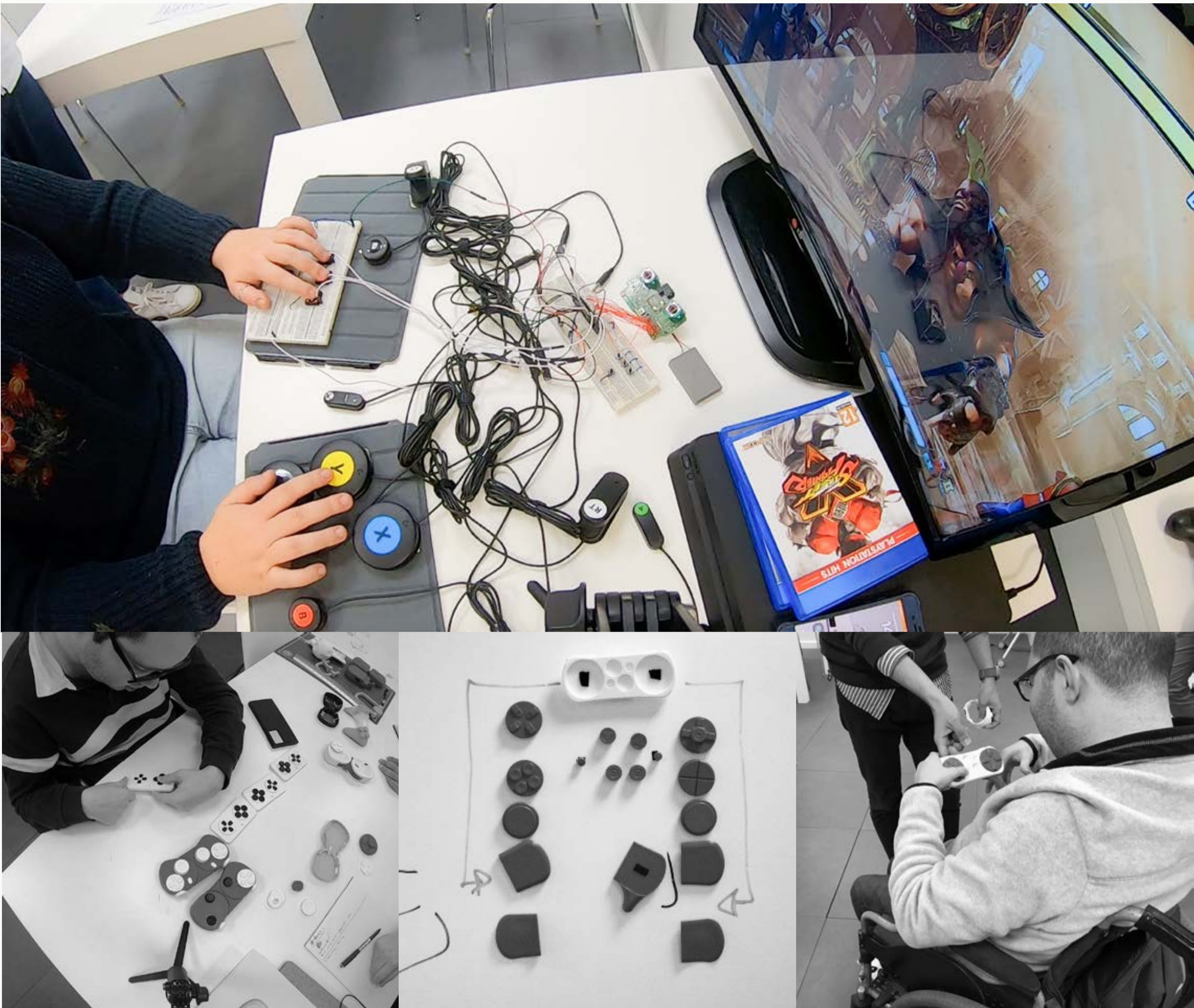
This approach helped us gain a deep understanding of the major challenges users face, the strategies they employ to manage limitations, and their suggestions for improvements. Additionally, we considered other aspects such as the aesthetic appeal of the controllers, charging mechanisms, biomechanical interactions, spatial requirements, and overall system integration.

Thus it we discovered that the main requirements for a more inclusive and adaptive game controller were: allowing single-handed use, allowing reconfiguration, allowing stabilization, being portable, being thin to hold, showing clear (visual) references, fitting within the imagery of a game controller, offering low physical resistance in interaction, being light, but not so light that it feels cheap, and showing careful craftsmanship in textures.

Through various digital fabrication techniques, such as 3D printing, several prototypes were created, ranging from low to high fidelity. Through co-design sessions, these many concepts were refined into a functional proof of concept.

Due to its potential, the final version presented here is currently pursuing a provisional patent.

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