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Emerging Trends

ACCB6019

Hackathon 2025: Individual Reflective Journal

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1.0 Introduction

1.1 StrideVR: Immersive Fitness



(Figure 1: StrideVR Logo).

StrideVR offers an immersive fitness experience that uses virtual reality to transport users into 3D environments while they exercise. The app connects to treadmills, bikes, and cross-trainers by using Bluetooth, USB, or a custom speed and tilt sensor. Its goal is to motivate users by replacing the traditional gym setting with engaging virtual worlds. This innovative approach supports engagement and fitness performance[1], quality of corporate wellness programs[2], helps reduce gym anxiety[3], and creates a marketplace for game developers to sell their fitness experiences.

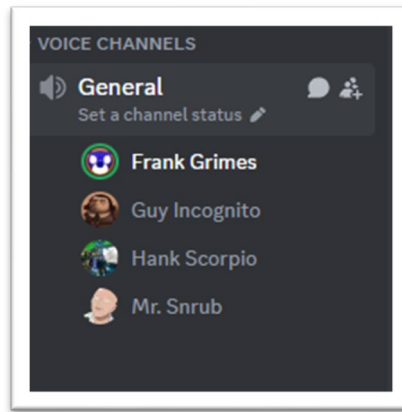
2.0 Team Dynamics and Individual Contribution

I served as the co-lead project manager and lead researcher, roles I took on because I originated the idea. With Andrew Davis leading the management aspect, I was able to focus on development and research, providing information to guide our decisions. This balance allowed the team to maintain momentum and stay aligned with our vision.

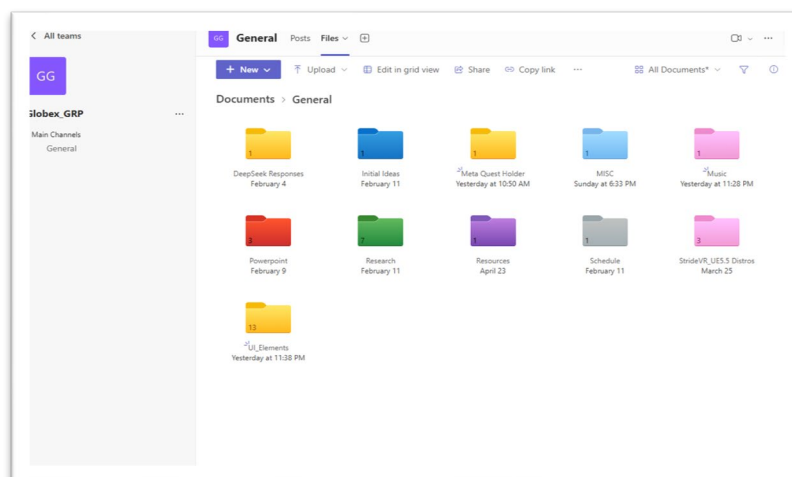
Our team quickly identified each member's strengths. For instance, although I proposed the idea, Andrew had more leadership experience and became the main project lead. This arrangement enabled me to focus on researching industry trends such as gym anxiety, low engagement in fitness, and gamified wellness. I worked on identifying market gaps and validating our concept through both primary and secondary research. Additionally, I contributed to presentations, task management, and co-decision-making. My tasks included:

- Pitching the project concept.
- Researching trends in gym anxiety, engagement, and workplace wellness.
- Investigating manufacturing feasibility and cost.
- Exploring similar products and potential integration.
- Structuring our presentation materials.

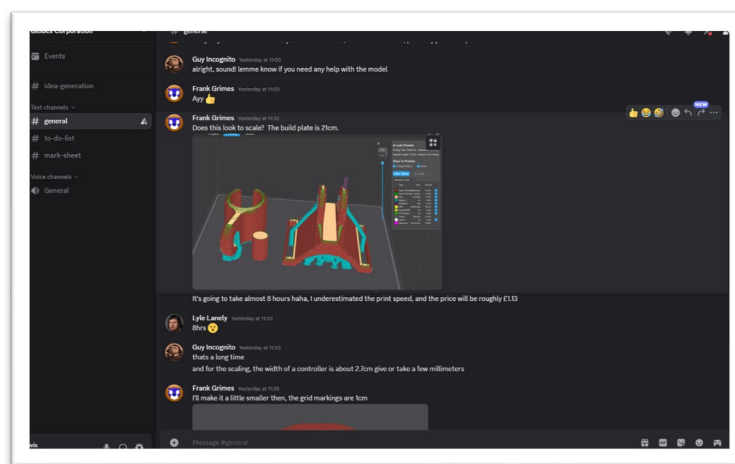
Communication was maintained through Discord[4], Microsoft Teams[5], and in-person meetings. Discord allowed for efficient coordination and task channels; Microsoft Teams organised our documentation and creative assets. Meetings often took place after lectures in library study rooms, using whiteboards to brainstorm ideas visually.



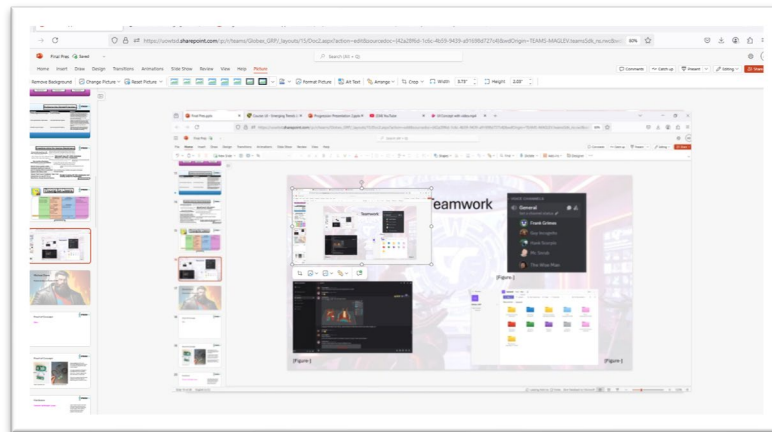
(Figure 2: Team discord call).



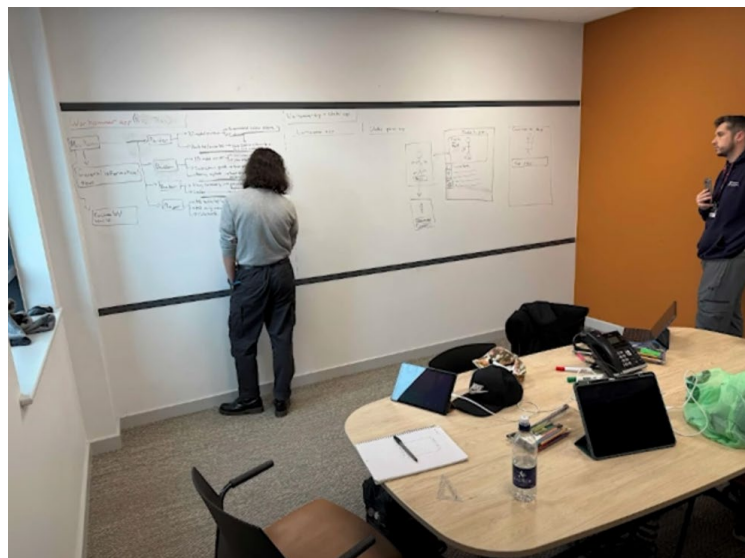
(Figure 3: Microsoft Teams Library).



(Figure 4: Discord Channel)



(Figure 5: Team working on presentation).



(Figure 6: Team meeting in UWTSD library study space)

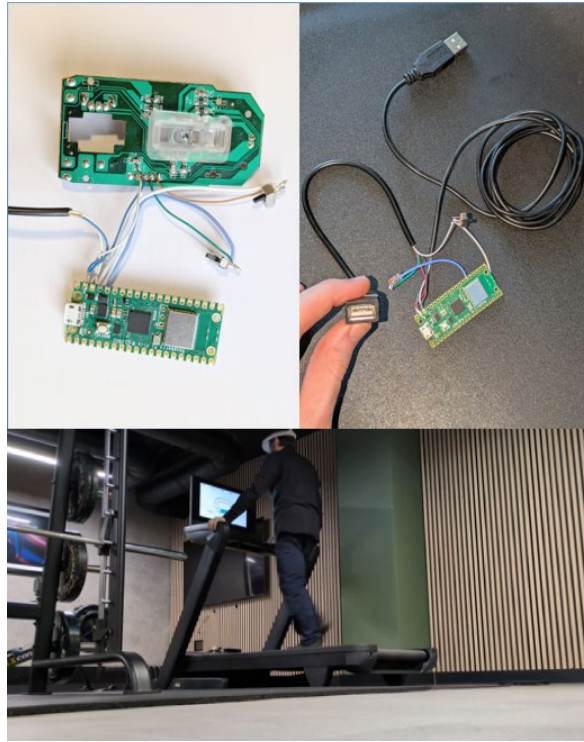
3.0 Team performance and ratings

Overall, the team collaborated effectively, with clear roles based on individual strengths. Everyone understood their responsibilities, although scheduling meetings with all five members was occasionally challenging due to other commitments.

Team member evaluations:

- **Andrew Davies – 5/5:** Strong leader who kept morale high and ensured all tasks were on track.
- **Michael Dawe – 5/5:** Exceeded expectations; created a functioning sensor prototype and 3D printed components at his own cost.
- **Morgan Jones – 5/5:** Originated the idea, contributed significantly to research and planning, and co-managed team tasks.
- **Rory Evans – 4/5:** Delivered quality work but had weak communication.
- **Gilleen Jofre – 3/5:** Delivered work late, added inconsistent features without group discussion, and was frequently unavailable due to personal choices.

Michael distinguished himself through his initiative, while Gillean presented the most challenges. Despite setbacks, our collaboration enabled recovery—particularly when Andrew and I assisted Rory after he received a delayed wireframe.



(Figure 7: Michael testing his self-manufactured speed and tilt sensor).

4.0 Evaluation of Design and Solution

The final design was a fitness app for VR brand MetaQuest[6] that synced with cardio equipment, transforming user data into immersive visual feedback. The objective was to address gym disengagement, support workplace wellness, and create monetization opportunities for game developers.

Our strongest asset was our expertise in the field. Every team member had relevant experience in both fitness and game development. The idea also addressed real-world issues such as gym anxiety and the underutilization of VR in fitness beyond basic simulations.

However, we faced some limitations, including the inability to interface directly with commercial gym equipment APIs. Equipment restrictions meant we couldn't test real-time data transfers, making this aspect theoretical. Nevertheless, Michael's speed and tilt sensor successfully illustrated the underlying principle. Prototyping costs were another constraint, but one judge suggested partnering with a manufacturer to reduce expenses.

We also considered several risk factors related to the use of VR with fitness machines, such as motion sickness, spatial disorientation, and the potential for injury. Ergonomic redesigns were necessary after in-house testing revealed comfort concerns. Additionally, relying solely on Michael for hardware could create a bottleneck, but based on our past experience, we deemed it a calculated and manageable risk.

5.0 Personal and Technical Reflection

This project affirmed my ability to lead and organise. I learned to assess feasibility early in the design process and to apply my technical experience in Unreal Engine[7], Autodesk Maya[8], Adobe Photoshop[9], and fitness to evaluate our direction. My research and teamwork skills were refined, and I discovered that balancing creativity with realism was crucial. I applied this principle from the beginning by proposing a grounded and achievable concept rather than more unrealistic ideas.

One major shift in my approach was in problem-solving. Instead of merely brainstorming, I started vetting ideas against existing products, legal constraints, and practical considerations. For instance, proposing a fitness game concept made more sense than suggesting drones or defence systems, given the team's background in game design.

Primary research became central to our process. Rather than relying on assumptions, Andrew and I visited multiple gyms to document actual machines and assess their limitations. This informed our feature set, target audience, and hardware design.

In the future, I would consider taking on a full leadership role, but aside from that, I wouldn't change much. We managed the project well, and the feedback from hackathon judges reaffirmed our direction. One potential improvement could be implementing regular check-ins to support quieter team members who may be reluctant to express their struggles.

Additionally, an expansion idea we considered was integrating resistance training. By using the Meta Quest 3's[?] mixed reality and attaching sensors to dumbbells, we could introduce re-counting mechanics that track motion for a full range of motion during reps. While this may be less immersive, it offers a hybrid solution for full-body fitness and deeper VR integration.

5.1 Conclusion

StrideVR was successful due to strong teamwork, creativity, and effective execution. Although we faced challenges with communication, hardware access, and prototyping, our collaborative approach and familiarity with the domain helped us overcome these obstacles. Our research-driven development process, along with a realistic and engaging concept, made the project both compelling and technically feasible. I believe this concept has great potential and could be further explored for real-world development.

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