



Post Mortem: Team EyeDeal

- **Introduction and overview of the project**
This is a brief description of the project, the goals, deliverables, team members, and client (if there is one)
- **What went well (or what went right)**
An analysis of what went well for the project throughout the semester
- **What could have been better (or what went wrong)**
A look at problems faced and challenges that could have been better solved
- **Lessons learned and conclusion**
What you learned through the process of the project and the course of the semester and a wrap-up with the next steps (i.e. the client is taking it to live on a certain date, or the team plans to continue working on it, etc...)

Introduction

Client: David Putrino from Putrino Labs and Mount Sinai Hospital

Members: Ebrahim Karam, Anjali Shah , Ryan Eckert , Ting-Sheng Lin , Anran Gong , Rui Xi

Advisors: Shirley Saldamarco and Michael Christel

The semester started with a meeting with Dev Sarma , Dr. Adam Fry, and Dr. David Putrino. They told us that they were looking for a fun game that people of various disabilities could use. They emphasized that the game needed to be engaging and help encourage people to use the eye tracker more.

It was a game that they hoped both abled body individuals and quadriplegic individuals would be able to use. They also mentioned that they wanted the ability to measure the guest's improvement and progress. They also noted that the game could only use a click as an interaction and the click mechanic would, later on, be replaced by what would be the most convenient for that individual. In the far future, this click mechanic might be triggered entirely by a brain-computer interface.

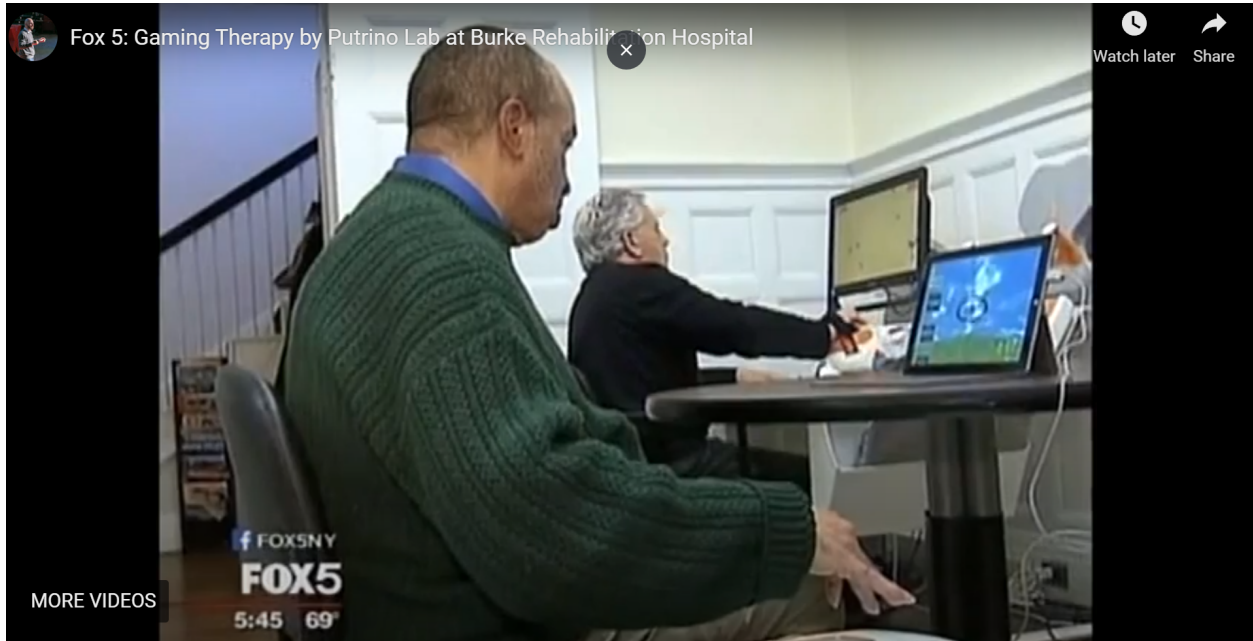
We asked a few questions to the client in that first meeting. These are a few of them that had some surprising answers.

- Are you leaning towards collaboration or competition?
- What are the 3 most important analytics to get out of gameplay?

The client surprisingly was leaning towards a more competitive game that allowed quadriplegics to be better than able-bodied individuals and even outscore them.



They immediately identified 3 metrics which were accuracy, precision, and reaction time. They quickly identified that they wanted reaction time to be divided between time to reach an object and time to shoot. Another key analytics they mentioned was smooth tracking.



A game developed by [Putrino labs to help patients regain the use of their hands](#)

What Went Well

No Shortage of Ideas and Inspiration

We were in an exciting space. The client has really given us the green light to make a game. There was no shortage of ideas. In our first brainstorming session, we developed around 50 ideas that really became consolidated into 5 major themes.

- Manipulate
- Observe
- Jedi
- Bull
- Pilot

We were working in a space that really was exciting. The guest was controlling the world with their eyes. We had the wonderful opportunity to make the guest feel powerful and omnipresent. We could really make them feel like “God”.



Decisive and Understanding Client

The client was very understanding and was really helping the ship move forward. They never changed their minds on any of the decisions taken. From the vast ideas that we presented to them, they were able to help put their ambitions into it. There was also an enormous amount of trust put on us to make the games as fun as they could be.

Before halfway through the semester, they were clear that they enjoyed two very different games (Bull and pilot). At this point, the decision really was on our research and playtesting to determine what would be.

The client meetings were always a joy to be in. They were quite understanding of the schedule and really enjoyed the work we brought forward to them. They were never hard to read and we could definitely see which work they enjoyed more.

The client also had a limited amount of time so the meetings were very concise and structured.

Amazing Talent on the Team

The artists and programmers on the team were some of the best in the class. At the start of the semester, we were able to create 10 different concept prototypes. The 3D artist and UI artist had some great work to showcase.

We also had team members that were multidisciplinary. Rui for example is the main game designer but he also knows how to code and sound design. Ryan is the lead programmer but also knew how to design and produce.

This team was extremely proactive and knew their craft well. In the proper design space, the game would look entirely different in just a week and was completely unrecognizable.

What could have been better (or what went wrong)

There were a large ranger of problems and issues over the semester but the

A Large Team and Difficult Schedules

A 6 member team was difficult at first, especially with scheduling. The team had 4 TAs for 3 different classes at the ETC and one of our team members is a BVW head TA which came with its own hurdle of responsibilities.

One of the downfalls of a large team is that decision-making can be very slow. We all had extremely strong opinions on how this project would end up.



We decided to focus on three design pillars at first:

- Fun/Engaging Game
- Simple to Play and hard to master
- Provides analytics back to the researcher.

We each became strong advocates for one of these pillars. Some of us wanted to make the analytics and training much more apparent. The client had referenced “Aim Lab” in the meetings as what would provide good analytics for them. Some of us wanted to make the game fun and were strong advocates that “Aim Lab” was a training software and a usual FPS was much more fun than any training software. “APEX is more fun than Aim lab”.

In addition, this team was quite multidisciplinary which caused members to be opinionated about the other team member’s work.

Reaching the final Design

Before halves, we got finalized at two distinct games, “Pilot” and “Bull”. The games had completely different themes and there were strong advocates on the team for each of them. There was also a variation of the bull game that was an endless runner.

To help reach a final design, there was an enormous amount of time dedicated to playtesting to see what were the pitfalls and advantages of each of the games.

Pilot	Bull	Endless Bull Runner
+ Freedom/Exploration + Tracking the enemy + Wider range appeal	+ Flinging is awesome + Minigames	+ Rewarding Combos + People felt excited about it + Very replayable
– Confusion about enemies / targets – Disorientation	- Sharp turning feels bad - Get lost w/ the objective	- Easy to get tired by the fast pace

Knowing that each of the games had its fun, we wanted to try to optimize that fun. It required a lot of fine-tuning to make sure the game wasn’t a Frankenstein of all these ideas. We really wanted to create a coherent world and that world required a whole new redesign half way through the semester.



We know we needed a vast amount of features in the game for it to be complete and have the elements we knew were exciting from the prototypes before. As a result, we decided to make the last level with all the difficulty of it first and then make the easier levels. This caused the new design to take longer but it also caused extreme confusion in the playtesters who didn't understand what was happening.

It causes us to hear a lot of doubt and complaints which really demotivated us from the final vision. In the end, we did dilute the level and eased the player in and the feedback became much more positive but there were still some pitfalls.

Our game designer then took some lessons from the endless bull runner prototype and made the arcade level for Space Bull Nova and it became a wonderful accomplishment.

The Large and Wide Demographic

Our client dictated that the demographic was going to be individuals aged 15 to 75 years old. This wide age range was nerve-racking to design for. Every opinion mattered and making a game that everyone enjoyed was an extreme challenge. It did open the door for a lot of playtesters but there was no guiding fence to mitigate the feedback. We would put Jazz music as the background music for the game and some people would love it while others hated it.

There was some advice on making a casual puzzle game from the faculty since it would definitely appeal to a wider audience but that idea didn't excite us or the client.

There was a vast sea of thoughts and opinions and it took some time to figure out how to funnel what we really needed.

Lessons learned and conclusion

One of the important lessons and realizations is that making a fun game is not necessarily a fun process. The journey has been quite an uphill battle. Even with weekly playtesting, there was constant looming of doubt if we made the right calls. We later started investing in making our calls the right ones. Towards the end, we started to let our team members do what they do best which is create amazing things and not really question their decisions.

We also had this overwhelming fear that we might not deliver and fail. We then realized that failure was a viable option and we were not alone in making this work. Each of us realized that there 5 other team members that were trying their best to make this as best as it could be. We also started to enjoy the work again and we ended up with a project really worth sharing with those who need it most.



Future Prospects

The client is extremely impressed with the game. It was harder to get a meeting with Adam towards the end of the semester but he was quite impressed with the work put in.

Dev Sarm was given access to the code and would be working closely on implementing new click mechanisms that would go well with the game as well as hopefully integrating the brain-computer interface as a click mechanic for it.

Below is a statement from our client on how this project would go forward.

“We hope to use this game to introduce quadriplegic patients to assistive technologies including eye-tracking itself and brain-computer interfaces that might benefit from the addition of eye-tracking while learning to use the technology. Our expectation is this fun game will increase patient engagement, which is so important to achieving successful outcomes.” Dr. Adam Fry