Augmented Reality: Re-shaping the Business of the Future one 3-D Model at a Time

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Abstract

A New York City-based tech company with the intention of providing a unique experience to each of its clients was fixed on a new way to drive business. The Head of Immersive Technology, along with the product team and I attacked the issue through a comprehensive project plan, Zoom calls, and projected deadlines for each type of product. The project manager and we visualized the roadmap of the project and numerous emails and conversations set up with vendors all over the world to achieve the company's aims. The project's success allowed the company to drive business and design their Augmented Reality roadmap on my short- and long-term recommendations. The company will need to continue doing research to find the best vendors to create 3D models, outline financial impacts, and track future return on investment.

1 Introduction

Have you ever been shopping online for a purse, a couch, or even a car and had trouble finalizing the purchase because you wish you could imagine more vividly what that item would look like in your space? I have. There's been times where I've been shopping online and I wish before purchasing I could just have technology that would allow for me to accurately insert the item into the living space and see how it would look and feel. Take a couch for example, that is an item that ubiquitously is hard to find the right size, color, and sometimes takes multiple trips to stores to get accurate measurements and get a feel for it – but that has its limits. In a world where we are constantly creating new innovations in technology, 3D models in Augmented Reality is a huge new space that is quickly growing.

This report will go into how I took the first steps to help a company build their Augmented Reality roadmap and provide them with short- and long-term recommendations on how they can go about pushing the plan forward.

2 Related Works

The areas of research conducted for this project were 3D modeling in the Augmented Reality space, conversations had with the Head of Immersive Technology and the research he had done, and lastly, taking a look at where the future is headed.

2.1 3D Modeling in Augmented Reality

"AR and 3D-like visual perception can provide a 'try before you buy' customer experience for e-commerce." (Roznyatovskiy, 2021). As I mentioned before, having the ability to better experience what you'll be purchasing before actually following through with a purchase

would make customers a lot more confident in what they're buying and in turn less likely to make any returns.

2.2 Head of Immersive Technology

When talking to the Head of Immersive Technology at the beginning of my internship we spoke about how the company's idea was to look for one vendor who could theoretically do it all – handle the quantity of 3D models, but also excel in quality. I quickly knew we couldn't have both, at least not with the current idea to simply hire one vendor. And then my search began for other capable vendors who we later vetted in our process.

2.3 Future of Augmented Reality

One option that is fairly new in the optimization of 3D model production has been to do it oneself. Apple has been working on Object Capture, which uses photogrammetry to turn a series of pictures taken on your iPhone or iPad into USDZ files that can be viewed in AR Quick Look (Apple, 2021). Small developments like this in the area of Augmented Reality is becoming more and more normal as everyone works to find the best form in which to turn 2D into 3D.

3 Process Design

As an Engineering/Product and Design Intern, I was assigned to the Product team in their Augmented Reality space. I aided the team on a project that they were working on, while also doing a project with the rest of the interns in the other teams, and building my network with all the global teams. I was assigned to the New Ventures team, and worked closely with my manager and the Head of Immersive Technology.

The team's use of Augmented Reality was that of their very own, getting closer and closer to building their very own AR

working system. My position was to apply my research and soft skills to figure out what vendors were the best to set meetings with to get more insight on how to shape our AR roadmap. Once that was figured out we had to plan on which vendors would work with what clients to push out the best and most efficient of projects. We were to deliver the best vendors to our clients to make sure that the 3D models would represent their items well and perfectly replicate what customers would be getting.

3.1 Project

For the project, I was instructed to run a detailed analysis on viable 3D modeling solutions for the Augmented Reality product in order to better understand the scope of 3D models and how they should shape their roadmap for the future in this sector. Once the analysis was completed on the best options, I had to vet the options. Furthermore, I engaged in global Zoom calls

with vendors – enabling the company to gain valuable insight in the formation of their roadmap. At the end of the vetting process, the vendors who we deemed the best, then worked with our legal teams to handle contracts and agreements. That was the extent to which I interacted with the vendors, serving as the first line of defense in making sure that only the best made it forward and placed in such a position where they would have access to the company's top clients in order to move forward together. Lastly, I delivered an analysis of my results, including short- and long-term recommendations, to the executive team to optimize 3D model production, drive business growth and strategic decision making.

4 Results

The work I produced in vetting vendors and helping construct the roadmap the company would take in optimizing 3D model

production and business growth ultimately led to making the strategic decision to work with multiple vendors instead of their previous decision to simply have one vendor. So instead of having projects that would take the one vendor multiple weeks, if not months to complete, could now be split over the different number of vendors the company would work with. Each vendor would have a specific area in the production that they would perfect, some vendors exceled in less difficulty, but high number of outputs. While others focused on bigger projects like a car, or a PC that had a lot more intrinsic pieces to design, but had the time to focus on such high-detailed projects.

5 Conclusion

The project I completed while my internship at Movable Ink was not only empirical in the optimization of the company's 3D model production and their roadmap, but important in my own development. My development

as a future program/product manager and just having a higher understanding of the mind it takes to really shape technology in the needs of our customers - the real-world applications of working with tech companies and being able to make such an impact is unforgettable.

6 Future Work

At the start of my time at Movable Ink I was tasked with looking for different options on how to really attack the issue of 3D model production optimization. Having given my recommendations as it pertained to having multiple vendors work with different level of difficulty projects and aiming for a number of models produced depending on the level of detail was what I believed to be the best choice.

One item as a company we didn't get to explore, but could have been another option and I'm sure someone will, was

photogrammetry – the science of obtaining reliable information about physical objects and the environment though the process of recording, measuring and interpreting photographic images. Although the process of this would be longer it would enable individuals to create this on their own and be more mobile and remote in the work, creating 3D models anywhere.

7 UVA Evaluation

The courses that most prepared me for this internship were Mary Smith's Human Computer Interaction, CS3205, class. Human Computer Interaction gave me an overview of what it is like to work on a team and not just build an app to build it, but to thoroughly think through the process and have an existential focus on the consumer point of view. Because at the end of the day, there's a reason as to why we build anything, but more importantly there's always a target audience and reaching that target audience should always be at the root of your intentions – of course making sure that you're not over estimating on any promises and working within the limits set.

References

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