Virtual Immersive Surgery Solutions

Ioannis Gregos-Mourginakis | BME Undergrad
Branden Schwaebe | BME Undergrad
Klaudia Cymerska | BME Undergrad
Jingyi Yu | BME Undergrad

OUR MISSION

People retain what they learn by being **engaged and immersed**, not by redundantly memorizing details out of a textbook. It is one thing to be lying on the couch reading a section about emergency codes, but it is an entirely different experience to **watch an emergency situation unfold right before your eyes**. With our service, students will be able to directly experience many medical situations and surgeries without leaving the comfort of their home.

Although the field of medicine is growing at an incredible rate, medical students are **widely limited in gaining clinical experience**. We aim to eliminate this bottleneck by creating a virtual clinical immersion educational course through the use of virtual reality video.

MARKET NEED

Medical school students express the concern that they do not get enough immersive clinical experience. This is largely due to **impacted programs, resource constraints, and logistical obstacles**. This results in students being limited in the ability to gain hands on experience watching and performing procedures.

Our solution will allow access to immersive virtual clinical experiences to an **abundance of students, anytime, and anywhere.** It will provide the necessary environment for medical students to develop medical, surgical, and trauma room skills, improve bedside manners and empathy, and advance human anatomy exploration.

OUR SOLUTION

We are solving the need for immersive clinical experiences by creating virtual reality instructional videos. These virtual reality videos will focus on core operations and procedures that medical students need to master. The immersive videos **allow students to experience medical procedures as if they were in the operation room.** Our concept currently allows for two ways of viewing the surgery: a first person point of view from the doctor's perspective, and a **bird's eye, 3D, 180° view**, for high fidelity viewing. These two options will be displayed simultaneously, at the option of the user. Students will be able to experience our videos with inexpensive consumer hardware.

MARKET POTENTIAL

Virtual reality is a cutting edge way of learning that has a large unexplored potential. Our product is entirely scaleable, meaning that once we create the videos, **we can distribute the intellectual property at little to no cost to us**. Moreover, market trends of virtual reality glasses positively grew from 2012 to 2018, with 11.29% growth rate, which also shows the increasing market potential of related products like our videos.

ADVANTAGES

Most medical training videos do not currently feature the level of immersion or fidelity that we offer. **When we record in 3D, surgeries come to life, details are more crisp, and knowledge retention is significantly higher.** With our service, students will be able to fully immerse themselves in the program unlike ever before. Thus, compared to other learning methods for medical students, such as in-house simulations, this fresh and immersive experience of virtual reality will be attractive for students to use for learning.

BUSINESS MODEL

Our company intends to sell our virtual reality videos to universities and medical schools across the country. We will use a **combined transactional and subscription based revenue model**. This means that our customers will either be able to pay a subscription fee for access to our videos, or they will be able to purchase individual videos at a more expensive rate. This will incentivize customers to subscribe in order to obtain more videos at a cheaper cost, which will serve as a **constant revenue model**. We will have **specific videos** for different types of procedures, **as well as packaged "courses"** that contain multiple videos surrounding a certain topic. We will be marketing all of our videos as an instructional pack or course to medical schools which will be able to purchase access to these courses. We plan to primarily target medical schools, individual students, and medical interns to begin with, but also expand into targeting biomedical engineering programs as we grow.

OUR TEAM

	**Ioannis "George" Gregos Mourginakis** Team Leader *"I love making and designing things! I am very skilled in CAD, and I have a side interest in programming."*		**Branden Schwaebe** Marketing Analyst *"I have an entrepreneurial mind and I am driven in my goal to become a CEO. I have created my own company, traded stocks, and conducted research in the MSE field."*
	**Klaudia Cymerska** Manufacturer *"I am planning on getting a Masters in Bioengineering after working for a while in the Medical Device Industry. I am excited to see where the journey of being an entrepreneur will take me."*		**Jingyi Yu** Designer *"I'm interested in neurology and have worked in a bioscience lab about EEG data analysis. I also like music and singing."*