PROJECT SUMMARY:The Commercial Opportunity
& Broader Social Impact

The Commercial Opportunity: The ability for the mind to process and respond to real-world scenarios can be deeply affected by adverse or fearful situations. In particular, many individuals have a strong fear of heights and are never able to overcome it throughout their entire life. Psychological research institutions such as universities and mental health facilities spend large amounts of money researching potential treatments and developing therapeutic programs that could be used as a cure. This product aims to solve this issue, and be marketed to those institutions as a way to amend a fear of heights. It will start out with a series of specific simulations such as the tightroping application, and slowly move towards being developed as a framework with a variety of simulations that could be used to train skills and perform a new era of mental treatment. We intend to coin this as "digital therapy".

Our goal to maximize the development throughput and profitability of this application is to target an audience of individual, niche consumers who are interested in learning skills through the usage of virtual reality. With our initial sales, we intend to collect data on how our users are performing with different scenarios included in this product. Do they perform better on a normal tightrope in a gym, or between two skyscrapers? Once enough data can be collected from this base of initial users, opportunities to perform some sort of mining will emerge. At this point, our hypothesis could be proved about the psychological effects of heights with supporting information. Research institutions need this information to further their cause. The product could be marketed with statistics to mental institutions as a therapy tool, and to these research institutions as a device for collecting further data for psychological analysis. Further commercialization and development could bring us to the intended framework of this application - not just a tightrope training gadget, but an all-around simulation-based training device.

Online research of tightroping in virtual reality revealed that there is no real competition to what this project intends to propose: both a training tool and a research device. To simply state that no other products with similar methodologies exist would be naive, but in general our mission statement is unique in several aspects. There currently exist applications for mobile virtual reality, such as "The Walk VR", but it absolutely does not intend to achieve the same mission. With time, as the popularity of virtual reality increases, it is more than likely that other training applications will emerge into this market with similar objectives. However, at the current moment and in the near foreseeable future, the market for tightroping and training in virtual reality is completely unsaturated and untapped.

The current landscape of the virtual reality market shows that there are many niche consumers who are interested in new applications that can utilize their VR devices. There are endless possibilities for how virtual reality can be used, and yet barely any applications that can actuate these possibilities. Given the unsaturated nature of this market, the intention to develop a virtual reality application comes with minimum risk, with room only to harness the unknown power of virtual reality and gain a sizeable portion of market share. Not only is this project a virtual reality and gaming application, but it is also a training simulator with real-world relevance. This puts this application in a brand new and currently untapped area - the virtual reality training market.

The current forecast of the total potential economic revenue of virtual reality suggests that the market could surpass at least 40 billion USD by the end of 2020. This leaves a wide gap for our entrance into this market. The current estimated cost for the hardware of this product, excluding the virtual reality headset, is approximately $50. This excludes any labor costs right now, as they are unknown due to the ongoing development of this product. The hardware costs could likely be decreased with the use of simpler technology, rather than using a device like Arduino that carries a high cost as part of the name. With a minimal markup of $10, this puts our product at $60, a standard for most video games in the gaming industry. This could allow us to compete as a game with other virtual reality applications, and from the training simulator perspective, massively undercut the competition.

Societal and Global Impact: Many people in society are striving to improve their physicality everyday. People are hiring personal trainers to help with their exercise form and going to gymnasiums to learn new skills with their equipment. Instead, this product aims to give people the chance to do those same things but at a much lower cost both in money and time. People won't have to leave their homes in order to train themselves. Everything can be handled in the virtual world for a more efficient lifestyle. In this specific case, more people in society would be able learn and understand how to properly walk across a tightrope.

Someone who may not be confident enough to learn in real life and or doesn't have the time to visit a gymnasium everyday (or build their own tightrope setup) can easily put on their virtual reality headset and practice at their own pace. The expected demographic that this product would target would be those who enjoy physical activity, have busy schedules, or even have some form of disability preventing them from leaving their own home. This product would allow them to train their skills wherever and whenever they please, simply in the comfort of their own environment. These would likely be people who are teenagers, all the way to individuals who are in their mid 40's. Based on age range, however, users below the age of ten should not be able to use the Oculus Rift headset due to Oculus's standard safety disclaimers.

There are no basic risks involved as long as the user has an open space to do the simulation. However, there is the chance that people may overestimate their abilities in the real world after their high performance in the virtual world. This is a larger concern affecting the virtual reality industry, so we would advise our consumers to test their abilities in the real world in very safe circumstances after ample time training in the simulation. In addition, this virtual reality simulator also attempts to give off a real psychological factor.

As an individual advances their tightroping skills in the simulator, the level of challenge will increase by changing the virtual scenery around that person, and potentially tightening up game mechanics. For example, the first level could start the user out in a backyard over grass. The next, second level could make the challenge harder by putting the user on a tightrope between two buildings. The psychological factor is something that could cause mental strain for certain people who may have a phobia of heights or may stun someone with fragile mental stability. There is also the smaller concern of people being vulnerable to home invasions and other malicious activities when they are occupied in the world of virtual reality. Younger users may, however, need more guidance when using this product in case they stumble

into unseen obstacles in the play area. Otherwise, people of all ages would be able to use this product (besides those under ten years old as mentioned above).

This product cannot be used unethically because there is no multiplayer connection. Each user is self contained in their own simulation and can only affect their own actions and environment. In this capacity, their actions only affect themself, but there is no seeable way that this could be negative. The global impact that this product could have as long as it continues to adapt and evolve is that it would be able to allow people to train for physical situations within their own homes with basic setups without the need of having to find specific equipment and or establishments to do the same thing in.

This teaching tool could continue to evolve down the line and be used for all sorts of different physical challenges. Another great use for this idea is that it could be used to help people with physical disabilities. A virtual physical therapy application could be created for users with disabilities to practice certain exercises without the need to have to pay for specialists. The costs aspect is also something that is very important to the impacts of this product. Having an accurate data backed teaching tool like this that can be molded to fit multiple different situations is a great alternative to having to pay for different types of trainers and establishment memberships.