**Devulapalli Whiteboard**

*Executive Summary*

This Whiteboard will consist of the project breakdown that is focused on developing an innovative designed to significantly reduce the risk of concussions in football athletes. The current problem is that existing helmet paddings are not providing adequate protection against collision forces seen in high-contact sports like football. This project offers to find an effective solution that can improve athlete safety and potentially lower long-term healthcare costs associated with concussions. The current helmet market is growing and with the the increased attention towards player safety, this project presents a significant opportunity to make a positive difference. Our goal is to introduce our novel solution as a new standard in sports equipment, backed by experimental data and stakeholder engagement.

*Scope*

This project addresses a significant gap in the helmet market, where existing materials fail to provide adequate protection against concussions, particularly in high-impact sports like football. The need for an effective, durable, and versatile material and design is critical, as the current standard does not sufficiently reduce the risk of traumatic brain injuries. Within the healthcare landscape, this project’s focus is on concussion reduction and prevention, targeting athletes at all levels who are at risk of head injuries. Stakeholders in this project include athletes and their families, sports leagues, helmet manufacturers, and healthcare providers. Each of these groups plays an important role in addressing the need, with healthcare providers validating the product’s efficacy and sports leagues driving its adoption. This project plans to improve on the traditional helmet by incorporating an improved impact absorption technology, potentially lowering the rates of head injuries and long-term cognitive damage. A successful project would not only enhance athlete safety but also reduce the burden on the athlete’s health, with fewer injuries translating to lower long-term costs for treatment and rehabilitation.

*Risk*

Despite the promise of this project, several risks exist that must be managed. Competition comes from traditional helmet manufacturers who rely on older materials, though these do not offer the same level of protection or versatility. Technical hurdles include ensuring that the prototype meets rigorous safety standards and regulatory requirements from organizations such as NOCSAE (National Operating Committee on Standards for Athletic Equipment). Economic challenges include securing market acceptance, particularly from major sports leagues, which can be slow to adopt new technologies. Social and political hurdles may arise, especially in promoting the importance of concussion prevention in youth and amateur sports, where financial constraints may limit adoption. However, the market size presents a significant opportunity; the global helmet market is growing substantially, driven by heightened awareness of sports-related injuries. Regulatory oversight is expected to be high, requiring rigorous testing and certification before the prototype can be fully commercialized. Success will be measured through metrics such as reduced concussion rates and adoption by professional and amateur sports organizations. Intellectual property protections, including patents, will be critical in securing the project’s position in the market and maintaining a competitive edge.

*Personnel*

This aligns closely with our team’s goal to develop an innovative solution for a recurring problem. Our team’s strengths lie in our content in Biomedical Engineering, thinking creatively and a strong understanding of the physiology behind contact sports. These core strengths are essential in developing a novel prototype, particularly when navigating the complexities of safety certifications and market adoption. However, recognizing our weaknesses, such as the need for scaling production and managing distribution, we plan to leverage strategic partnerships with established manufacturers and distributors to overcome these challenges. Consulting with industry experts will help us navigate the regulatory landscape, ensuring compliance across various regions and industries. Ethical considerations, particularly related to athlete safety, are central to our motivation. We are committed to ensuring that this project is accessible to youth and amateur athletes, where the risks of head injuries are often overlooked due to financial constraints. Our project mentors will play a vital role in guiding us through regulatory and strategic challenges, helping us build connections with key industry stakeholders and ensuring that this project reaches its full market potential.