

Abstract

An ideal prosthetic socket should be perceived as a part of the natural limb and should diminish further risk of injury. The primary focus of recent developments in prosthetics has been to improve daily-life activities. However, heat accumulation and perspiration inside the prosthetic socket have not been addressed commercially. In addition, methods for compensating for the volume loss that occurs within residual limbs throughout the day have not been improved. The current method requires removing the socket completely to add or remove socks. This project concentrates on the development of a system to increase prosthetic socket usability by reducing heat buildup, minimizing skin damage, and accommodating volume fluctuations of the residual limb for prosthetic customers. A removable cooling system with active volume compensation requiring a one-time modification to the individual's socket has been designed as shown in figure 1. This project provides innovation within the prosthetics field by introducing a novel prosthetic system capable of increasing comfort and safety with minimal modifications.

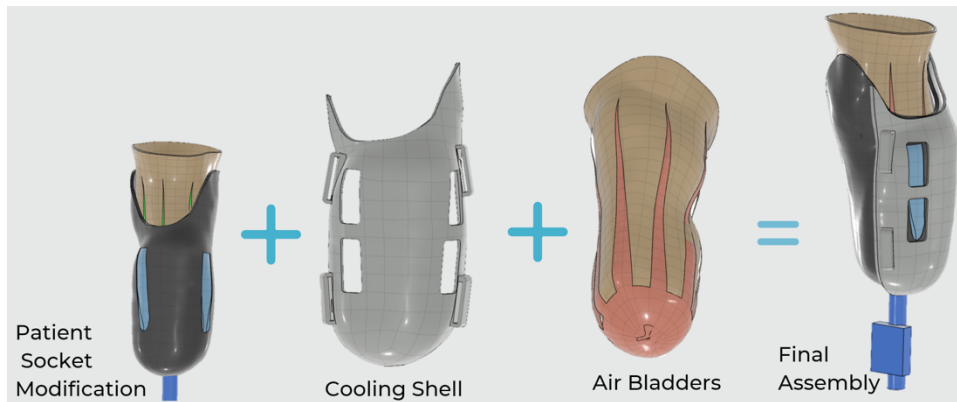


Figure 1: Removable cooling system and adjustable air bladders for a prosthetic.



Figure 2: Team Photo