Designing and Prototyping and LIDAR Based Haptic Navigation Vest for the Visually Impaired and Special Forces

Bryant, Joshua (School: Ocean Lakes High School)

With the conception of the mobility aid cane, or more commonly known as a ‘white cane’, being over 100 years old with little improvement to its primary function while still holding the same social stigma, an innovation is needed. Many people with visual impairments are hesitant to use a white cane in public for fear of the stigma surrounding visual impairment. This is the main reason why I wanted to create a functional prototype of a product that could discreetly provide tactile information about the user’s surroundings. By incorporating the main function of a white cane into a nondescript vest, the visually impaired can blend in with those around them and avoid negative perceptions of being “blind” that would come from using a visually jarring white cane. My goal was not only to create a functional prototype of this device, but to do it professionally by using my electrical engineering and project planning experience I had gained from a summer mentorship at a local engineering firm. I used this experience to create systematic product breakdowns, electrical schematics, printed circuit boards, and requirement traceability matrices to create a high quality, visually stunning prototype that would accurately show my intentions for what a production-ready product would look like.

Awards Won: