Integration of Technology in the NMD Surfboard Prototype for Greater Safety

Cordero, Noeliz (School: Abelardo Martinez Otero)

This project aimed to provide a surfing board to people with neuromuscular diseases (NMD), creating inclusion for any audience in the sport, especially surfing. The problem is, how accurate is the new integration of technology into the NMD surfboard to warn about the surfer's safety at a distance? In the previous phase, it was verified that surfboards have different parts that affect their behavior when riding them. The hypothesis is that the integration of the Arduino Uno technology programmed with the functionality of tracking and movement in the NMD surfboard is highly accurate in warning at a distance about the safety of the surfer. To carry out this project, a board whose technology provides a higher level of safety for people with neuromuscular limitations was created. An Arduino (Uno model) was used, with which a distance limit was programmed between the zones: close to the shore, safe, and dangerous, which could notify through light and sound. A scaled model was tested on a simulated beach and a reference point for five times with interference and five times without interference at each zone. As a result, the integrated technology was highly accurate in measuring distance and warning about the safety of the surfer. This prototype can promote the rehabilitation of people with neuromuscular disabilities in addition to integrated technology with security alert and surveillance during the practice of the sport. Thanks to this surfboard, a community can receive the benefits of this sport.

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