URCT Design Team Abstract

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During the 2020 Spring Academic semester, the design team focused on developing an improved method for securing several components of the device to the user. The initial completed objective was to construct an elastic ankle strap with an inset compartment for the vibrating motor and a Velcro securing mechanism. Velcro was used to accommodate different ankle sizes. Additionally, the team worked to establish a consistent standardized method for orienting the Force Sensor within the subject's shoe and began prototyping a modified insole for optimized flow of electrical components through the subject's shoe via an outlet on the heel. The design incorporated a custom shape constructed from ⅛" insole material. These custom insoles were to be developed in a range of insole sizes (M7-12) in order to accommodate different users during data collection. Lastly, the design team worked in conjunction with the electronics team in order to continue the reduction of the device casing as the circuitry components were minimized.

Going forward, the design team hopes to continue streamlining the device casing and alter the positioning of the device during testing from the laces of the shoe to the elastic ankle strap described previously in order to reduce setup time. Once these alterations have been made, testing the consistency and durability of the device and its measurements will allow for the determination of a functional device, at which time the design team will focus on creating multiple of these fully operational devices to broaden the testing capabilities.