

Background

The shoe design process can be quite detailed and complex. Currently, feedback on fit relies heavily on shoe testers providing qualitative which can be tedious and responses, time-consuming. Our goal is to improve shoe fit and streamline the shoe design process.

Our project is an instrumented sock fitted with a collect to network of pressure sensors quantitative fit data. We transmit the data directly to a user interface, which allows for dynamic testing. We used a thin-weight sock and conductive fabric for comfort to the user.









Arduino MKR WiFi 1010 Microcontroller that collects data over I2C and transmits it via Bluetooth

Resistive Pressure Sensors Measures PSI values on a linear scale, allowing for easy calibration and usage

> **Lithium Polymer Battery** Powers sensor system and Arduino

Breakout Boards Provides power to sensors and sends data to the Arduino via I2C



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Other Key Components



Conductive Fabric Thin and flexible sensor sewed into fabric for comfort and accuracy



Tail Extender The flexible connector allows the sensors to reach the breakout boards/Arduino easily

Holds the breakout boards and microcontroller. Sits comfortably above the foot to not interfere with shoe fit

Ankle Band



The user interface is a website that displays the pressure on each sensor in a graph. It updates in real time as data comes in and saves for easy access.

