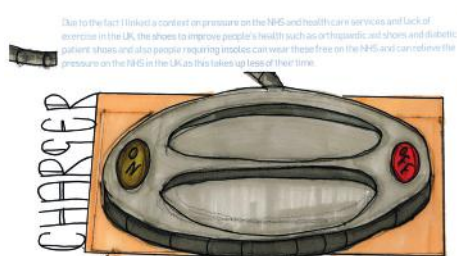




IF YOU WERE AN ENGINEER WHAT WOULD YOU DO?®

Lancashire Leaders Award 2019
 Winner, Year 12

Smart Shoes



Place shoes on the two gaps, charge when your not wearing them.



Incorporating the ANT+ wireless technology into my shoe it allows the user to view their days work more efficiently through phones, smart watches and even tv's. They can all hook up together and connect through the ANT+ technology. As this is such a small processor its perfect for this shoe design to keep its as light weight as possible to keep wearing and exercise even for the user.

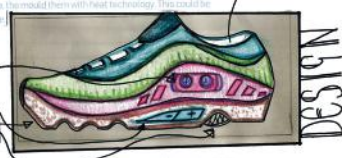


I will create an app to go alongside the shoes which will be accessible from phones and smart watches and can be broadcasted onto TV's. In order to link these up I will use ANT+ wireless technology, which I learned from an engineer from Siemens and added this to my idea as a development to help keep my design light weight and ANT+ is an alternative to Bluetooth technology.

ANT+ is the wireless technology that allows your monitoring devices to talk to each other. I would design ANT+ into my products to ensure that you get the data you want - when and where you want it. Fundamentally, ANT+ gives you the simplest, most expandable and most reliable user experience possible.

ANT+ stands for interoperability which means that ANT+ products from multiple vendors work together. Plus, because devices are compatible, you can always add to or update your monitoring system.

- Pressure sensors
- Podiatrist
- Stride length tracker
- Heart rate sensor
- Adjustable soles
- Temperature sensors/thermal imaging



How to charge? - Big obstacle

Dissect the idea of a take-out battery similar to battery shoes with a removable wheel so they can still be used as normal functioning shoes when the removable battery is recharged.

Or could create a wireless charging pad where you place the shoes down at night and they wirelessly charge your shoes from the plugged in pad, however this would only be a root.



I would design different types of the shoes for different functions such as:

- Orthopaedic Shoes: track time shoes are used, activity and pressure
- Diabetic patients: track shear forces leading to inflammations, possibilities to monitor temperature at multiple locations under the foot to detect upcoming inflammations at an early stage.
- Sports: cycling, running (could be developed for triathlon usage)
- Regular functioning gym shoes with limited accessories as all trackers or create high tech sports shoes with lots of trackers and sensors for more committed and professional runners.
- Rehabilitation: track patient's after bone fractures or knee or hip replacements.

Name: Evie Smith
 Gender: Female
 School name: Ulverston Victoria High School
 Year group: Year 12
 Which engineer inspired you? Tom Cox
 From which company? Seimans

The 'Smart Shoes' track fitness, including movements, heart rate temperature and has pressure sensors. An application can be downloaded to monitor the data and can be broadcasted onto televisions. The shoe can be in several designs for different functions: orthopaedic shoes, diabetic users, sports and rehabilitation.