Pascal's Socks

I've got 2 soles but I'm not a sol(e)dier

By: Foo Jing Yi and Julene Ngew

Target Group: People with feet issues

What problems are they facing:

- Feet Problems
    - Cause: Natural (Born-with), poor gait/bad walking habits, standing for long periods of time
        - Examples:
            - Over-pronation
            - Fallen arches
    - Cause: lifestyle related
        - Examples:
            - Blisters
            - Calluses
            - Fractures
            - Sprains
            - → poor posture → Excessive pressure on certain parts
- 75% of Americans will experience feet problems at least once in their lifetimes

Our solution aims to:

- Help determine best treatment
- Correct posture when standing and walking
- Targeted treatment of Feet issues
- Diagnosis of the foot problem

Current Measures (Similar Products):

- Platform Systems
    - emed® pedography platforms by Novel
    - platform based foot plantar pressure sensor by Zebris Medical GmbH
- In-Shoe Systems
    - F-scan System by Tekscan
    - Pedar by Novel

Limitations of Current Measures:

- Platform Systems:
    - Restricted to research laboratories/clinics (indoor)
    - Requires familiarisation to ensure natural gait
    - Limited by patient's ability to make contact with the platform
        - Important for foot to contact centre of sensing area for accurate reading

- In-Shoe Systems
    - Sensors can easily slip because they are part of the in-soles
    - Fewer sensors as compared to platform systems
    - Expensive because they create their own full-sized sensors

Our assumptions:

- % of Americans is similar to the % of whole world
- Measuring pressure and providing tips on feet pressure placement is effective as a solution (as opposed to actually seeking regular medical attention)
- People are willing to take the initiative to try this

Our solution: Pascal's Socks

Requirements:

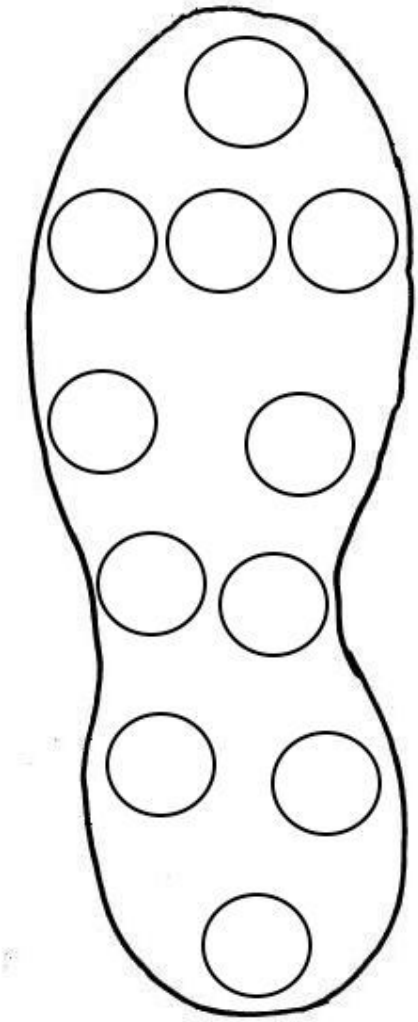
- Pressure sensor
- Microcontroller
- Bluetooth
- App

What makes us unique:

- Value for money (Cheaper)
    - Use of cheaper parts (since we are using microbit/arduino etc. this could be cheaper than what they use and we can source for cheaper sensors → lower price)
- Socks
    - Less likely to slip, as opposed to in-soles
    - Can also be worn without shoes
- Aesthetic Appeal
- Accompanying App (Link to App prototype: https://pr.to/3RR6QA/)

    - Easily accessible
- Convenient
    - Use on the go
    - Easier to fit
    - No requirement for constant medical analysis
    - as for really medical stuff (since you won't want to use the product wrongly and cause more problems), maybe just a one or two time consultation for fitting?

Proposed placements of sensors on bottom of sock:



Proposed prototype of sock: