

Ideas

<https://www.fda.gov/media/175828/download>

Different Location:

- Where can we take SpO2 readings from
- Ear lobes/ Other peripherals

(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3016573/#:~:text=Ear%20probes%20consistently%20showed%20the,sensor%20sites%20in%2045%20patients.>)

- Patches (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6226280/>)
- Blood Pressure Measuring (partial pressures)
- Across the chest
- Glasses / Ear loop (In canal?)
- Ring (<https://ieeexplore.ieee.org/abstract/document/8440715>)



- Sock - elastic band across ankle could provide tight fit
- Levels of accuracy
- Required level of accuracy

Different Variables:

- Which variables affect it
- Which sensors would we need to get reliable readings
- Movement - Accelerometer - can be used for safety readings too
- Body Position of Person
- Wireless communication
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Parallel Fields

- Blood Glucose Monitors
- Microneedles

Cleaning and Hygiene may need to be explored

Questions for Mentors:

Chip name - MAX30102 <https://www.instructables.com/Guide-to-Using-MAX30102-Heart-Rate-and-Oxygen-Sens/>

Deliverables

- Code for data from sensor/s and research on error reduction and statistical analysis
- How to wire sensor to processor/ how to work on making it flexible
- Research materials for comfort/stretchability/functionality
- Connect Sensors together/ mounting to person
- Data transmission and display (UI)
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Things to think about

Different wavelengths (absorption ratios of oxygenated and deoxygenated haemoglobin)

Normalise to outside light sources

Usability of product

Check for sources of failure (water/sweat)

Materials for compatible wear

Why haven't existing technologies been implemented yet