Physiological Data Analitics display

Contents

1 Possible Measurements means

1.1 PPG

Like MAX30102

1.1.1 Heart Rate & SPO2

TODO

1.1.2 Glicemic Index

Red Blood Cells absorbance depends on the glicemic index. Coupling it with ML model to estimate the glicemic index can be acceptably precise.

Study link:

2 Hardware Components

2.1 Power Supply

Options:
1. Little power bank can be just plugged-in to an esp32 via usb.

2.2 Microcontroller

Options:
1. Thinking about an esp32 risc-V because of little size.

2.3 PPG chip sensor

Options:
1. MAX family chip sensor

2.4 Data Transmission Module

Options:
1. Built-in esp32 module

2.5 Display

Options:
1. Web Interface ran by the **SERVER**
2. Wearable mini-display

2.6 Case

To hold all Components

3_ Data Workflow

3.1 Acquisition

From **SENSORS** to **MICRO**

3.2 Forward Transfer

From **MICRO** to **SERVER**

3.3 Elaboration

From **raw data** to actual **physiological parameter**

3.4 Backward Transfer

From **SERVER** to **MICRO**

3.5 Visualization

From **MICRO** to **DISPLAY**
or
From **SERVER** to **webpage** (julia dashboard)

4 Programming Languages

4.1 Microcontroller

Based on my language knowledge:

RUST or **MICROPYTHON**

I will consider micropython if possible.

4.2 Data Elaboration

RUST or **JULIA** or **PYTHON**

I think im gonna choose julia.

5_ Functioning

MICRO will get datas coming from **SENSORS** and will send to **SERVER** through **WIFI** or other protocol.

6 Problems

1. How to package all the components in an acceptable format size?
2. How to install the ppg sensor in order to not get too noisy signal and to make it comfortable to wear?