Biomedical Wearable Technologies
for Healthcare and Wellbeing

Symposium

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INFORMATION
ENGINEERING

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The devices

Polar H10 Heart Rate Monitor

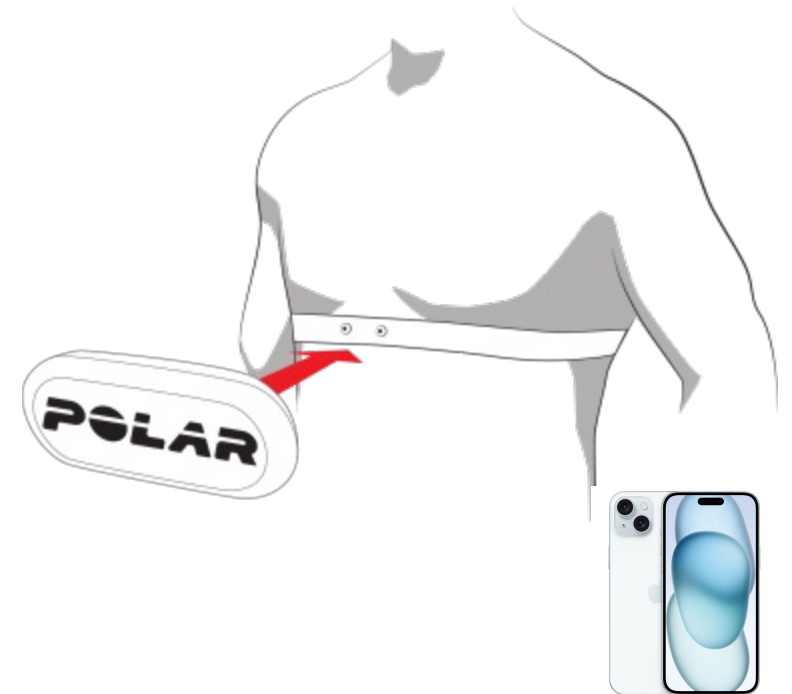➢ Bluetooth and ANT+ communication

➢ Sampling rate of 1 Hz

iPhone 15

➢ Hosts a custom app that communicates with Polar H10

➢ Collects and export data

The "protocol"

➤ 5 volunteers wearing 1 x Polar H10 + 1x iPhone (need their Age and BW)

➤ 2 laps of the DEI "main" building walking as fast as possible

➤ At the end, export data

Start/Stop

The aim

➢ Rank the 5 subjects by cardiovascular health evaluated according to their estimated VO2$_{MAX}$ calculated from the recorded heart rate

➢ VO2$_{MAX}$ is the maximum

oxygen volume a subject can

consume per min (l/min).
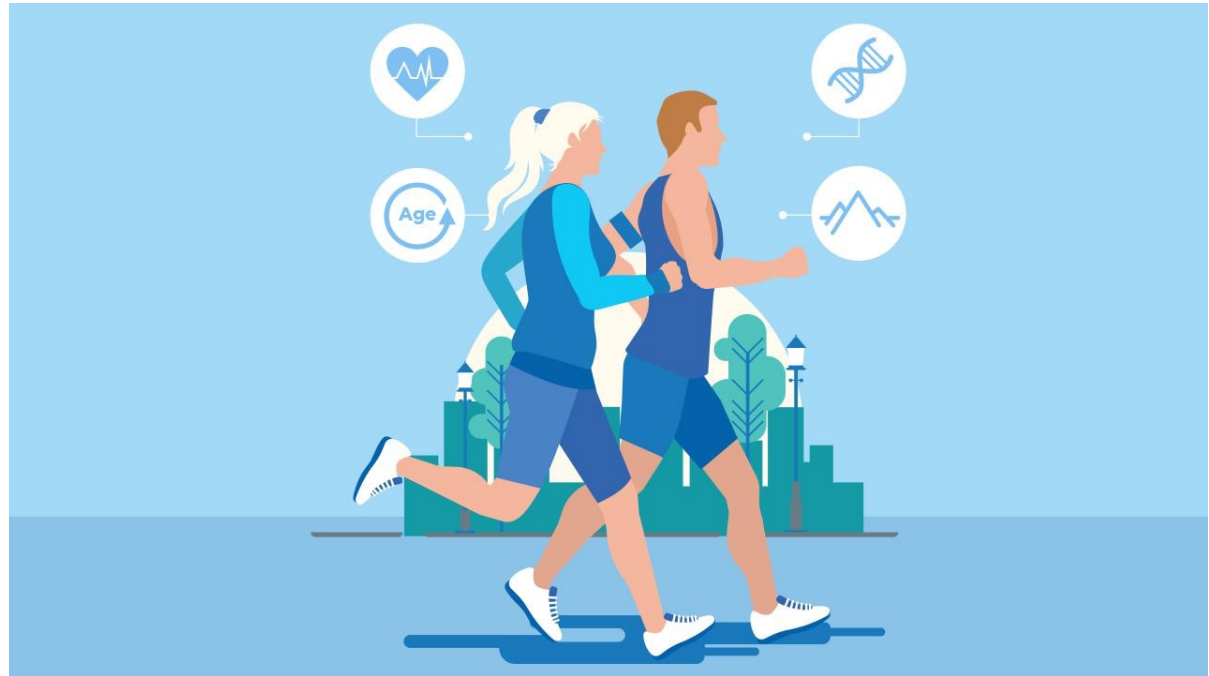
How data will look like

```
data =

  147×2 table

    hr      time
    ___     ___

    57        0
    57        1
    57        2
    57        3
    57        4
    58        5
    58        6
    58        7
    58        8
    57        9

     :        :

   NaN      137
    61      138
    60      139
    60      140
    59      141
    59      142
    59      143
    59      144
    59      145
    60      146
```

5 .csv files containing
➢ time from start (s)
➢ heart rate at given time (bpm)