# Requirements

Key: POST/Power on = P, **Ease Of Use = E,** Interfacing Between Devices = I, **Menu = M,** Data Handling, **Database = DB,** Human Interface = H, **ECG = E,** Screen = S, **Sphygmomanometer = B**

**Key:** S = Highest Priority, **A = lower,** B = lower, **C= lower**, **D = lower**, E = lowest

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| ID | SUMMARY OF REQUIREMENT  (I WANT TO) | | RATIONALE  (SO THAT I CAN) | PRIORITY | SOURCE | CREATED |
| POST/Power on | | | | | | |
| P1 | Be able to test the memory | Verify the board will work correctly | | S |  | 04/10/2018 |
| P2 | Be able to test the screen | Verify the screen will display correctly | | S |  | 04/10/2018 |
| P3 | Be able to test the CPU (Jump instructions) | Verify the board will work correctly | | S |  | 04/10/2018 |
| P4 | Be able to test the power | Verify the board will work correctly | | S |  | 04/10/2018 |
| P5 | Be able to test ROM | Verify the board will work correctly | | S |  | 04/10/2018 |
| P6 | Be able to perform POST/Power on the device | So the board can actually be used and boot up | | S |  | 04/10/2018 |
| P7 | Be able to check buttons | So that the buttons can be used | | S |  | 04/10/2018 |
| P8 | Check network interface | So that we can wired devices | | B |  | 04/10/2018 |
| P9 | Check blue tooth module | So that we can connect devices | | B |  | 04/10/2018 |
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| Ease Of Use | | | | | |
| EU1 | Be able to use the device within 2 minutes | So that the user can get a reading as soon as possible | A |  | 04/10/2018 |
| EU2 | Not charge it very often | Not have to worry too often | B |  | 04/10/2018 |
| EU3 | Power it via USB | A special cable is not needed | 1 |  | 04/10/2018 |
| EU4 | Be able to take it with me | Take a reading whenever | C |  | 04/10/2018 |
| EU5 | Be able to view results on a screen | Give the readings meaning in the moment | S |  | 04/10/2018 |
| EU6 | Be able to adjust screen brightness | Have a more comfortable viewing experience | C |  | 04/10/2018 |
| EU7 | Be able to adjust the text size | I can read the words incase they’re too small | C |  | 04/10/2018 |
| EU8 | Be able to improve accessibility for visually impaired | More people have access to the device | B |  | 04/10/2018 |
| EU9 | Be able to charge device when its ON | Not depend on the limited charge capacity of the device |  |  |  |
| EU10 | Be able to charge device when its OFF | Make sure its ready to use when I need it |  |  |  |

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| Interfacing Between Devices | | | | | |
| I1 | Be able to interface with a computer via USB | I can download past results | S |  | 04/10/2018 |
| I2 | Be able to interface with a computer via blue tooth | I can download past results if I don’t have a cable | A |  | 04/10/2018 |
| I3 | Be able to interface with the board via wifi | I can gather results without a cable | B |  | 04/10/2018 |
| I4 | Be able to interface with the board via ethernet | I can gather results remotely | C |  | 04/10/2018 |
| I5 | Be able to receive results via text | I can immediately alert a Dr. or family member | D |  | 04/10/2018 |
| I6 | Be able to interface with a remote database | I can save results to something else | C |  | 04/10/2018 |
| I7 | Be able to interface a local database | I can save results from previous tests | B |  | 04/10/2018 |
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| Menu | | | | | |
| M1 | Navigate a menu | Select different options | S |  | 04/10/2018 |
| M2 | Select a menu option | My navigation has meaning | A |  | 04/10/2018 |
| M3 | Return to Menu | I can select something else | A |  | 04/10/2018 |
| M4 | Select the ECG from the menu | I can take a reading | S |  | 04/10/2018 |
| M5 | Select User options from the menu | I can configure user profiles | B |  | 04/10/2018 |
| M6 | Select Historical ECG readings | I can view old readings | C |  | 04/10/2018 |
| M7 | Reboot the board | I can perform more controlled maintenance and fixing | S |  | 04/10/2018 |
| M8 | Have an Options option | I can edit options | B |  | 04/10/2018 |
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| Data Handling | | | | | |
| D1 | Record readings to a file | I can export the file | B |  | 04/10/2018 |
| D2 | Record readings to a human readable format | I can view the readings | A |  | 04/10/2018 |
| D3 | Be able to store data | I can store data for later | B |  | 04/10/2018 |

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| Database | | | | | |
| DB1 | Load data from a database | Store a data for querying | B |  | 04/10/2018 |
| DB2 | Commit data to a database | Data can later be queried | B |  | 04/10/2018 |
| DB3 | Store user data in database | Multiple users can be stored | B |  | 04/10/2018 |
| DB4 | Load user data from the database | Different user data can be loaded | B |  | 04/10/2018 |
| DB5 | Keep track of previous readings | Keep a record of previous readings | B |  | 04/10/2018 |

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| Human Interface | | | | | |
| H1 | Perform a button press | I can interact with the device | S |  | 04/10/2018 |
| H2 | Perform a button double click | I can interact with the device | A |  | 04/10/2018 |
| H3 | Perform a long button press | I can interact with the device | A |  | 04/10/2018 |
| H4 | Perform a multi-button press | I can interact with the device | A |  | 04/10/2018 |
| H5 | Use the slider | I can interact with the device | A |  | 04/10/2018 |
| H6 | View feedback on the screen | I can interact with the device | S |  | 04/10/2018 |
| H7 | Enter user information | I can have multiple profiles | B |  | 04/10/2018 |
| H8 | Change scale of ECG using slider | I can view more precise readings | A |  | 17/10/2018 |
| H9 | Change the scale of the UI using the slider | I can enlarge the words on screen | B |  | 17/10/2018 |

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| Screen | | | | | |
| S1 | Display heart rate | See the heart rate immediately | S |  | 04/10/2018 |
| S2 | Show all available data on the screen | The screen real estate is used effectively | B |  | 04/10/2018 |
| S3 | Display heart rate in real time | See readings are relevant | S |  | 04/10/2018 |
| S4 | Display multiple ECG readings | Compare previous readings | B |  | 04/10/2018 |
| S5 | Display a menu | Select different menu options | S |  | 04/10/2018 |
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| ECG | | | | | |
| E1 | Measure a user’s heart rate | Measure a user’s heart rate | S |  | 04/10/2018 |
| E2 | Send ECG readings to screen | View a user’s heart rate | S |  | 04/10/2018 |
| E3 | Read data from all the electrodes | So that readings can be gathered | S |  | 04/10/2018 |
| E4 | Adjust sensitivity based on age | Readings can be more precise based on the type of user | B |  | 04/10/2018 |
| E5 | Filter out interference | The readings aren’t skewed | S |  | 04/10/2018 |
| E6 | Measure heart rate in real time | Viewable readings are relevant | S |  | 04/10/2018 |

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| Sphygmomanometer | | | | | |
| B1 | Measure a user’s blood pressure | Take readings and make medical judgements | S |  | 15/10/2018 |
| B2 | Send BP readings to screen | View a user’s blood pressure | S |  | 15/10/2018 |
| B3 | Read data from the reader | So that readings can be gathered | S |  | 17/10/2018 |
| B4 | Take average blood pressure | Have better results | A |  | 17/10/2018 |
| B5 | Filter out erroneous readings and data | Have more accurate results | S |  | 17/10/2018 |
| B6 | Measure blood pressure in real time | Read more relevant ratings | S |  | 17/10/2018 |

| REQUIREMENT NUMBER | REQUIREMENT DESCRIPTION |
| --- | --- |
| **1** | Be able to power up |
| **2** | Ready to use within x amount of minutes |
| **3** | Be low power (via USB) |
| **4** | Be able to measure heart rate |
| **5** | Be able to display heart rate |
| **6** | Be able to store data |
| **7** | Format said data into readable format |
| **8** | Accept input from electrode sensors simultaneously |
| **9** | Adjust sensitivity based on user’s age |
| **10** | Be portable |
| **11** | Can interface with a PC |
| **12** | Take in user data |
| **13** | Export formatted data (to document) |
| **14** | do POST (power on self test, check is working) |
| **15** | check ROM |
| **16** | check RAM |
| **17** | check CPU (instructions) |
| **18** | be able to record enough data to fill the screen |
| **19** | have a screen |
| **20** | check buttons |
| **21** | menu navigation |
| **22** | exploit various button states (its free real estate) |
| **23** | store multiple past readings |
| **24** | display more than one ECG reading for comparison |
| **25** | display current heart rate while in use |
| **26** | networking |
| **27** | interface with phone via bluetooth |
| **28** | ping results via text |
| **29** | transfer data to computer as file |
| **30** | interface with database |
| **31** | load from database |
| **32** | store user data in database |
| **33** | load user data from database |
| **34** | screen brightness |
| **35** | adjust text size |
| **36** | accessibility for visually impaired |
| **37** | process electrode sensor input |
| **38** |  |