ID	Requirement	Related Use Case	Fulfilled By	Test	Description
1	A light on the user interface that indicates an active pulse reading	N/A	mainwindow	Run project and observe the user interface.	A QLabel is used to display different states.
2	The user interface consists of a screen and buttons. the screen contains the menu and display graph.	N/A	mainwindow	Run project and observe the user interface.	The screen in the mainwindow is a custom widget, which can display menus and graph, and the mainwindow also contains 8 buttons.a menu button, a standard back button which will return the user to the menu, four arrow buttons and a selector in the center of the arrow buttons which also functions as a start/stop button.
3	A light on the user interface that indicates coherence level	N/A	mainwindow	Start new session and observe the coherence light.	Qpushbutton is used to indicates coherence level, when indicates coherence level changed, the background color of the button will change.
4	The menu consists of the following options: start new session, settings, log/history	N/A	menu	Run project, press power button, and observe the menu	The menu class contains a QStringList which contains the current menu items, a parent pointer holds the parent Menu and a Qvector holds the sub-Menus.
5	session screen displays the main HRV graph.	N/A	mainwindow, qcustomplot, hrvgraph	Start new session and observe the screen.	The qcustomplot is used to draw graph. The hrvgraph contains a Qvector contains the graph data.
6	The settings menu includes challenge level and breath pacer settings.	N/A	menu	press power button and select the settings menu.	The menu class contains a QStringList which contains the current menu items,
7	There are 4 challenge levels for coherence	N/A	menu	press power button and select the settings menu, then select challenge level menu.	The menu class contains a QStringList which contains the current menu items,

8	There are 4 breath pacer frequencies in menu	N/A	menu	press power button and select the settings menu, then select breath pacer settings menu.	The menu class contains a QStringList which contains the current menu items,
9	The menu contains a log tab of all sessions, when selected show the summary view.	N/A	mainwindow,menu,record,session	press power button and select the log menu.	The mainwindow class contains a Qvector which contains all sessions, each session is stored in the form of record.
10	The user can clear log of all sessions.	N/A	mainwindow,menu,record	select the log menu, then select the clear menu.	when clear menu is selected, the session container in the mainwindow will be clean.
11	The user can not start new session when HR sensor disconnected.	N/A	mainwindow	disconnect the HR sensor, then select start new session menu.	when start new session menu is selected, the mainwindow will check the value of HrContactComboBox, if value is 0, then display a QMessageBox to remind the user that the HR sensor is disconnected.
12	A strip of lights shows the breath pacer status.	N/A	mainwindow	Run project and observe the user interface.	A Qprogressbar is used to show the breath pacer status.
13	A strip of lights shows the power level.	N/A	mainwindow	Run project and observe the user interface.	A Qprogressbar is used to show the battery level.
14	When the battery is low, a reminder box will pop up.	N/A	mainwindow	start new session, then wait until the battery level is below 10	when battery level changed, mainwindow will check the value of battery level, if value is below 10, a QMessageBox is pop up to remind user that the battery level is low.
15	When the HR sensor disconnected in a session, the session will close and a reminder box will pop up.	N/A	mainwindow	start new session, then disconnect the HR sensor.	when sensor connection state changed, the mainwindow will check the value of HrContactComboBox, if value is 0, then display a QMessageBox to remind the user that the HR sensor is disconnected.

16	When the power is 0, the device cannot be turned on	N/A	mainwindow	Adjust the battery level to 0, then press the power button.	When power button is pressed, mainwindow will check the battery level, if battery level is 0, the device powerStatus will be set to false.
17	The application does not contain any memory leaks.	N/A	N/A	use mtrace or valgrind to trace the memory allocation.	All dynamically allocated memory that the program was designed to allocate is deleted in the appropriate class destructor.