

Traceability Matrix

ID	Requirement	Related Use Case	Implemented By	Tested By
1	The interface includes buttons that control functions of the application.		MainWindow.ui	Launch the simulator in Qt to monitor the user interface.
2	The initial page has a button to register a new RaDoTech user profile, which takes the user to a page to enter details.	1	Control, User, MainWindow.ui	Creating a new user and entering profile details. To view the newly created user, select the user in the initial page.
3	The home page menu tab has a 'Delete user' button, which deletes the user profile on click.	2	Control, User, MainWindow.ui	Creating a new user, if not already done, and entering profile details. To delete the user, select the user, and go to the home page menu tab. Click 'Delete user'.
4	The home page menu tab has a 'Update profile' button, which allows the user to update their profile.	3	Control, User, MainWindow.ui	Creating a new user, if not already done, and entering profile details. To update the user profile, select the user, and go to the home page menu tab. Click 'Update profile'.
5	The user attempts to underfill required fields or put out of range data in user profile details during creation of a new profile, or while updating an existing profile. An error state is projected as the user must enter valid details for every field.	3, 4	Control, MainWindow.ui	Creating a new user, if not already done, and attempting to enter details falling out of range of fields, or leaving mandatory fields empty. Additionally, attempting to update a user profile the same way. Attempting to submit the form in either case will show an error state.


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6	The initial page has a button to select a RaDoTech user profile, which takes the user to the home page.	4	Control, User, MainWindow.ui	Creating a new user, if not already done, and entering profile details. To view the newly created user, select the user in the initial page.
7	The user attempts to login into a user profile, and fails to enter the proper password. An error state is projected as the user must enter the proper password to proceed into the profile.	4	Control, MainWindow.ui	Creating a new user, if not already done, and entering profile details including a password. Attempting to login without using that same password will display the error state.
8	The home page would display a selection of buttons to either allow the user to select a previous scan or to perform a new body scan.	4	Control, MainWindow.ui	Selecting an already existing scan if at least one scan exists on the current user profile, or clicking on the start scan button to initiate a new body scan.
9	The user requests a scan without linking a RaDoTech device. An error state is projected as the RaDoTech device is not linked to the mobile application	4	Control	Device provides an error message warning the user that the application has not been paired with the RaDoTech device via Bluetooth.
10	The body scan page has visual instructions to the aid user in scanning their body correctly and an area for adding user notes/comments on each scan that was conducted.	5	Control, MainWindow.ui	Pressing the start scan button and following the on screen instructions to position the RaDoTech device on the user's body at the exact locations provided by the application to perform a complete body scan. Finally, filling in the scan notes/details

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				portion and clicking save scan.
11	The user requests a scan without creating a profile on the application. An error state is projected as the user must create a profile prior to initiating a scan.	5	Control	Device provides an error message warning the user that they must have at least one user profile created to store their scan data on the app.
12	The application receives data from the hardware device after a scan is performed.	5	Control, Hardware	Completing a scan and observing chart details for measurements taken.
13	The application processes the raw data using algorithms based on Ryodoraku technology to generate health metrics from the hardware device.	5, 6	Control, Hardware, HealthData, User	Upon finishing the scan, the data collected from the hardware device will be analysed, purified of anomalies, stored in the database under the current user profile and provided health metrics upon from the cleaned data to the user.
14	The application stores the user's health data for trend analysis.	7	Control, User, HealthData	After having completed a scan, view the 'History' button in the menu tab to view the selected user's historical health data.
15	The application has a 'History' button in the menu tab allowing the user to view their historical health data.	8	Control, User, HealthData	Select the 'History' button to view historical health data for the selected user. Perform scans to display them historically.
16	The application provides to the user a method of	9	HealthData, Control,	Proceed by selecting an existing scan from

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	visualizing their prior scans via numerous charts, body level insights and medical recommendations to help in understanding their bodies current health state and how to maintain its healthy state.		MainWindow.ui	your profile page, you will be greeted with a full body scan outlining all of your body organs's normalities. You will be given an option of viewing a full body scan, a bar chart showing an organ specific normality level or a radar chart mapping out all of your organ states against one another. There are also tabs for viewing recommendations and body insight data.
17	The application displays a 'Low power' message once the hardware's battery power level is between 5% and 15%.		Control. MainWindow.ui	Have the hardware device linked. Then, once the battery power level drops to between 5% and 15%, view the 'Low power' warning.
18	The application displays a 'Shutting down' message once the hardware's battery power level is less than 5%, and performs a graceful shutdown of the device.		Control, MainWindow.ui	Select an initial low power to the device, have it linked to the application, and wait until the battery power level goes below the 5% critical battery level threshold. The device will gracefully shutdown, until a non-critical battery power level is selected for the device.
19	The user attempts to link the device while the device is at critical battery power level (<5%). The device will not		Control, Hardware	Application provides an error message warning the user that the application cannot pair

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	turn on and an error state will show on the application.			with the RaDoTech device as it is at a critical battery power level.

Resources

1. [GitHub repository](#)
2. [UML Class Diagram](#)
3. [State Diagram](#)
4.  Here's How to Perform Your First Scan With RaDoTech