### Use cases

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| **UC1: Start system** | |
| **Goal** | To initiate the system and prepare to scan |
| **Initiation** | Operator turns on the software on the computer. |
| **Precondition** | The computer has been booted |
| **Postcondition** | The software has activated Robot arm, 3D camera Ultrasound scanner. |
| **Main Scenario** | 1. Operator starts System |
| **Exception** | SPØRG MICHAEL – hvad hvis der er hardware problemer, skal man tage højde for det i en use-case? |

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| **UC2: Register patient** | |
| **Goal** | The ID of Patient is typed in the computer |
| **Initiation** | Operator chooses ‘New patient’ in System |
| **Precondition** | UC1 has been completed |
| **Post condition** | Patient’s is registered in the system |
| **Main Scenario** | 1. Operator enters Patient ID 2. System saves information |
| **Extension** | 1.An ID already exists |

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| **UC3: Detect chest area** | |
| **Goal** | To construct a depth image of Patient’s chest area, so that UC4 can be initiated |
| **Initiation** | Operator selects ’3D Scan’ |
| **Precondition** | UC1 has been completed |
| **Post condition** | Patient’s chest area has been scanned |
| **Main Scenario** | 1. 3D camera scans chest area 2. 3D camera feeds boundary points to System 3. Operator verifies depth image   *[Depth image is distorted]* |
| **Exception** | [Depth image is distorted]   1. Operator checks camera position 2. Enter UC3, bulletin point 1. |

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| **UC4: Scan chest area with ultrasound** | |
| **Goal** | To perform a medical sonography of the chest area |
| **Initiation** | Operator selects ‘Ultrasound Scan’ |
| **Precondition** | UC3 has been completed |
| **Postcondition** | System has instructed Robot arm to move Ultrasound scanner in order to construct a medical sonographic image of Patient’s chest area |
| **Main Scenario** | 1. Operator chooses “Ultrasound Scan” in System 2. Ultrasound scanner starts scanning. 3. Robot arm uses depth image from UC3 to determine how to move Ultrasound scanner 4. Ultrasound scanner stops scanning    1. Operator stops scanning 5. As a result of Ultrasound scanner stopping, Robot arm returns to default position |
| **Extension** | [4.a Operator stops scanning]  Operator chooses “Stop Ultrasound Scan” in System.  System stops Ultrasound scanner prematurely. |

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| **UC5: Delete measurement** | |
| **Goal** | System has deleted a measure/data of ultrasound |
| **Initiation** | Operator chooses ‘Delete data’ |
| **Precondition** | UC1, data has been obtained. |
| **Postcondition** | Data has been deleted |
| **Main Scenario** | 1. Operatør trykker på en knap, for at slette målinger. 2. Måling slettes fra systemet. |
| **Extension** |  |

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| **UC6: Stop system** | |
| **Goal** | To stop System |
| **Initiation** | Operator chooses “Stop” |
| **Precondition** | UC1 is completed |
| **Postcondition** | System has stopped |
| **Main Scenario** | 1. Operator chooses “Stop” 2. Robot arm is set to default position 3. System shuts down |
| **Extension** |  |