

## Figures of the Final Report

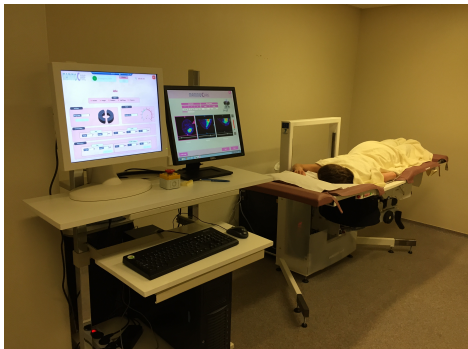


Figure 1. MAMMOCARE installed on NKI

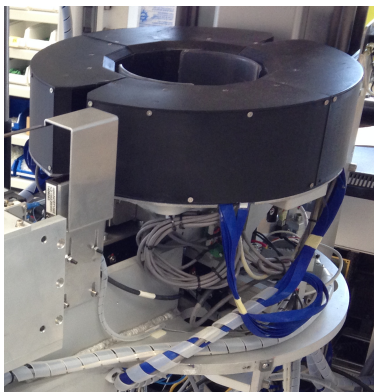


Figure 2. Double ring detector with detailed mechanics for open a close procedure

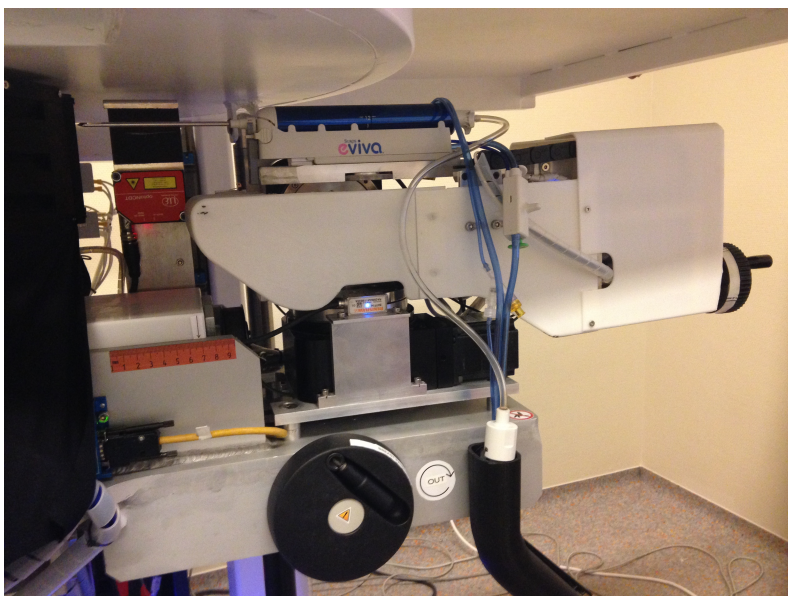


Figure 3. Needle mechantronics system

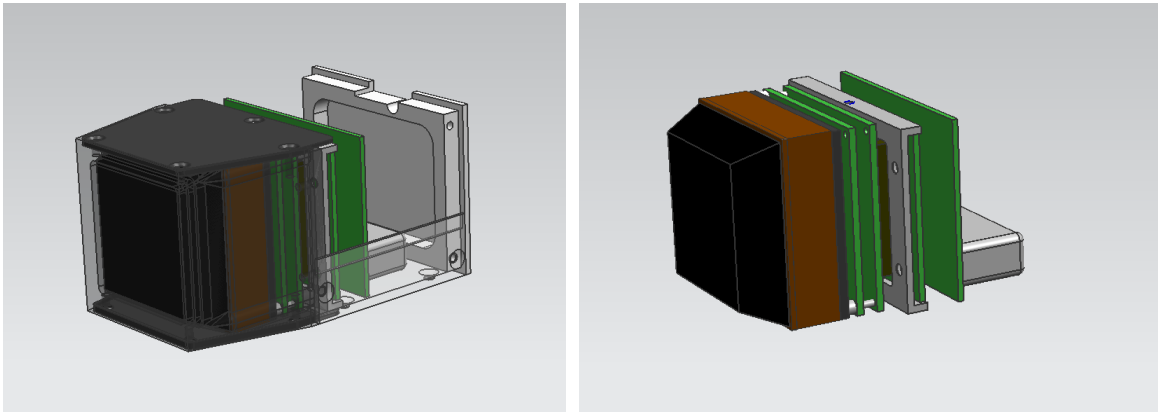


Figure 4. Module assembling distribution

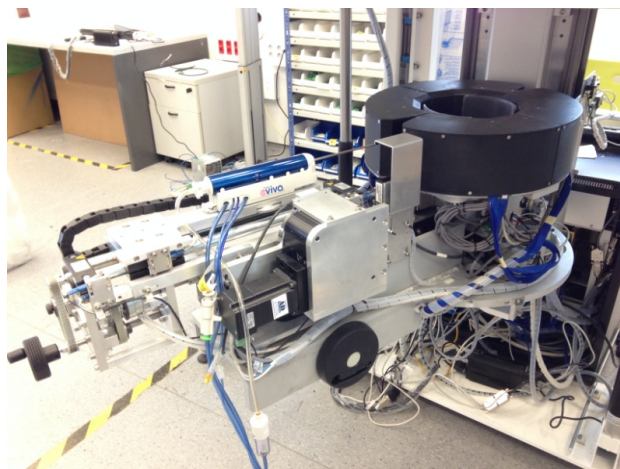
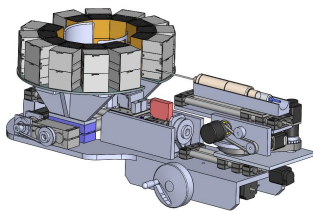


Figure 5 CAD detector design. Figure 6 final PET detector configuration

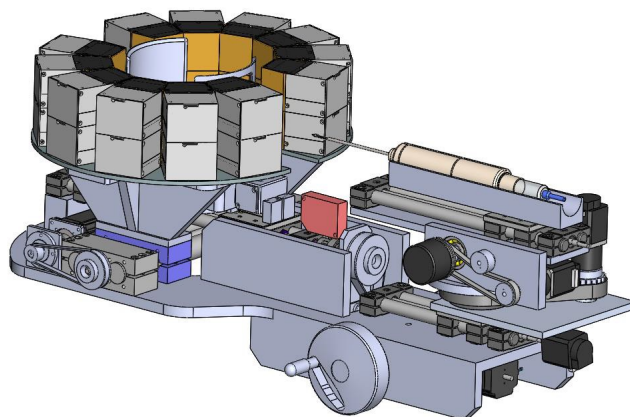


Figure 7. Open ring position

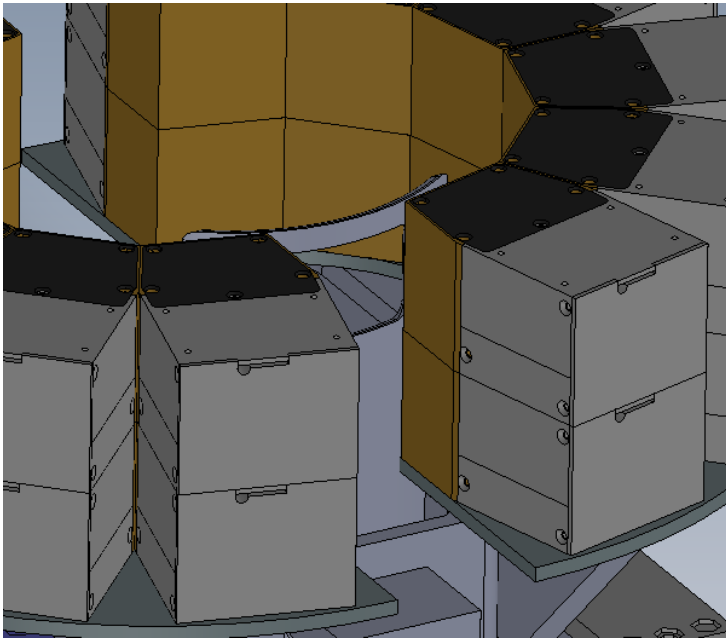


Figure 8. Open ring detail

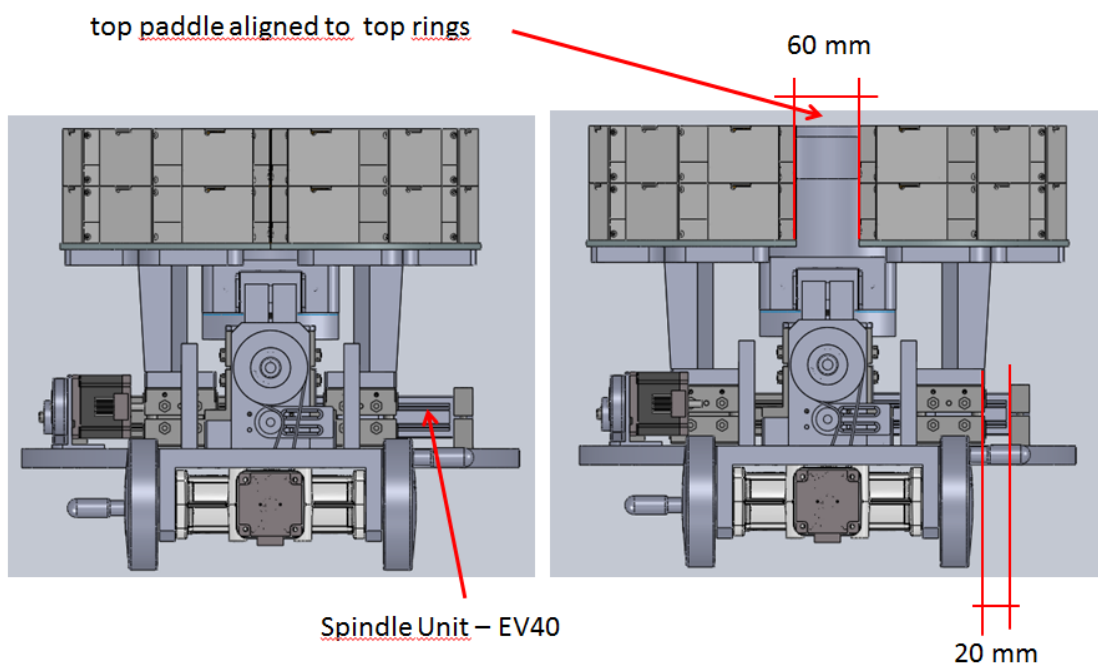


Figure 9. Opened and closed semi-rings

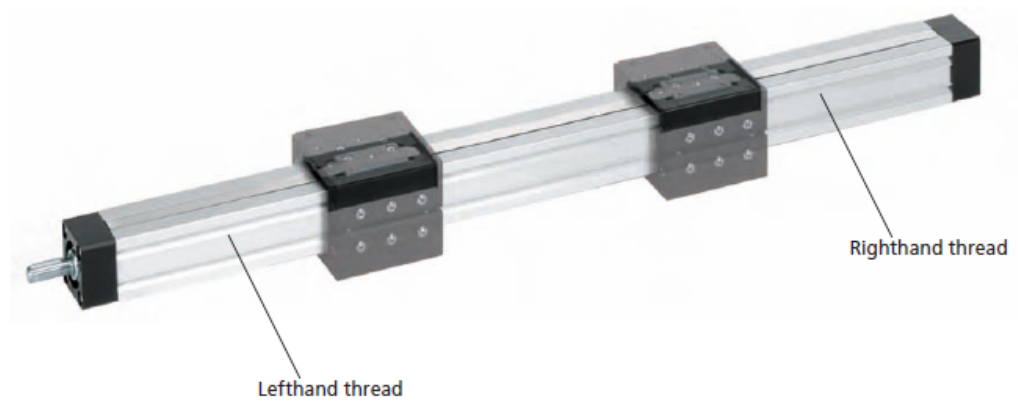


Figure 10: Spindle unit

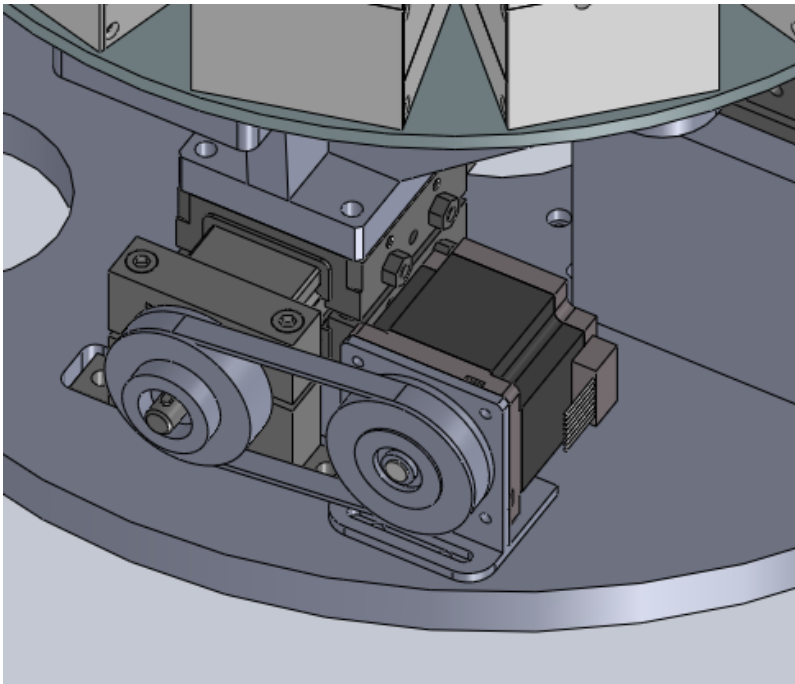


Figure 11: System detail



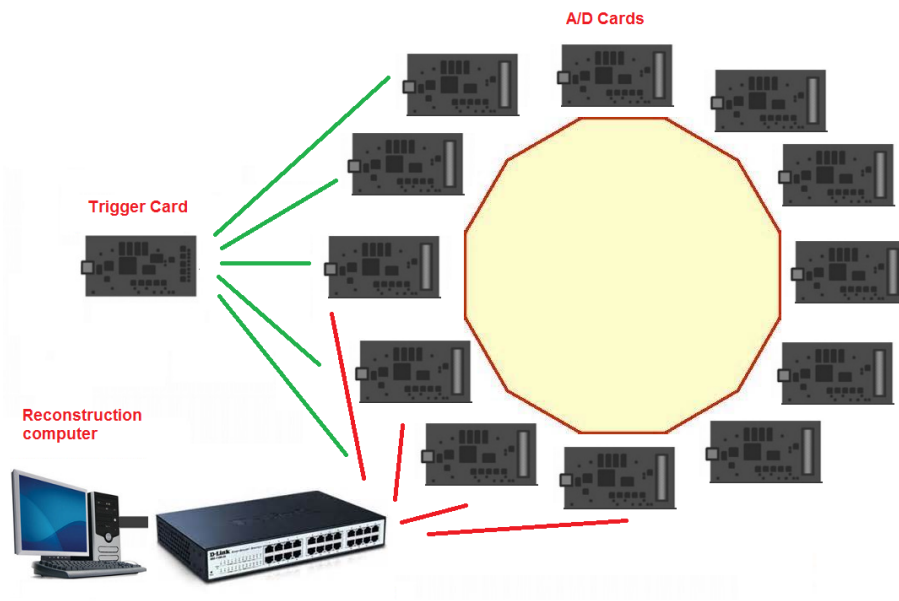


Figure 12. Ring electronics configuration

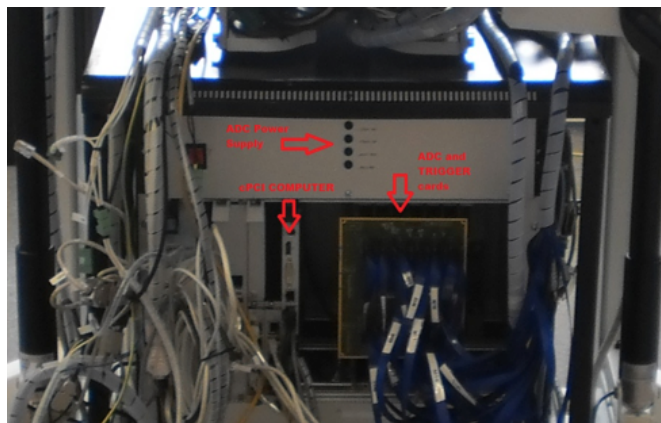
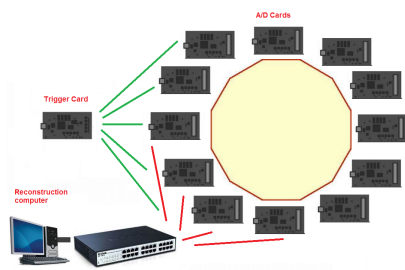


Figure 13 Schematic detector cabling. Figure 14 final detector electronics distribution

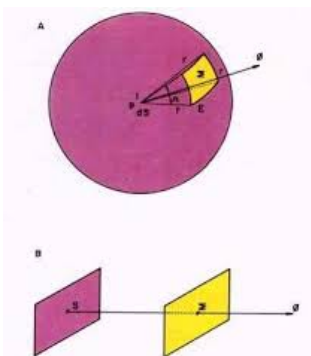


Figure 15. Pixel projection.

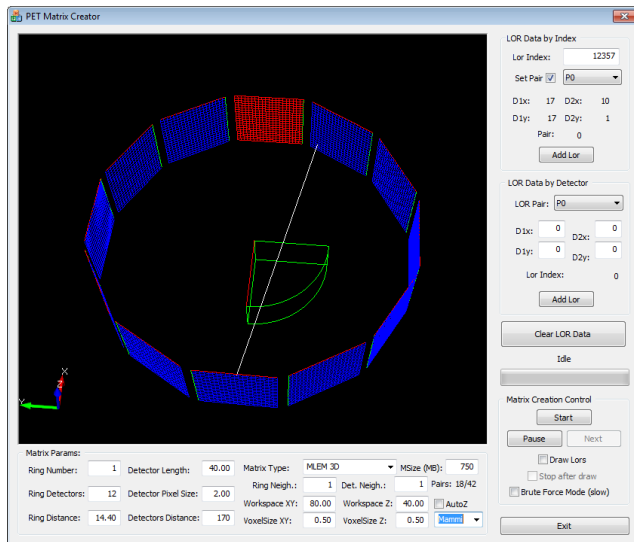


Figure 16. Calculation software. Closed ring.

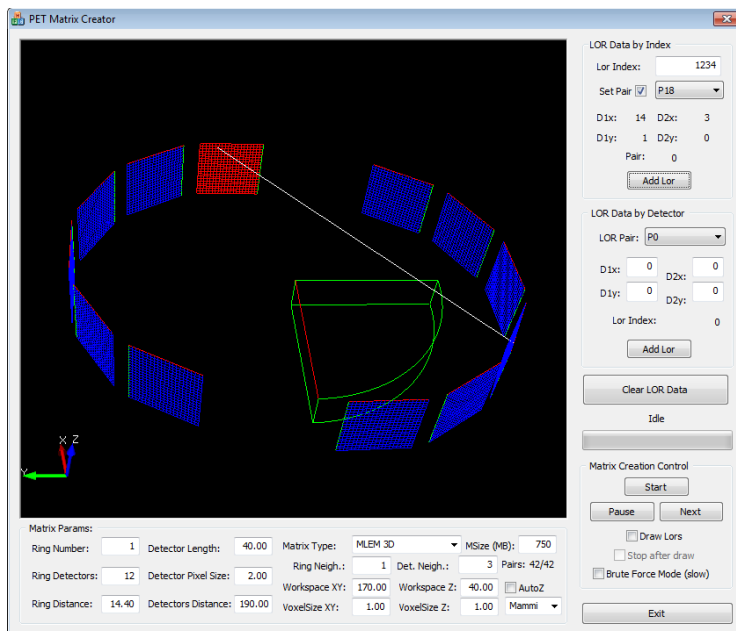


Figure 17. Calculation software. Open ring.

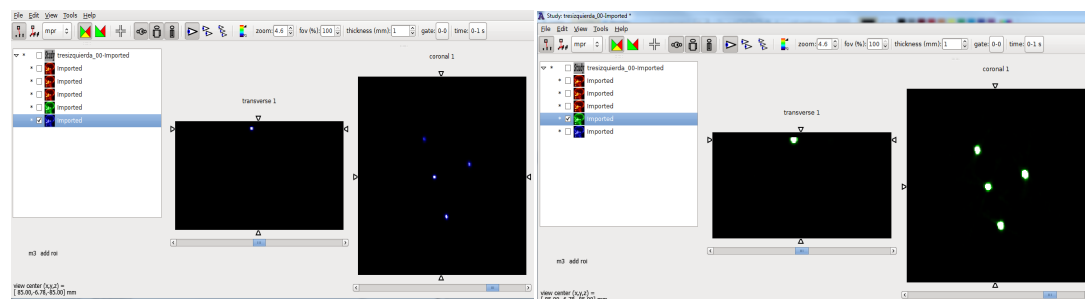


Figure 18 Closed ring cross correlation. Figure 19 Open ring close correlation

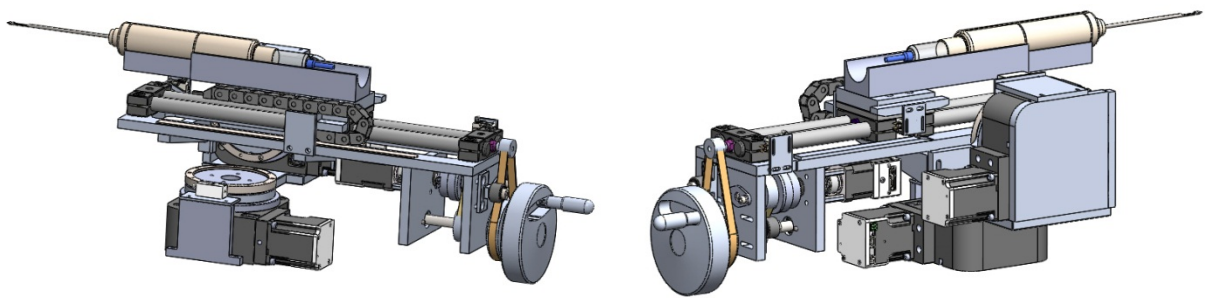


Figure 20. Biopsy needle positioning system

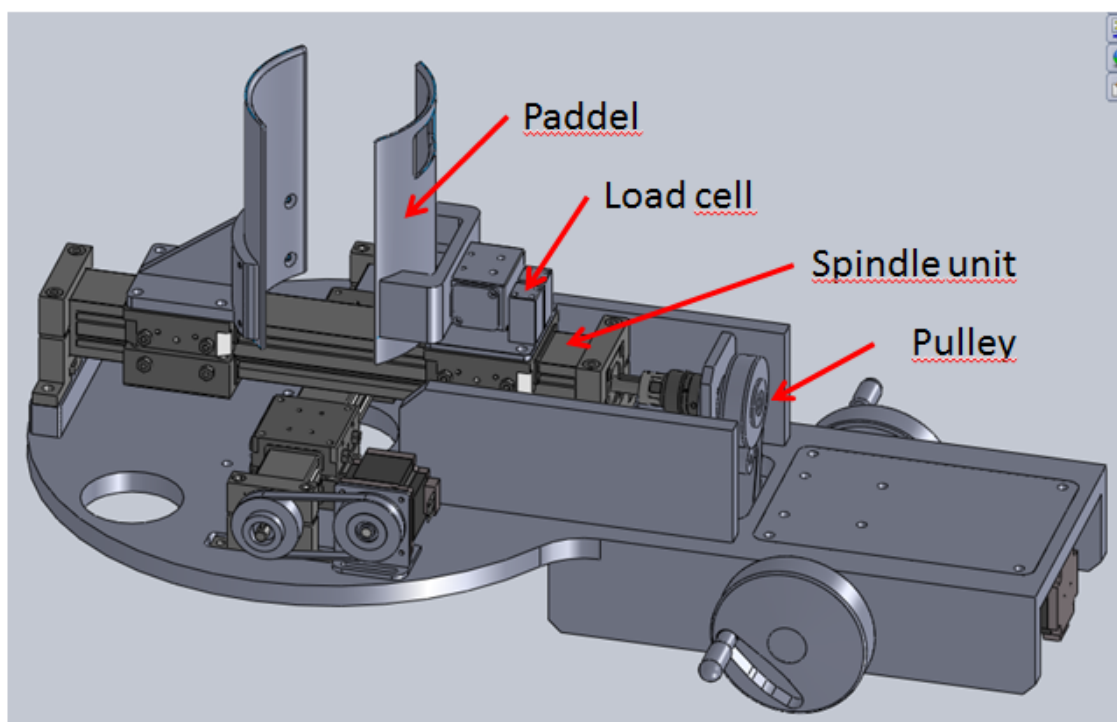


Figure 21. Breast immobilization system

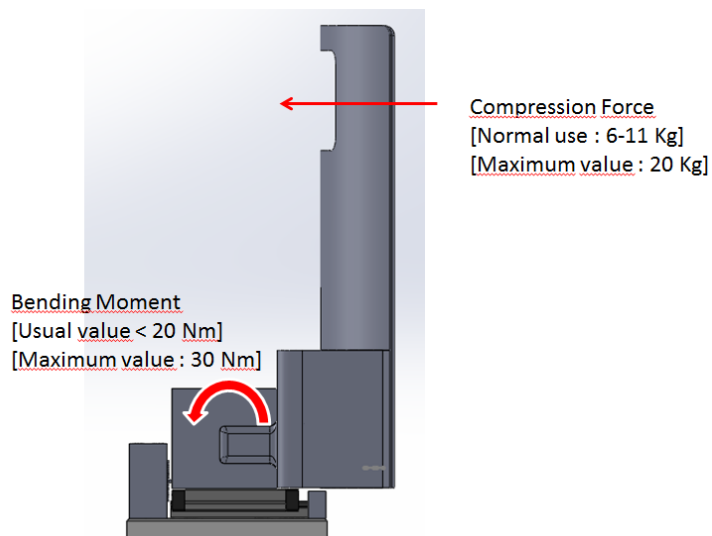
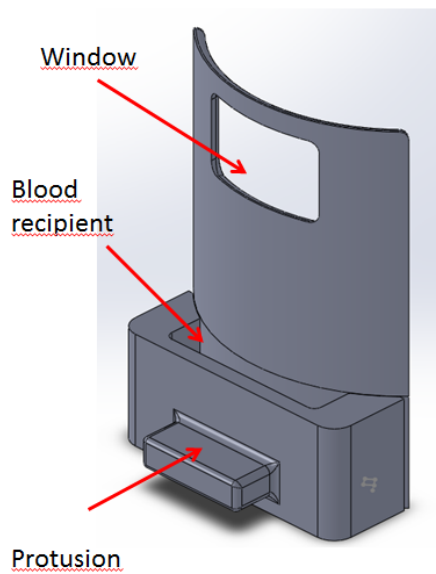


Figure 22. Paddle

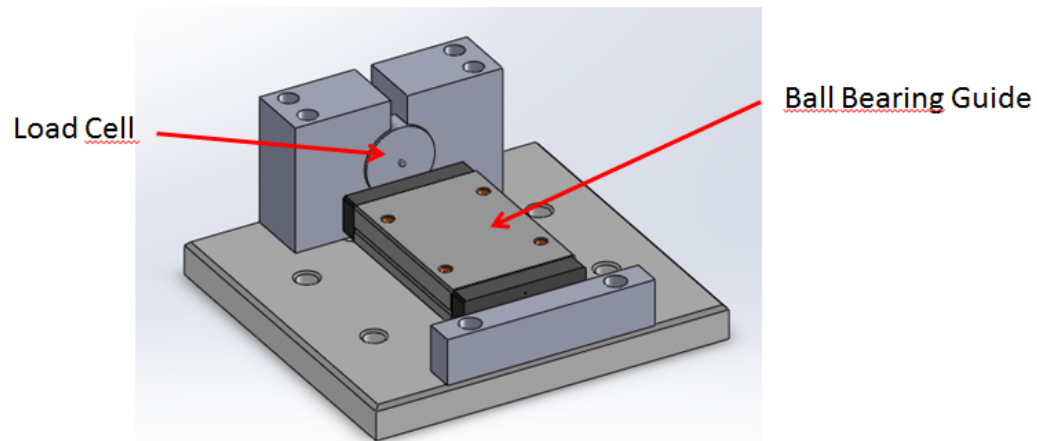


Figure 23: Load cell mounting

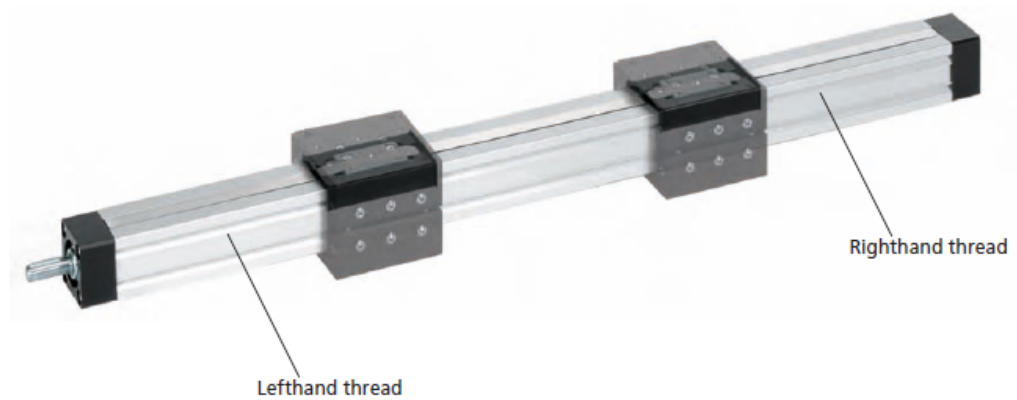


Figure 24: Spindle unit



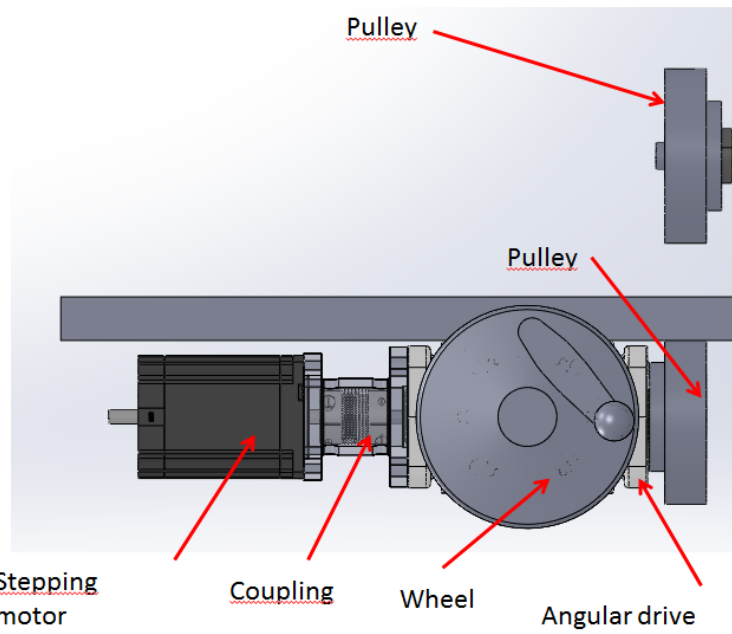


Figure 25: Paddle drive system

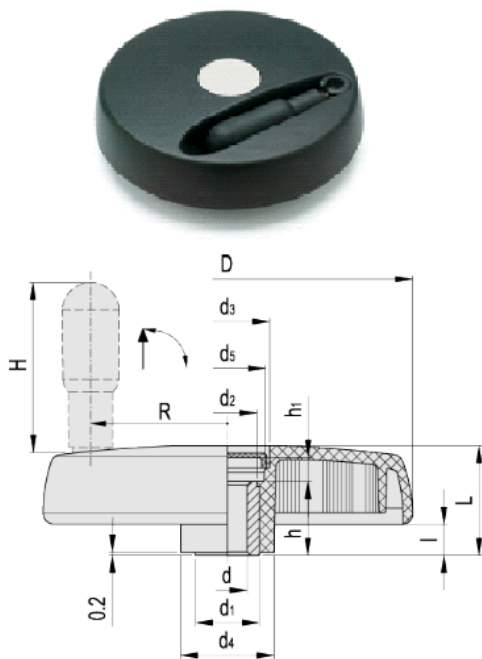


Figure 26: Wheel

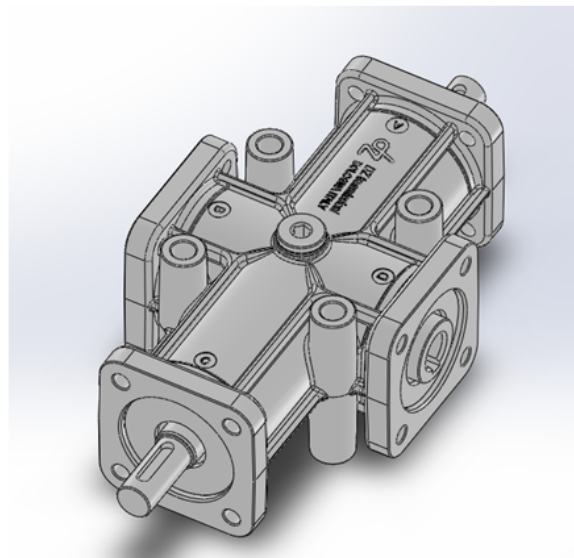


Figure 27: Angular drive

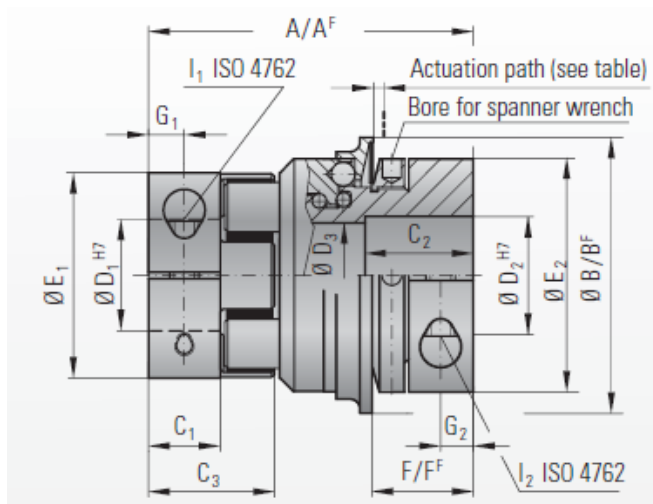


Figure 28: Torque limiter

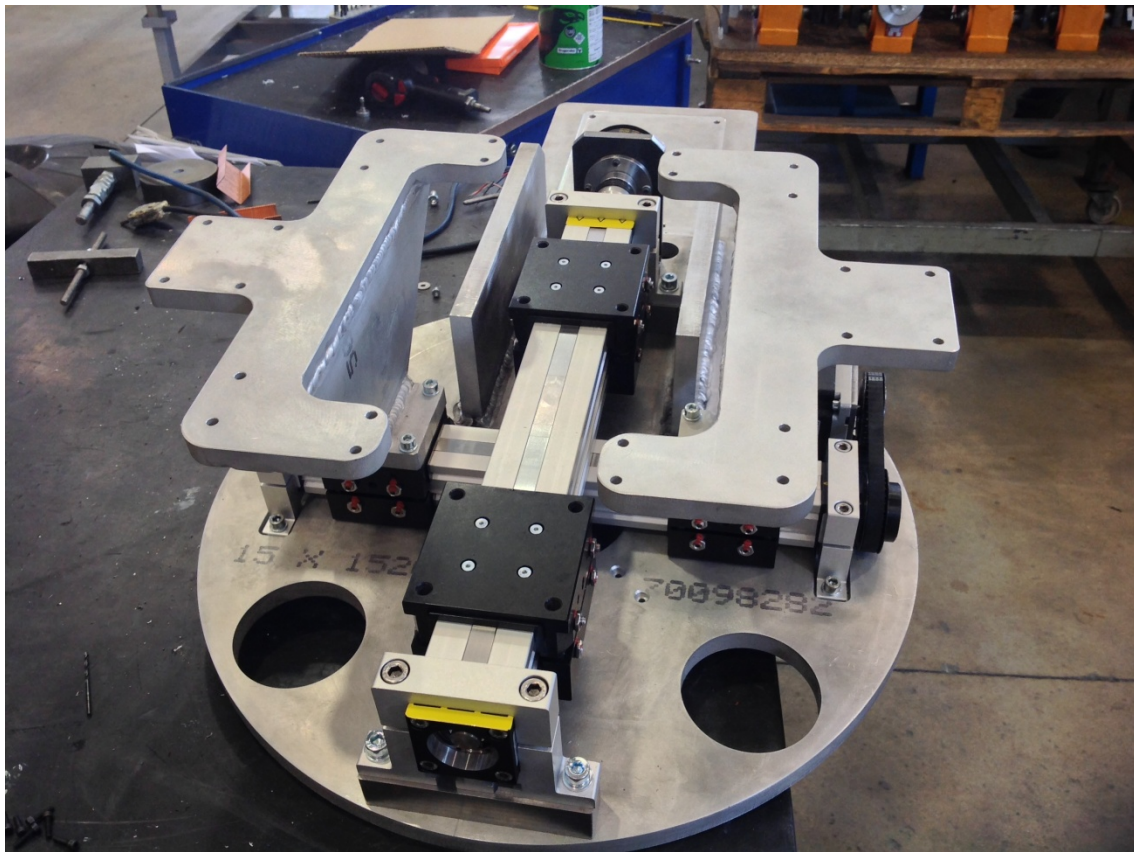


Figure 29. Prototype assembling (I)

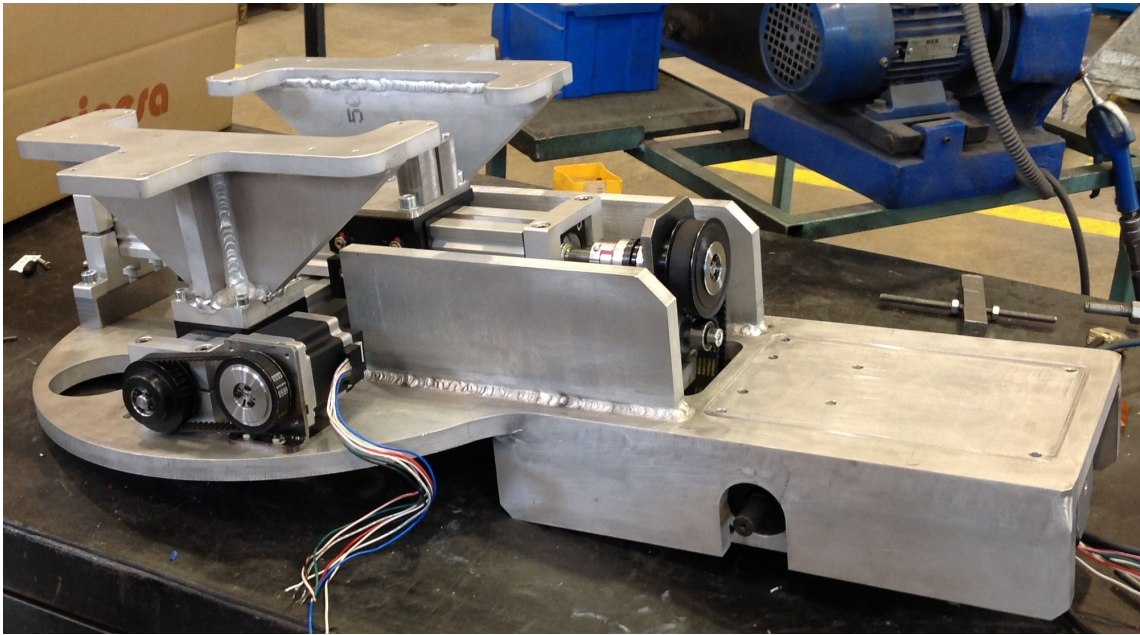


Figure 30. Prototype assembling (II)

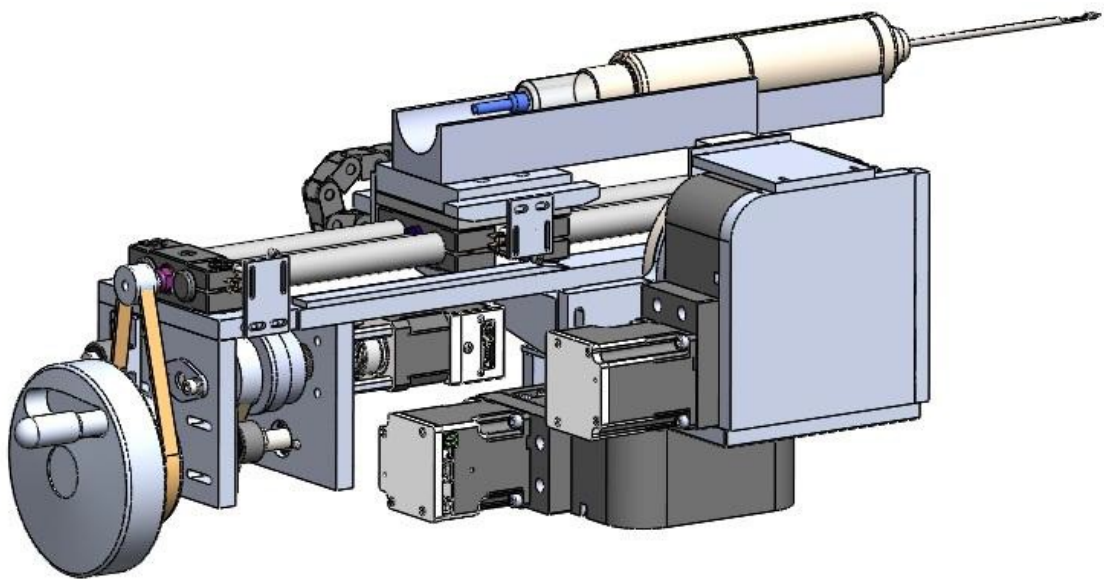


Figure 31. Needle movement description



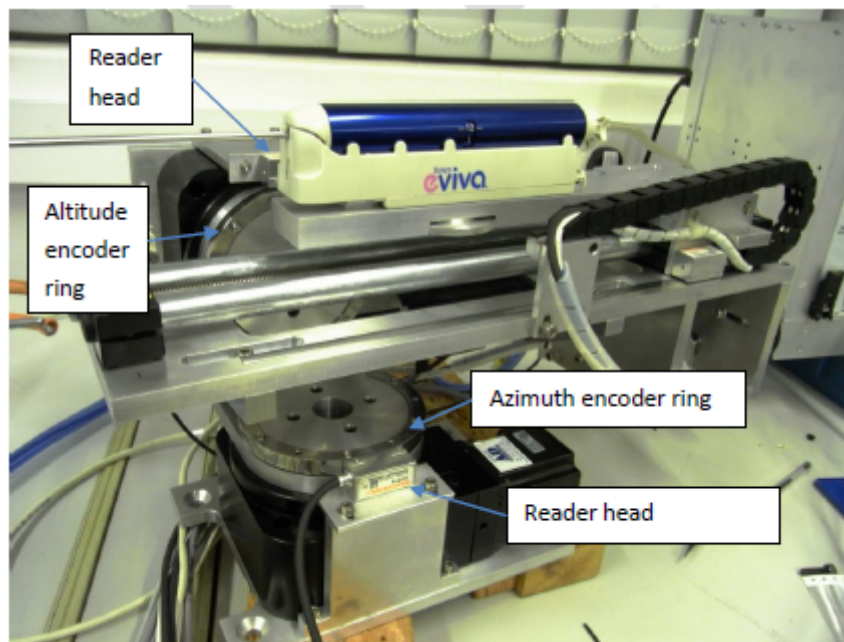


Figure 32. Location of encoder rings and reader heads



Figure 33. Clutch system description

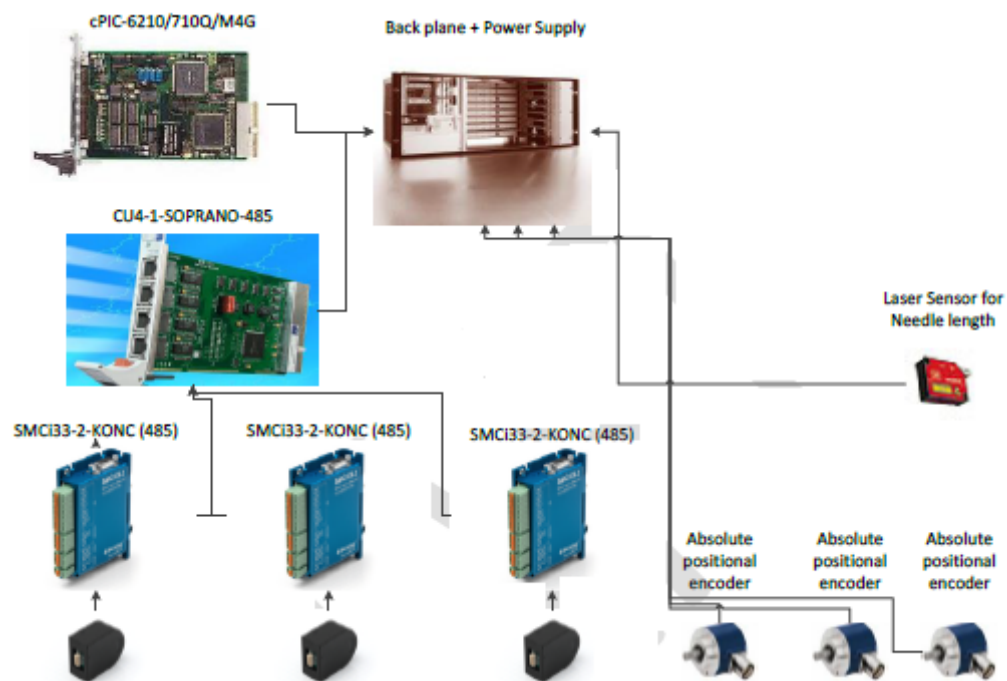


Figure 34. Biopsy electrical system design

The screenshot displays the MAMMOCARE Acquirer software interface, which is divided into several sections:

- Top Bar**: Contains the ONCO VISION logo, status indicators for Ring Movement (red X), Emergency OFF (red circle), Ring down (blue arrow), and a clock showing 15:02:09.
- Study Details**: Includes fields for Study Name, Acquisition Type (Full Breast), Frame Capture Time (0:32), Study Comments, Start Position (0.0 cm), Compound (F18), Dose (1.0 MBq), Measurement Date (13/07/2015), and Measurement Time (15:01).
- Subject**: A table with columns for Name, Surname, Weight, Birth Date, and HC. The first row shows a patient named 'New Patient' with a birth date of 01/01/1970 and weight of 0.
- Acquisition**: A section showing progress bars for Study (0%) and Frame (0%), along with elapsed time (00:00:00) and remaining time (00:00:00).
- Bottom Bar**: Features the MAMMOCARE logo, a Test button, and a Modules section.

Figure 35. MAMMOCARE Acquirer



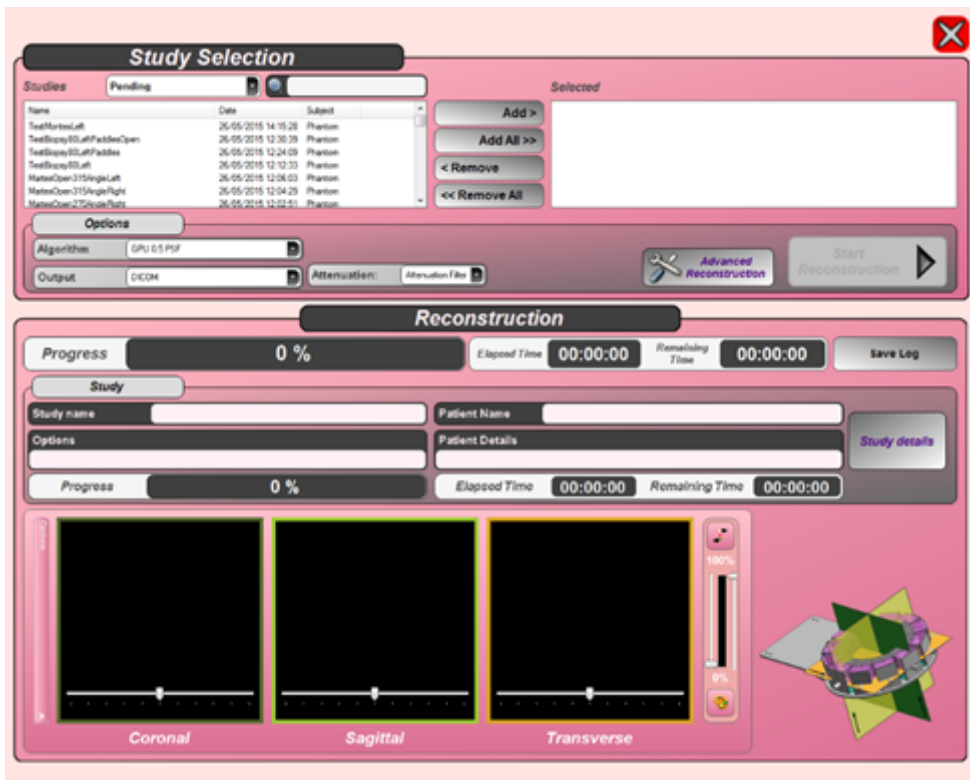


Figure 36. MAMMOCARE reconstructor

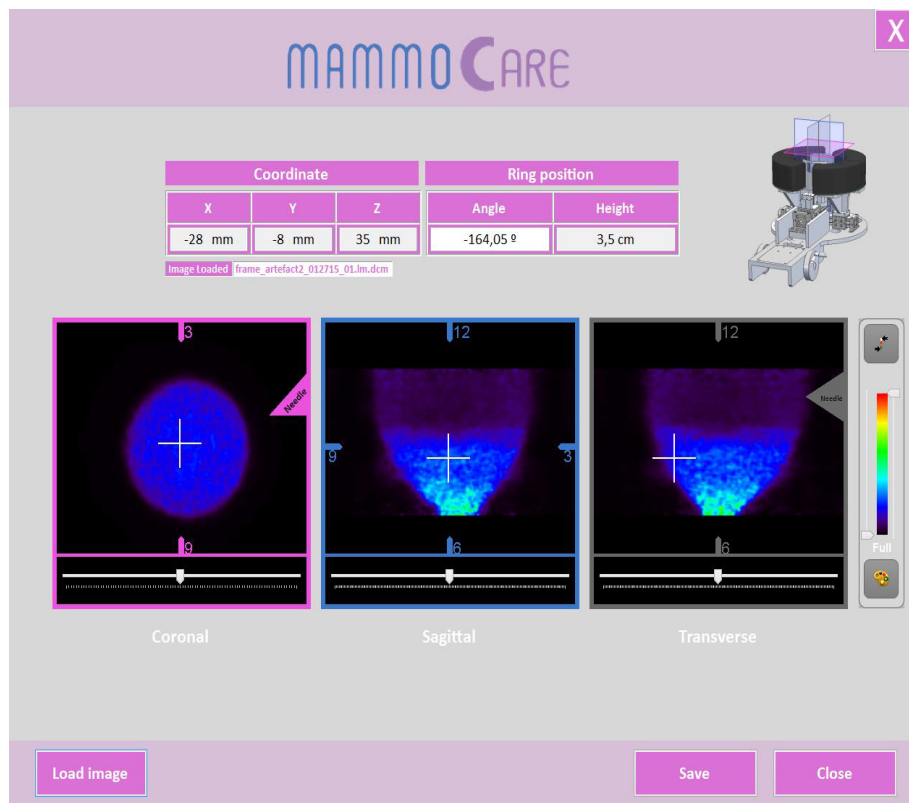


Figure 37 MAMMOCARE viewer

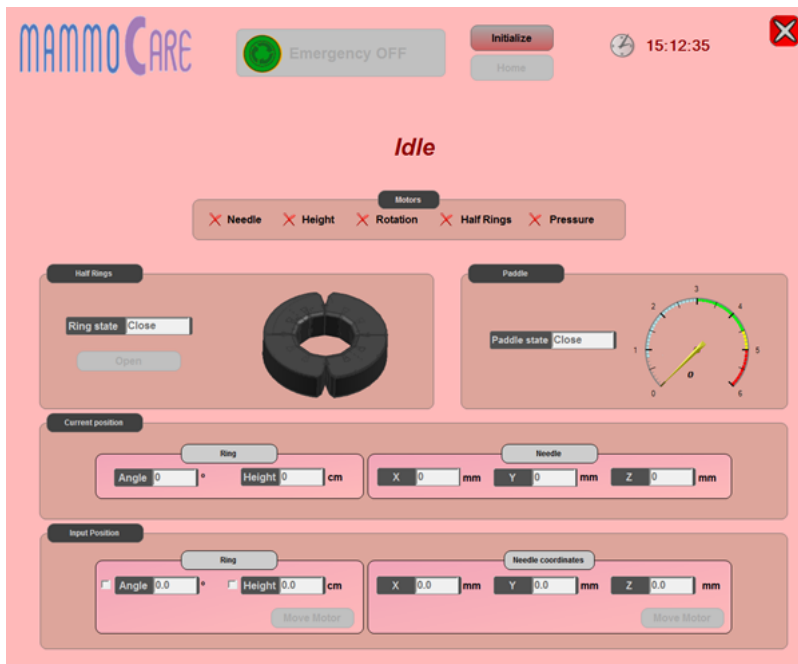


Figure 38. MAMMOCARE Motor module

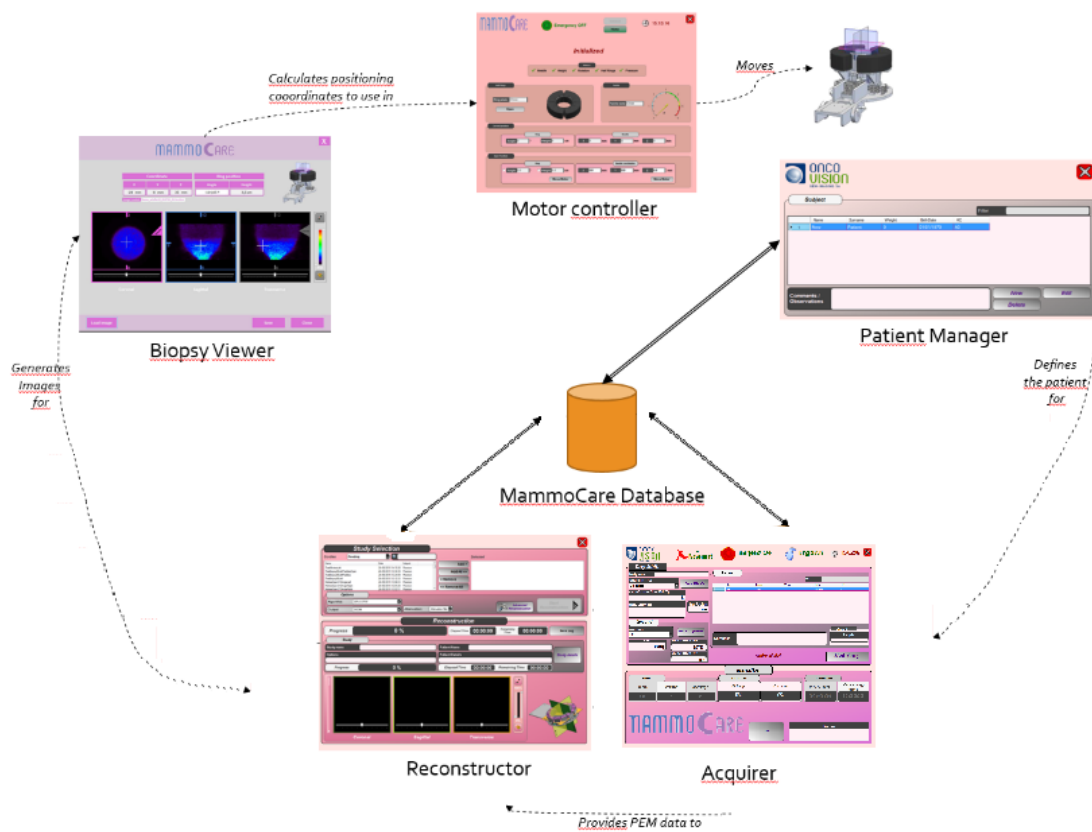


Figure 39. Software Architecture

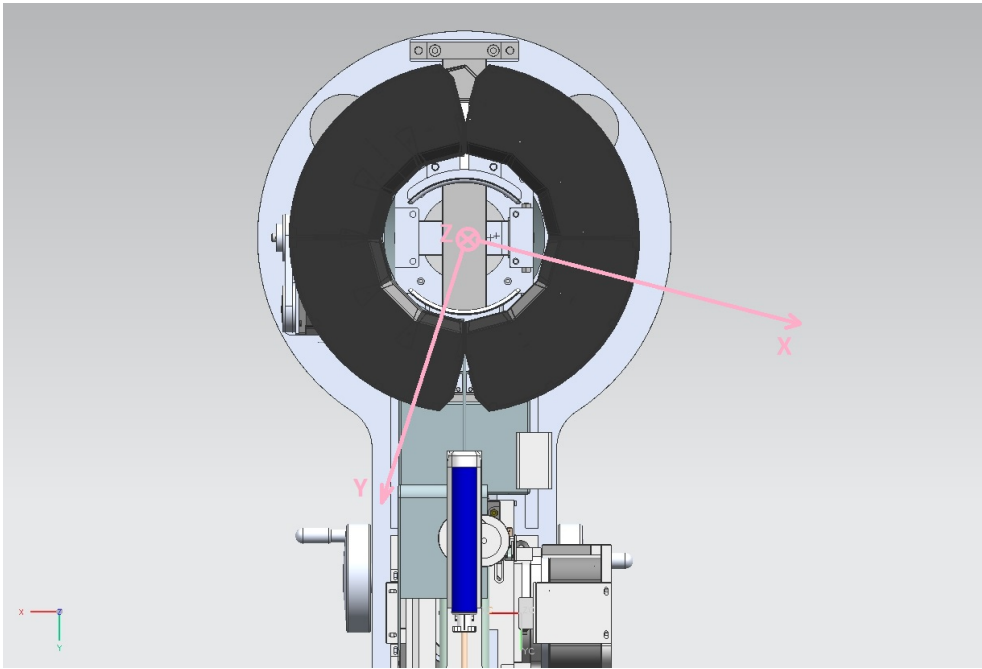


Figure 40: PEM System Coordinates System

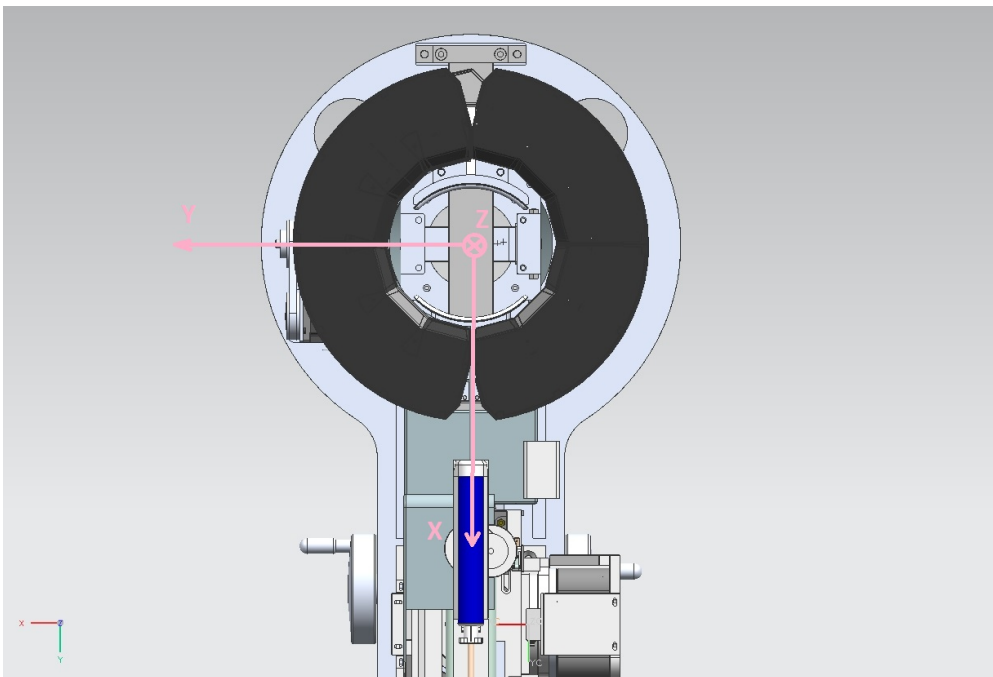


Figure 41: MammoCare System Coordinates system

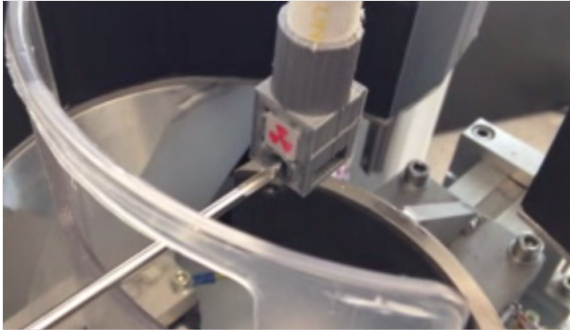


Figure 42: Radioactive source holder to verify needle position

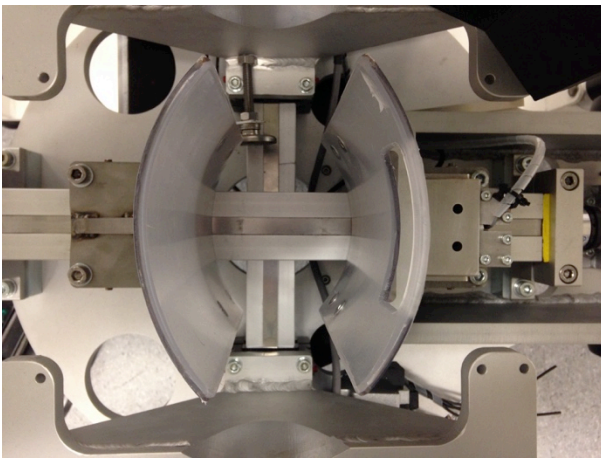


Figure 43: Compression paddles integration

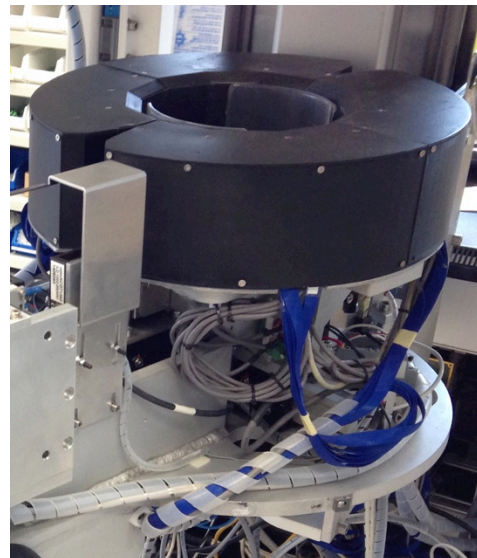
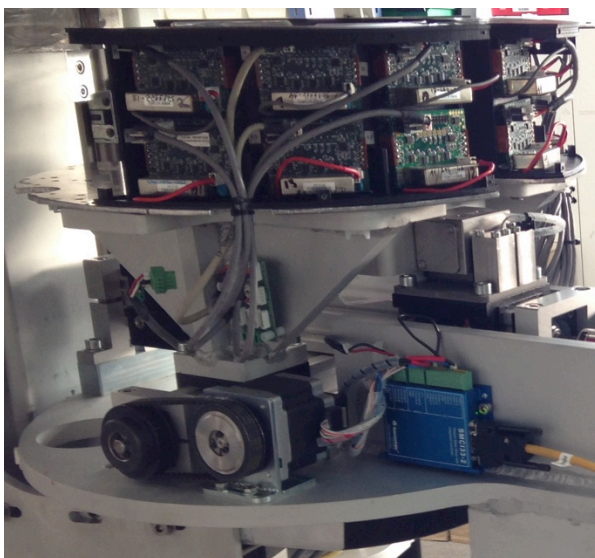


Figure 44: PET detector integration]

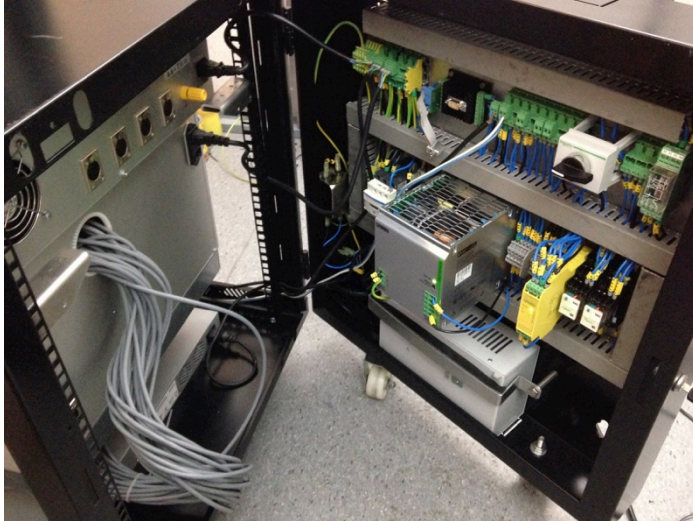


Figure 45: Computer and main electrical panel integration

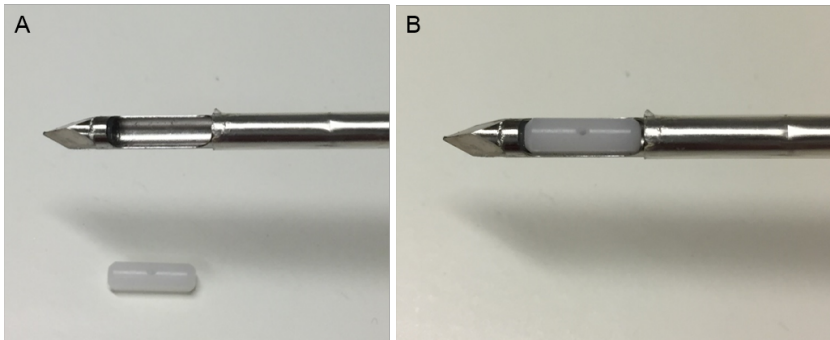


Figure 46: Photographs taken from the Eviva biopsy needle without (A) and with (B) the piece of plastic inside the opening of the needle