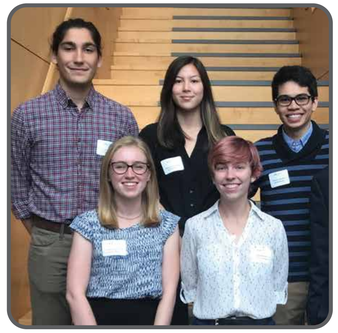
Adjustable Armrest for PET/CT Patient Positioning

During cardiac and thoracic PET/CT scans, patients are asked to hold their arms above their heads. Keeping their arms away from the scan region decreases the total amount of radiation administered, but slight movements can corrupt the scan. A repeat takes up costly patient, technician, and facility time, as well as increasing the patient's exposure to radiation.

To solve this problem, GE Healthcare SCOPE Team designed an adjustable and user-friendly armrest for patients receiving these types of scans. It has improved functionality over competing devices and maintains simplicity for integration into the scanning process for the technicians, raising the bar for accessibility and comfort.



GE Healthcare

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Armrest Design Requirements

- Single Piece
- Full Scan Comfort
- Adjust Angle (30°)
- Radiolucent
- Secures Patient

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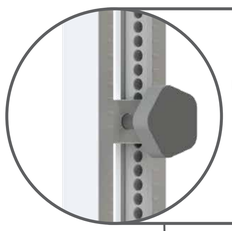
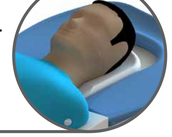
Angle Locking



Allows the technician to unlock the slider with one hand to adjust the arm guide for their patient. Defaults to locked for patient safety.

Headrest

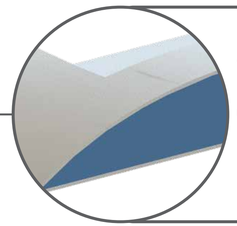
Built into the base structure. Soft foam secures and supports the patient's head and neck.



Arm Cushion

Provides comfortable arm support for patients while holding their position. It accommodates a wide range of patients.

Solid Foam Core



All support components are solid foam for comfortable positioning and radiolucent to minimize the impact on scan quality.

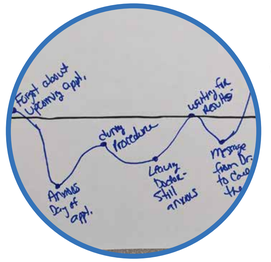
Living Hinge

Allows the arm guide to support patients with varying levels of sizes and ranges of mobility while minimizing streaking.

Curved Back

Back support interfaces with the cradle of the scanner and has a curved profile to provide comfortable support for patients.

Project Timeline



Research and Interviews

We researched patient comfort and PET/CT devices, interviewed technicians and patients to come up with design considerations and criteria to supplement the requirements given to us by GE.

Concepts and Iteration

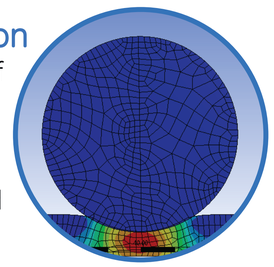
We came up with 10 concept designs, built sketch models and assessed them on our decision matrix. We continued to iterate on the 3 winning designs, built prototypes and iterated on key features.

Testing Designs

At GE Healthcare's testing facilities, we scanned on our prototypes and spoke with GE engineers about our prototypes. Based on this feedback, we chose our final concept design to move forward with.

Simulation and Verification

We simulated the ergonomics of foam types and geometries and curated suggestions on what types of foams to use in the design to maximize comfort and support for patients.



GE Continuation

We've handed off our design to GE Healthcare. They will take over the project, review our design and possibly work to incorporate it into their main product line.

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