

SPECT Imaging

Client: A manufacturer of next generation imaging systems for both clinical and pre-clinical applications

Location: USA

Client Description

The client is in the business of designing, building, selling and servicing pre-clinical imaging systems and multi-modality pre-clinical imaging systems. The client has more than 50 installations of multi-modality systems worldwide and provides service to all of them. A large part of the client's focus is also directed towards research and development, concentrating on such fields as: radiation detector design, camera and systems engineering, ultra-low noise ASIC design, readout electronics, PET, SPECT and CT detectors.

Business Need

The client intended to develop a new, standalone image acquisition application for the SPECT (Single Photon Emission Computed Tomography) modality. The application required acquiring images from 4 Gamma camera heads and displaying the real time projection images for each head. It also involved design and implementation of various image acquisition protocols such as Static, Dynamic and Tomographic including the gating signal support.

In addition to the above, saving image data in DICOM and Interfile formats along with data viewing / post processing was also one of the key requirements.

The client had aggressive timelines and was looking for a vendor with the right set of skills to help it meet DICOM and Interfile compliance standards. Blue Star Infotech (BSI) with its prior expertise on this subject was well-equipped to handle this.

Solution Offered

One of the main challenges in this project was to understand the SPECT imaging requirements and formulate the software specification in a very short time. BSI studied the existing system interacting with the hardware and then created the specifications for the new system which was designed and developed using a dual-shore model.

Hardware related issues were resolved by using data simulators and by remotely assessing the hardware located at the client's site.

The scope of work included:

- Acquisition of raw digital data from the data acquisition hardware
- Interpretation of data and creation of a projection image using SPECT image generation algorithm
- Implementing the SPECT imaging protocols by communicating with the Gantry H/W using the hardware access libraries

Benefits to the Client

- BSI's medical imaging domain skills and experience resulted in a smooth and gap free requirements understanding
- BSI implemented a scalable and re-usable architecture utilizing Object Oriented design concepts. This enabled the application to be enhanced with new features for patient data management and image reconstruction in a short timeframe
- BSI's deep knowledge of this domain and collaborative development model ensured the successful and timely completion of the project

TOOLS / TECHNOLOGY

- Win XP
- VC++ .Net
- MSDE 2000
- NUnit-2.2.9
- Enterprise Architect Professional 7.0
- ANTS Profiler
- DICOM Inspector. NET
- Araxis Merge v6.5
- Microsoft FxCop 1.35

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