



Using Mobile Technology to Aid Clinical Analysis

A Single Source for All Information

Project Overview

Every day physicians and staff of the university diagnose and treat complex medical cases. They have numerous clinical systems that generate images required for analysis and diagnosis.

The client wanted to overcome the problems associated with having multiple image repositories; and wanted to establish a central repository for these images, to enable physicians to remotely access them from their mobile devices.



Client Profile

A leading multi-specialty physician practice group in the USA with more than 2000 affiliated physicians. The nonprofit group caters to over a million patients annually. Many of the physicians serve as faculty in one of the nation's top medical schools.

Medical Imaging Solution to Connect, Compare, and Collaborate

We delivered a solution based on a medical imaging technology called Picture Archiving and Communication System (PACS). Each imaging machine transmits DICOM (Digital Imaging and Communication in Medicine) objects to a PACS repository. A central server parses and stores DICOM objects received from various machines. The web and iPad applications access the data on the server using web services.



Key Features

- ✿ Search and filter using patient ID, doctor ID, machine, or clinic name.
- ✿ Displays diagnosis, recommendations, images, and frames.
- ✿ Image viewer displays 2-4 frames simultaneously allowing comparative study of series.
- ✿ Infinite loop for playing images, with loop speed setting for better control.
- ✿ Doctors can zoom, pan, measure, modify, and comment on images.
- ✿ Snapshots of measurements can be emailed along with doctors' comments.
- ✿ Manual as well as automatic timed logout.
- ✿ Raw image processing and lossless jpeg compression.
- ✿ Brightness and contrast filters based on pixel window dimensions in DICOM protocol.
- ✿ Area calculation based on extrapolation of pixel density information in DICOM protocol.

Technologies

- ✿ Login authentication with server or backend LDAP/RADIUS
- ✿ PACS architecture
- ✿ DICOM image storage protocol
- ✿ HL7 data transfer protocol
- ✿ iOS
- ✿ Django

Business Benefits

- ✿ Instant access by replacing desktop systems with mobile devices
- ✿ Physicians can now record and review data on the move
- ✿ Improved collaboration among departments
- ✿ Reduced overhead with better data management



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