Collaborative Digital Diagnosis System

Expert Doctors in Medical/Dental Institute

Real Time Sharing of Medical Images and Collaborative Diagnosis

Doctors in Remote Health Centre

Sclerotic lesion noted in spinous process of C7 vertebra.

Radiolucency with divergent roots of adjacent teeth.
Image Processing Functions

Digitization
- Special Purpose Scanner
- Saving Digitized Medical Image

Visualization
- Digitized Image in CollabDDS
- Multiple Views

Manipulation
- Image Enhancement
- Image Analysis

Annotation
- Marking Critical Regions
- Comments and Measurements
Collaborative Diagnosis Functions

Collaboration

Connecting to Medical Expert

Sharing Medical Images

Diagnosis

Real Time Communication

Final Diagnosis

Repository

Saving DDS files

Saving Case Studies in Repository

Education and Research

Retrieving Cases from Repository

Teaching using Repository Cases

Collaboration Diagnosis Functions

[12/04/2014 14:21]: Final diagnosis: Osteoblastoma

nicsi [12/04/2014 14:19]: Sclerotic lesion noted in spinous process of C7 vertebra

nicsi [12/04/2014 14:19]: Sclerotic lesion noted in spinous process of C7 vertebra
Image Processing Functions

**Digitization**
- Special Purpose Scanner
- Saving Digitized Medical Image

**Visualization**
- Patient’s Image in CollabDDS
- Digitized Image in CollabDDS

**Manipulation**
- Image Enhancement
- Image Analysis

**Annotation**
- Marking Critical Regions
- Adding Comments/Annotations

Radiolucency with divergence of adjacent teeth
Collaborative Diagnosis Functions

Collaboration
- Connecting to Medical Expert
- Sharing Medical Images
- Real Time Communication
- Final Diagnosis

Diagnosis

Repository
- Saving DDS files
- Saving Case Studies in Repository

Education and Research
- Retrieving Cases from Repository
- Teaching using Repository Cases

CDER_AIIMS
[12/04/2014 11:47] : this seems to be a cystic lesion
SHILPA [12/04/2014 11:47]: Hello sir, kindly help in the diagnosis
CDER_AIIMS [12/04/2014 11:47] : this seems to be a cystic lesion
SHILPA [12/04/2014 11:47]: Hello sir, kindly help in the diagnosis
Features

**Visualization**
- X-Ray images: Multiple formats supported
- DICOM images (CT Scan and MRI data)
  - Single, Multiple, Series & Multi-frame

**Image Manipulation**
- Brightness, Contrast, Sharpness, Negative
- Zoom, Pan, Rotate, Flip, Undo, Redo
- Dynamic Manipulation & Presets
- Image Capture
- Cine Mode
- Multi Screen Layouts

**Repository**
- Integrated and Centralised
- Customisable
- Uploading and Retrieving Files
- Access and Security Control

**Collaboration**
- Real-time Sharing and Annotation
- Recordable Review Comments
- Audio and Video

**Education**
- Creation of Clinical Case Studies
- Accessible Repository of Case studies
- Feedback and Modification

**Features of Image Elucidation**
- Annotation: Text, Text Pointer, Arrow, Point, Freehand
- Measurements: Distance, Angle
- ROI: Rectangle, Ellipse
- Saving Annotated Images
- Anonymized Data

System Requirements

**Hardware**
- RAM: 2 GB (minimum)
- Free Disk Space: 1 GB (minimum)

**Software**
- OS: Windows or Linux
- Application Heap Size: 2 GB (minimum)

Development Team
- National Informatics Centre - New Delhi
- Center for Dental Education and Research - AIIMS - New Delhi
- Department of Radiodiagnosis - AIIMS - New Delhi
- Indian Institute of Technology Bombay - Mumbai
- CSIR - Central Scientific Instruments Organisation - Chandigarh

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