The Basics

The research-group "Institut für Telematik" of the department for computer-science at the University of Trier is a research and development-center formally administered by the Fraunhofer Society and was established on January 1, 1998 and has since then evolved into an ever-growing competence center that develops solutions for problems in the interfaces between telecommunications and information technology. Around 30 scientific staff members from various countries who are experts in different areas of science are currently with the institute.

The scope of the working group "Institut für Telematik" covers a wide spectrum: From application-oriented information technology and telecommunications research to the development of customized solutions and pilot systems for commerce, industry, medicine and administration. It is also focusing on new media training and continued education, which is offered to cooperation partners as well as employees of companies domiciled in the region and in other areas.

Project Partners

High tech businesses, as well as large and even small and medium sized companies support the institute as project partners. The partner firms implement the institute's scientific findings in practical applications. The focus of the work is on the development and utilization of new information and communications media for technical, medical and social applications.

Areas of Competency

The current research and development projects aim at the practical implementation of the latest scientific findings in the areas of electronic publishing, Internet/Intranet, tele-medicine, secure data transfer, system development and analysis. The Institut für Telematik focuses primarily on the following technological applications:

- Editor systems: Web-based information and knowledge management
- Navigation systems: Processing of information, data interfaces, EAI, data warehouse
- Database management: Innovative middleware on open standard basis, e.g., Smart Data Server (SDS)
- Open network security: Architecture, policies
- Network security: Firewalls, Lock-Keeper, Tiger Teams, CERT
- Content security: Public-Key-Infrastructures, digital signatures
- Mobile technologies and applications: Ubiquitous Computing, Mobile Security, ad hoc-Networks, Smart Cards
- Tele-medicine: Patient CD, DICOM-image management and compression,
- Consulting: Studies, evaluations, audits

Patent Protection has already been awarded to the institute for two of its solutions: <Lock-Keeper> – a security <sluice> between Internet and Intranet, that protects users more effectively against online attacks than firewalls – and <Dicomzip> an image compression process that reduces the transmission times of medical images from several hours to just a few seconds.

Universität-Trier

Institut für Telematik

Hightech-Forschung rund ums Internet

Patient CD System

Convenient and secure archiving system for medical images

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Patient CD

In a joint project the Institut für Telematik and the Academic Hospital of the Compassionate Brothers (akademisches Krankenhaus der Barmherzigen Brüder) in Trier developed a new, user-friendly system that allows users to burn medical images on a patient CD instantly utilizing the original DICOM standard.

This special blank CD can be used to store images obtained during medical examinations utilizing the internationally renowned DICOM 3 format. More importantly, it also allows for the storage of a high-performance viewer that displays the images on demand.
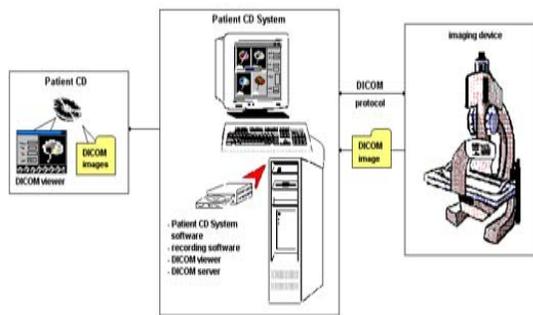
Block diagram of the system

This process is ideal for long-term archiving of radiology as well as ultra sonic images. While the Patient CD facilitates the storage of medical images, it also reduces costs and simplifies secure data exchange.

As an additional benefit, patients can take their own medical image CDs home and review them.

Surface of the Patient CD burner module for the production of patient CDs

System Features

- 2D-images of medical data
- Partial image production from volume data batches
- Video animation in various image frequencies
- Image inversion
- Contrast and brightness are adjustable
- Geometric transformation
- Gray value, distance and angle functions
- Zoom function
- Preview function
- Magnifying glass with multiple settings
- Simultaneous miniature preview of all images
- Protected against illegal copying and use
- Autostart function for Patient CDs

System Benefits

- User-friendly
- Fast, reduces workload
- Low cost operation
- Highly compatible with standard operating systems
- Digital medical images on CD can be viewed on every PC. No special visualization programs are required. The original image quality is maintained!

Even users who have never worked with these types of programs before will learn how to use the Patient CD System in just a few minutes.

Since the product was first introduced, more than 50,000 different DICOM images have been evaluated. They had been produced on radiological equipment made by a wide range of manufacturers (such as Siemens, Philips, AGFA). Consequently, the technological reliability of the system has been thoroughly verified.

The Patient CD System is currently being utilized with great success at the Brüderkrankenhaus in Trier, Germany, a Mainz University teaching hospital.

Surface of the Patient CD-Viewer module