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Technical Advances in Telemedicine and Application Systems

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= Abstract =

Telemedicine is regarded as the information system that can offer the individualized health care service to the remote patients by use of communication technology in order to overcome the health barriers associated with the space, time and economical limitations of the patients. However, the advances in the high speed computer, internet, wireless communication, high capacity storage, portable computer and electronic health record enables highly effective ubiquitous healthcare including home health care and the cooperative inter-hospital health care.

Key words: telemedicine, ubiquitous, technical advance

I.

(Any data, Any place, Any time) 가

, PACS(LAN) 가

, ISDN(Integrated Services Digital Network), T1/E1 Ethernet , (High-Speed Network), ADSL(Asynchronous Digital Subscriber Loop), ADSL, NGN CDMA, IMT200, Wireless 가

: , (120 - 752) 134 LAN 가

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IPv6 IP

IP PDA, Laptop, High Speed (2).

PC

3.

DICOM (PACS), 3D 가

가 Intra 가 Vital

2. Sign, , , , 3D 가

2-1 PC PACS Intra Network Application Inter Network Application Inter Network Application , PACS 가 가 가

(1).

2.2

가

2.

Line Type	Network	Bandwidth
Wired LAN	PSTN/PSDN	56K
	ISDN	128K
	ADSL	2M (640K)
	VDSL	8M
	Cable	2M
	T1/E1	1.5 /2M
LAN	Ethernet	10M
	Fast Ethernet	100M
	FDDI	100M
	ATM	155M
	Giga-bit Switching	1GB
Wireless WAN	Cellular	9.6K
	ISO-95 A/B	14K
	CDMA 1x	144K
	CDMA EVDO/EVDV	2M (300K)
	Wireless LAN	11M
	Satellite	64K (10 K)
	B-ISDN Mobile Broadband	150 M

1.

Application	Media Requirements	Remote Control
Teleradiology	Large Images	None
Telepathology	Still images	Microscope
Teledermatology	High quality video /Still images	Camera
Telecardiology	High quality video	None
Teleendoscopy	High quality video	None
Telepsychiatry	Teleconferencing	Camera

Inter Network Application

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III.

(1).

3 Radio Frequency System

(Electrocardiogram : ECG), (Electroencephalogram : EEG), (Respiration), (Blood Pressure - BP), (SpO2)

1. Multimedia Brain Function Monitoring System

(2). 12

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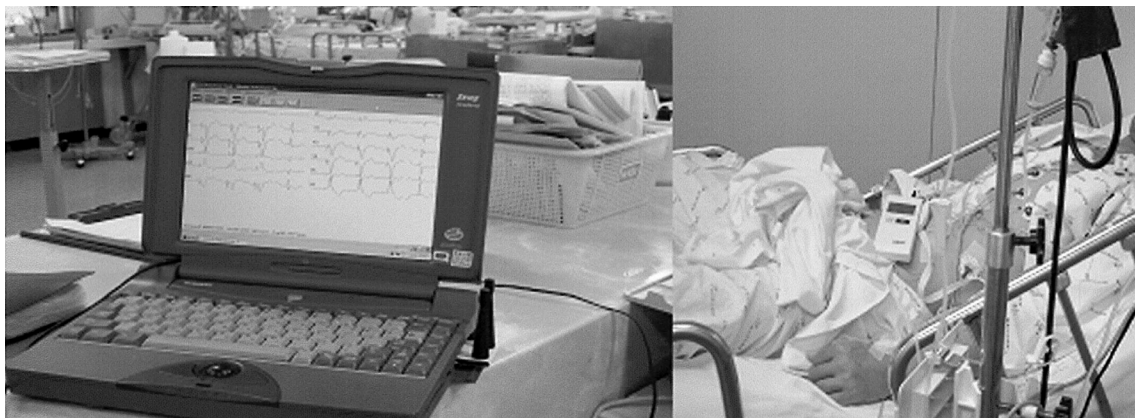
56Kbps

RF

2. Emergency Telemedicine System



1. Emergency Telemedicine System



2. Radio Frequency System

4. Internet: Home Care

MPEG - 4

CDMA 1x, CDMA EVDO

가 가 (home - care) 가

가 PC 가

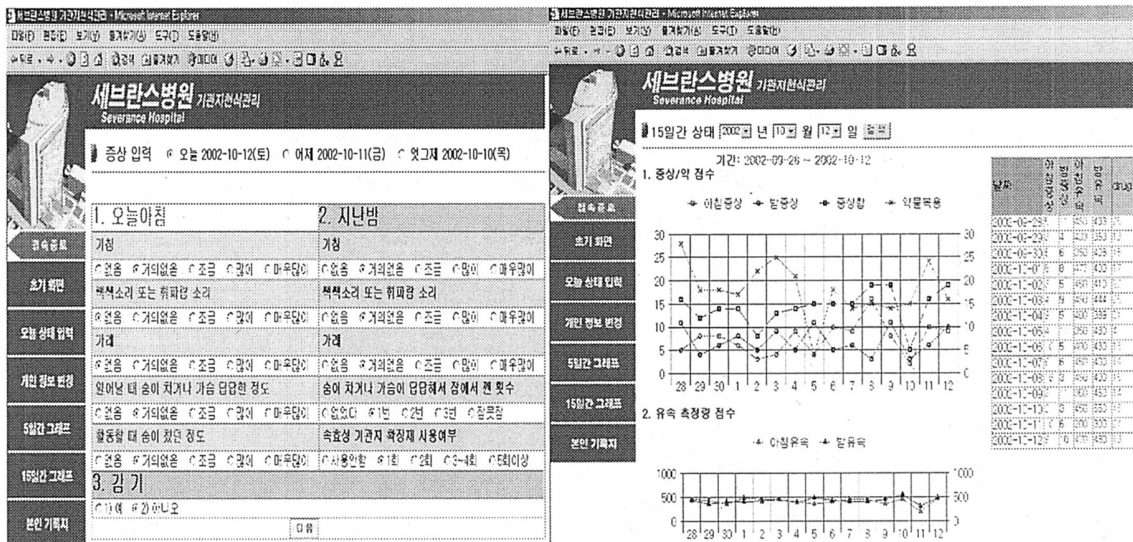
6. VRML - based 3D Display: WWW

5. Mobile Telemedicine System

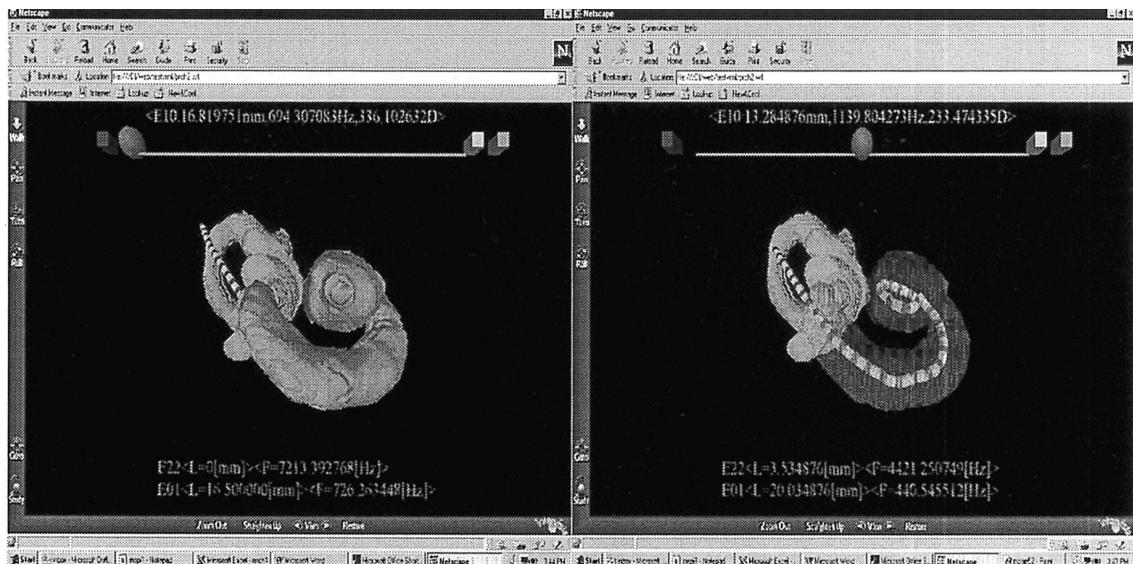
3

가 가

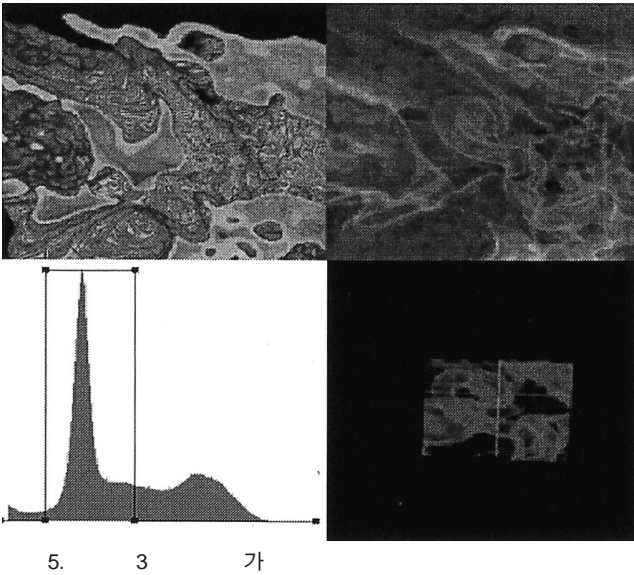
가 가



3.



4. VRML-based 3D



7. Real - Time 3D Volume Rendering: WWW

3

(Zoom - in, Zoom - out),
 (Rotate), / (Contrast/Brightness Control),
 (Window level control),
 (Window Fitting), (Histogram Equalization)

IV.

MPEG - 1, MPEG2, MPEG - 4
 TCP/IP, H.261, H.263,

JPEG, JPEG2000
 DICOM

HL - 7
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HIPPA,

JCAHO

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