

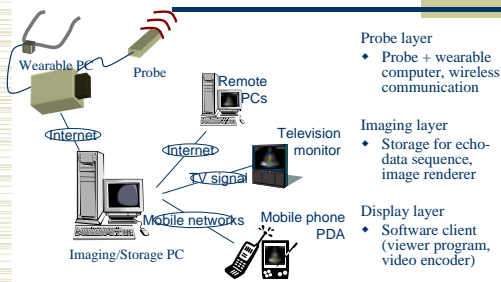
Tele-Echography System in Ubiquitous Networking Media Environment

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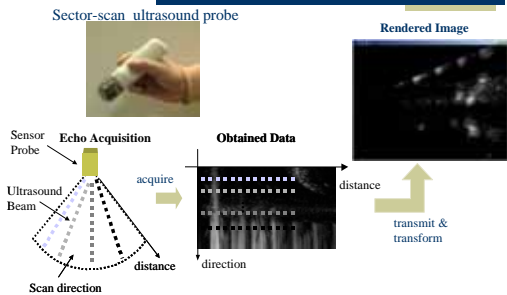
Background

- ◆ Although the transmission techniques for echography images over the Net (tele-echo) are being deployed in practical medical application, they are still bound to hospital for their complexity.
- ◆ For home-visit medicine or emergency medicine, more compact and distributed tele-echo framework should be required.

"Ubiquitous Echo" Framework



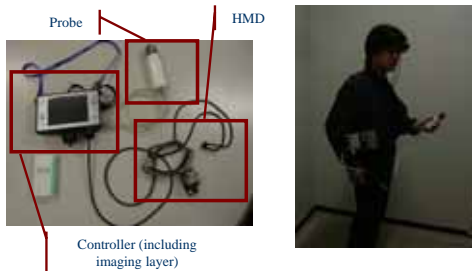
Probe



Transmission

- ◆ Media: WirelessLAN(IEEE 802.11b), TCP
- ◆ Compression: Frame-wise (75lines by 508 samples/frame), Loss-less (GZIP algorithm)
- ◆ Image sequence: 8bit/sample, 75 lines × 508 sample, 10frames/sec (3.048Mbps)

Implementation

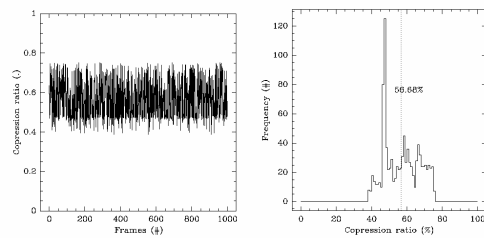


Experiment

- ◆ Developed system was tested in a wireless-LAN environment
 - Ideal condition: Both ends are 5m from the same access point
 - Compression performance
 - FPS
 - Roaming: Across 4 floors and 50m between building in the campus (by walking)
 - FPS

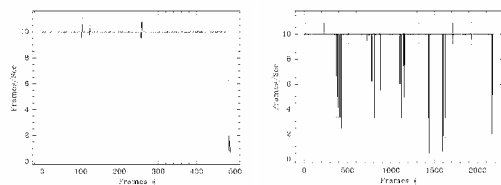
Result

Compression performance



Result (cnt'd)

Frame-rate



Demonstration Video



Discussion

- ◆ Under ideal condition, transmission was successful with almost constant delay
 - Application for home-visit medicine will be possible.
- ◆ Using loss-less compression of source signal, it is possible to send clear ultrasound image in realtime.

"Ultrasound diagnosis so handy"



Nihon Keizai Shinbun,
20 Aug 2004