Telematics system: biomedical instrumentation

- Lighting: type, capability due to color
- Provide consistent resolution of flash, with memory resolution possible without television
- But only telemetry

Bioelectric signal: frequency
- ECG: 0.05 Hz - 1 Hz
- EEG: 0.2 Hz - Beta wave
- 6-7 Hz: Theta wave
- 8-13 Hz: Alpha wave
- 14-30 Hz: Beta wave
- 100-500 μV

- EMG: < 5 kHz
- 20-50 kHz (clinical interest)
- 10 kHz (for mV)

Medical Electronics: Coming: the era of telemedicine
- Allan IEEE Spectrum, 1976

Encompasses the practice of diagnostic medicine through the use of telecommunication

include both broadband and narrowband

12 experiments show feasibility

(1) The underlying organizational framework for the delivery of health care via telemedicine (two-way audio-visual communication link) is that of a hierarchical health-care system. With such a system structure, health care may be dispensed in terms of primary (routine), secondary (more complicated), and tertiary (most complicated) levels.
technical challenges:

- lack of adequate software and equipment design and its use
- system down time due to lack of maintenance

communication satellite systems: medical data

[2] The U.S. Navy Electronics Laboratory's Remote Medical Diagnostics System, an interactive TV-telemetry system, allows ship-based or shore-based physicians to examine a host of other diagnostic services. 

[3] The remote medical diagnostic system (RAMDS) allows physicians to examine a host of other diagnostic services.
two-way interaction < audio video

Convergence to space technology

Integrated Medical and Behavioral Laboratory Measurement System

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Space Technology Applied to Rural Papago Advanced Health Care

mobile health unit (MHU)

patient reservation administrative center

physician referral center broadband

main observations: cost structure

where can it be useful: psychiatry

teleology, speech therapy, orthodontics, anesthesiology

education

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Introduction to telemedicine

Wooton et al., BMJ 1999

realtime telemedicine [local provider]

remote physician

store and forward (S&F) transmit

clinical query via email