

# Wireless Recorder for Bio-Medical Signals

Dhananjay E. Upasani  
H.O.D. E&Tc &IT  
SGREFS, COEM,  
Ahmednagar

Sandip B. Shrote  
E & Tc Deptt. SGREFS, COEM,  
Ahmednagar

Vrushali P. Wani  
Elex Deptt SGREFS, COEM  
Ahmednagar

## ABSTRACT

Portable multi channel system is described for the recording of biomedical signals wirelessly. Instead of using the conventional time-division analog-modulation method, the technique of digital multiplexing is applied to increase the number of signal channels to four. Detailed design considerations and functional allocation of the system is discussed. The front-end unit is early designed to condition the input signal in an optimal manner. Then, the micro controller handled the tasks of data conversion, wireless transmission, as well as providing the ability of simple preprocessing such as waveform averaging or rectification. The low-power nature of this micro controller affords the benefit of battery operation and hence, patient isolation of the measurement system. Finally, a single-chip receiver, which compatible with the RF transmitter of the micro controller, was used to implement a compact interface with the host computer.

An application of this portable recorder for low-back pain studies. This device can simultaneously record one ECG and two surfaces EMG wirelessly, thus, is helpful in relieving patients' anxiety devising clinical measurement. Such an approach, micro controller-based wireless measurement, could be an important trend for biomedical instrumentation [9]

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