

PEMS: Pulmonary Edema Monitoring System

Pulmonary edema is the state of fluid accumulation in the air spaces and parenchyma of the lungs. It leads to impaired gas exchange and may cause respiratory failure. The present diagnosis methods for this are not so accurate and not always applicable to different subjects. The pulmonary edema monitoring system (PEMS) is a non-invasive diagnostic device for the continuous monitoring and detection of pulmonary edema. It consists of a sensor which is composed of 3 EMG electrodes followed by a high gain bio-amplifier which is intended to be placed on the human chest to detect lung irregularities. Specifically, the electrodes pick up bio-signals associated with the lung diaphragm muscle, amplify it, and convert it to digital form for analysis and transmission. A threshold value will be set in the analysing device which compares the measured value with the threshold and indicates whether the subject suffers from pulmonary edema or not. Concurrently, a medical sensing body-area network (MS-BAN) is also employed to provide continuous and robust remote monitoring of subjects. The PEMS can be interfaced with Cell Phone, Tablet or Computer device via Bluetooth or Zigbee for wireless monitoring and data transfer.