

LifeGuard Monitoring Systems

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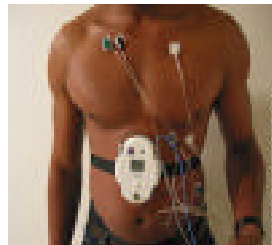
The LifeGuard system is a collection of biosensors that feeds health and physiology data to a compact wearable device designed to record an astronaut's vital signs. It was designed to ensure safety during space flight, extravehicular activities, and monitor physiology during exercise routines. The LifeGuard system monitors skin temperature, heart rate, respiration, blood pressure, and even the astronaut's position in space.

The system is comprised of multiple ECG/Respiration electrode patches, a pulse Oximeter, a blood pressure monitor to record physiological states, a wearable CPOD device, and a base station. Signals from the electrode patches, pulse Oximeter, and blood pressure monitor travel through various wired to the CPOD data logger. The CPOD data logger acquires and logs these physiological parameters up to 8 hours and can download or stream them in real time to a base station PC on demand. The data transfer can be accomplished either hardwired or wireless. Data processing algorithms on the base station derive heart rate and respiration rate from the received ECG waveform.

At the heart of the LifeGuard system is the CPOD device or Crew Physiological Observation Device. It can store up to 8 hours of data, about 32 megabytes, in flash memory, and

download it later to a base computer. The device is small enough to strap around the waist and runs on two AAA batteries. All portions of the CPOD device and LifeGuard system that touch the body have been approved by the FDA as safe for everyday use.

Since NASA was having so much success with the LifeGuard system for the astronauts, other ways to use the system have emerged. Various companies have been working with the system to adapt it for other uses. Some possible uses are in home medical monitoring, athletic training, and patient monitoring. Doctors think that the LifeGuard system would be a great way for expecting mothers to monitor the contractions of their uterus. Also, some NASCAR drivers are attracted to the idea of constantly wearing a device to monitor their vital signs since they are subjected to an intense and dangerous environment.



Sources:

- www.CNN.com
- www.Lifeguard.stanford.edu
- www.NASA.gov