

Wireless patients monitoring system

Introduction:

The Patient Monitoring System (PMS) is a very critical monitoring systems, it is used for monitoring physiological signals including Electrocardiograph (ECG), Respiration, Invasive and Non-Invasive Blood Pressure, Oxygen Saturation in Human Blood (SpO₂), Body Temperature and other Gases. In PMS, the multiple sensor and electrodes is used for receiving physiological signals like as ECG Electrodes, SpO₂ Finger Sensor, Blood Pressure Cuff and Temperature Probe to measure the physiological signals. During treatment, it is highly important to continuously monitor the vital physiological signs of the patient. Therefore, patient monitoring systems has always been occupying a very important position in the field of medical devices. The continuous improvement of technologies not only helps us transmit the vital physiological signs to the medical personnel but also simplifies the measurement and as a result raises the monitoring efficiency of patients.

Classes of Patient Monitoring System

In the past, the dominant products manufactured by medical device manufacturers are mainly those for single parameter measurement. Nowadays however, a multi-parameter patient monitor is commonly used. Now in current industry the patient monitoring systems is available in two classes. Single-Parameters Monitoring Systems Multi-Parameter Patient Monitoring Systems

1- SINGLE-PARAMETERS MONITORING SYSTEMS

The single parameter monitoring system is available for measuring

blood pressure of a human body, ECG (Electrocardiograph) monitor, SpO2 (Oxygen Saturation in Blood) monitor

2- MULTI-PARAMETER PATIENT MONITORING SYSTEM

A multi-parameter Patient Monitoring System (PMS) is used for multiple critical physiological signs of the patient to transmit the vital information like Electrocardiograph, Respiration Rate, Blood pressure etc. Therefore, multi parameter PMS has always been occupying a very significant position in the field of medical devices.

Definition of Wireless patients monitoring system:

This technology provides paramedics, clinicians and other medical personnel with a hands-free, wireless device to monitor a patient's vital signs, creating a safer environment for both EMS personnel and patients.



Wireless health monitors not only send crucial physiological signs to medical workers but also make measuring easier, increasing patient monitoring efficiency. It also reduces measurement time and aids in receiving care at the optimal time during an emergency, potentially leading to better treatment outcomes

Patient monitoring systems are collections of machines or equipment used to constantly monitor patients through various vital signs and warning systems to detect and record changes in patient wellbeing

This technology has migrated to patient beds and mattress pads where weight, blood pressure, pulse rate, sleep patterns are transmitted. These data alert nurses to any number of changes to a patient's status

Purpose of wireless patients monitoring system.

Patient monitors measure, record, distribute and display combinations of biometric values such as heart rate, SPO2, blood pressure, temperature and more. High-capability, multi-function monitors are typically used in hospitals and clinics to ensure a high level of quality patient care

Objective of wireless patients monitoring system.

- To construct a hospital bed which contains an internal computerized system that alerts the nurses of any change of the patient position on the bed.
- Determine patient's location
- Sensors located on bed and directly on the patient.
- Sensors send data to the nurse's screen located in the nursing station.
- To have the ability to monitor multiple of patients at once.

Monitoring system can be used in a hospital, homes and hospice setting.

Advantages of wireless patients monitoring system.

A wireless system has several advantages such as:

- 1- Patient safety
- 2- low maintenance
- 3- ease of mobility for the caretaker/patient

- 4- A large capacity for transmitting information without the need for a bulky monitoring station.
- 5- Satisfies a demand for monitoring: (Unattended falls, heart attacks, fevers, and several other medical mishaps.)
- 6- There is a societal demand for this system due to staffing constraints.

Example:

1- Wireless Temperature Measurement and Monitoring

System (transmits temperature readings from the sensors which are placed on your Data Center Rack to the BMS room which can be remotely connected to PC. Temperature readings are then displayed on PC via our user friendly software.)



2- The Wireless Glucose Monitoring System (The Wireless Glucose Monitoring System will provide continuous glucose monitoring for diabetes patients using a non-invasive wristwatch glucose tester to monitor blood sugar levels. The results of that monitoring are then wirelessly transmitted to a secured database for later viewing by the patient and health care professionals who can analyze the data, allowing for more advanced and cost-effective treatment for diabetes patients).



3- Injection-free insulin patch (Children with type 1 diabetes can feel embarrassed when they need to inject insulin at mealtimes. Just press two buttons on the device to deliver the insulin bolus. This action can be done even through clothing, therefore, pediatric patients feel encouraged to dose more often which leads to better treatment).

