

Outlines of Medical Devices for Patient Monitoring System

Venkata Sai Sravani Botcha^{1*}, Koyidala Monisha¹, G.D.L.Manvi¹ and Anita Chamoli²

¹Department of Pharmacy, Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India ²Department of Biotechnology, Hemvati Nandan Bahuguna Garhwal University, Srinagar, Uttarakhand, India

Introduction

A medical monitor or physiological monitor medical device used for monitoring. It can contain one or more sensors, processing components, display devices also as communication links for displaying or recording the results elsewhere through monitoring network. Monitoring could even be a sort of surveillance consisting of repeated testing intended to detect a specified change during a patient indicating a change in his prognosis, need for treatment, or need for a change in treatment. The concept of monitoring overlaps with those of screening and diagnosis. Patient Monitoring System which can be operated wirelessly. This wireless patient monitoring system measures heartbeat, body temperature, and therefore the percentage of oxygen within the blood. The design and development of a coffee cost apparatus that uses technology for monitoring the health condition of the patient.

Types of Components

Sensor Sensors of medical monitors:

1. Biosensors
2. Mechanical sensors

Translating Component

Translating component which is employed to convert the signals from the sensors to a format which will be shown on the display device or transferred to an external display or recording device. Display device Physiological data are displayed continuously on a CRT, LED or LCD screen as data channels along the time axis, they'll be amid numerical readouts of computed parameters on the first data, like maximum, minimum and average values, pulse and respiratory frequencies, and so on. Besides the tracings of physiological parameters along time (X-axis), digital medical displays have automated numeric readouts of the height and/or average parameters displayed on the screen. Modern medical display devices commonly use Digital Signal Processing (DSP), which has the benefits of miniaturization, portability, and multi-parameter displays which will track many various vital signs directly. Old analogue patient

displays, in contrast, were supported oscilloscopes, and had one channel only, usually reserved for Electrocardiographic Monitoring (ECG). Therefore, medical monitors attended are highly specialized. One monitor would track a patient's vital sign, while another would measure pulse oximetry, another ECG. Later analogue models had a second or third channel displayed within the same screen, usually to watch respiration movements and vital sign. These machines were widely used and saved many lives, but that they had several restrictions, including sensitivity to electrical interference, base level fluctuations and absence of numeric readouts and alarms. Other components a medical monitor also can have the function to supply an alarm to alert the staff when certain criteria are set, like when some parameter exceeds or falls the extent limits. Mobile appliances an entirely new scope is opened with mobile carried monitors, even such in sub-skin carriage. This class of monitors delivers information gathered in Body-Area Networking (BAN) to e.g. smart phones and implemented autonomous agents.

Examples and Applications

The development cycle in medicine is extremely long, up to twenty years, due to the necessity for U.S. Food and Drug Administration (FDA) approvals; therefore many of monitoring medicine solutions isn't available today in conventional medicine.

Glucose blood monitoring

In vivo blood glucose monitoring devices can transmit data to a computer which can assist with lifestyle suggestions for lifestyle or nutrition and with the physician can make suggestions for further study in people that are in danger and help prevent DM type 2.

Stress monitoring

Bio sensors may provide warnings when stress levels signs are rising before human can notice it and provide alerts and suggestions. Deep neural network models using Photo Plethysmography Imaging (PPGI) data from mobile cameras can assess stress levels with a high degree of accuracy (86%). Serotonin biosensor Future serotonin biosensors may assist with mood disorders and depression. Continuous biopsy based nutrition in the field of evidence-based

*Address for Correspondence: Dr Venkata Sai Sravani Botcha, Department of Pharmacy, Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India, E-mail: sravanibotcha15@gmail.com

Copyright: ©2021 Botcha VSS, et al. This is an open-access article distributed under the terms of the creative commons attribution license which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Received: 10 March, 2021; Accepted: 24 March, 2021; Published: 31 March, 2021.

nutrition, a lab-on-a-chip implant which will run 24/7 blood tests may provide endless results and a computer can provide nutrition suggestions or alerts. Psychiatrist-on-a-chip In clinical brain sciences drug delivery and in vivo Bio-MEMS based biosensors may assist with preventing and early treatment of mental disorders Epilepsy monitoring In epilepsy, next generations of long-term video-EEG monitoring may predict convulsion and stop them with changes of lifestyle activity like sleep, stress, nutrition and mood management.

Toxicity monitoring

Smart biosensors may detect toxic materials such mercury and lead and supply alerts.

Conclusion

To meet the increasing demands for more acute and medical care required by patients with complex disorders, new organizational unit were established in hospitals. Continuous measurement of patient parameters like pulse and rhythm, rate of respiration, vital sign, blood-oxygen saturation, and lots of other parameters has become a standard feature of the care of critically ill patients. In many medical problems, drugs offer temporary relief of symptoms while the basis of a medical problem remains unknown without enough data of all our biological systems.

Our body is provided with sub-systems for the aim of maintaining balance and self-healing functions. Intervention without sufficient data might damage those healing sub systems. Monitoring medicine fills the gap to stop diagnosis errors and may assist in future medical research by analysing all data of the many patients. Giving care and health assistance to the bed ridden patients at critical stages with advanced medical facilities became one among the main problems within the modern hectic world. In hospitals where an outsized number of patients whose physical conditions need to be monitored frequently as a neighbourhood of diagnostic technique, the necessity for a price effective and fast responding alert mechanism is inevitable. Proper implementation of such systems can provide timely warnings to the medical staffs and doctors and their service are often activated just in case of medical emergencies. Due to the development of the technology nowadays sensors are using beside the bed for the safety of patient.

How to cite this article: Botcha VSS. "Outlines of Medical Devices for Patient Monitoring System ." *J Sens Netw Data Commun* 10 (2021) : 164