Patent Search

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Abstract:

The present disclosure relates to systems and methods, and provides a Smart IoT-based Saline monitoring system (100) for continuously tracking the level of intraver bottles and notifying healthcare staff when the level becomes low. The Smart IoT-based Saline monitoring system (100) includes an ESP32 microcontroller unit (102), sensor (104), and an HX711 amplifier module (106) that amplifies and digitises weight signals from the load cell sensor (104) for processing by the ESP32 microcontro (102). The IoT-based saline monitoring system (100) is configured to continuously track the level of saline bottles and notify healthcare staff when the level becomes l response to continuous operation. This configuration achieves improved patient safety and reduces the need for frequent manual monitoring in hospitals.

Complete Specification

Description:TECHNICAL FIELD

[001] The present invention relates to the field of healthcare monitoring systems, and more particularly to a Smart IoT-based Saline monitoring system that integrat load cell sensor, a wireless microcontroller, cloud connectivity, a mobile application, and a user-friendly interface for continuously monitoring intravenous saline lev

BACKGROUND

[002] The field of healthcare monitoring systems has seen significant development in recent years, particularly with the proliferation of low-cost wireless microcontr and Internet of Things (IoT) technologies. Intravenous (IV) fluid administration is among the most commonly performed clinical procedures in hospitals, nursing hor home healthcare settings. The accurate and timely delivery of IV saline to patients is a fundamental aspect of clinical care, and the management of IV fluid bottles is accordingly a matter of considerable practical importance to healthcare staff and patient safety alike.

[003] In many healthcare facilities, the level of saline remaining in an IV bottle is typically assessed by nurses or clinical staff through periodic visual inspection at the patient's bedside. In busy hospital wards where a single nurse may be responsible for monitoring multiple patients simultaneously, such manual inspection may be infrequent or inconsistent. The interval between consecutive checks may vary depending on ward workload, staff availability, and shift changes, introducing the pos that a saline bottle may become critically low or empty without timely detection.

[004] When an IV saline bottle empties without prompt replacement, the consequences may include interruption of the prescribed fluid therapy, introduction of air IV line, and associated clinical risks to the patient. Such interruptions may necessitate re-priming of IV lines and may require additional clinical interventions. The cu effect of such occurrences across a ward or healthcare facility may represent a measurable burden on both patient safety and nursing workload, particularly in resc

View Application Status