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Advanced Saline Infusion Management System With Real-Time Monitoring and Automated Flow Regulation using IoT

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Abstract: *The present arrangement, constant supervision by a nurse or caretaker is required to avoid the saline bottle level from not being monitored regularly. The flow of intravenous fluid is regulated using a roller clamp system. If the nurse or caretaker does not check the emptying of the saline bottle in due time, it can result in the hazardous situation of blood reverse flow from the patient to the bottle, calling for instant control in emergency conditions. Our system uses three sensors located externally near the saline bottle to detect liquid levels. The first sensor shows when the saline bottle is full, the second when half of the saline has been infused, and the third, indicating low saline level, triggers an actuator to close the flow. This is followed by an instant alert to the nurse, and the concerned data is also sent to the dashboard for complete monitoring. In addition, the system incorporates inputting medicine information into a database, and the actual status of the saline is displayed prominently on the graphical user interface (GUI) dashboard. The use of a microcontroller makes it easier for communication between the database and the whole system. Moreover, a servo motor is utilized to stop the flow of saline automatically when it reaches the last level, improving the safety features. To offer timely alerts, a buzzer is sounded, providing timely alertness to situations of prime importance*

Keywords: Non Contact Liquid Level Sensor, Interactive Dashboard, Emergency Alert Indication, Automatic Flow Control, IV-Intravenous Fluid

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