

ABSTRACT

Intravenous fluid infusion is an important procedure to overcome fluid and nutrient loss in the body through the veins. Delays in changing infusion tubes can cause serious complications such as phlebitis, therefore real-time information about infusion tube changes is very important to improve treatment efficiency and reduce the risk of errors in drug administration. The method implemented uses an IoT-based non-contact liquid level sensor which allows direct monitoring of the LCD and IoT platform. When the infusion fluid is above the high sensor (9.5 cm), safe conditions are displayed with the LED off and the buzzer off. If the liquid passes the high sensor but is still below 9.5 cm, the alert condition is indicated by the yellow LED turning on and the buzzer going off. When the liquid passes the low sensor (3.5 cm), a warning condition is displayed with the red LED turning on and the buzzer sounding. Although the sensor performed well at high altitude ranges with low error rates, challenges emerged at lower altitude ranges, especially in warning conditions, with error rates reaching 20.00% at 0.5 cm. Overall, the sensor recorded an average error of 3.16% with an accuracy of approximately 96.84%, highlighting the need to increase precision at lower altitudes to ensure more accurate monitoring.

Keywords: *Intravenous fluid infusion, IoT, Delay in replacing infusion tubes, Non-contact liquid level sensor, Real-time monitoring.*