

Low cost intravenous bag weight monitor

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Abstract

Intravenous (IV) drips are widely used in clinical settings to maintain patient hydration and prevent complications. Although electronic IV pumps provide continuous monitoring, their high cost limits implementation in low-resource hospitals. Our low cost IV bag weight monitor device offers an affordable alternative by detecting when an IV bag reaches a low volume threshold. The device uses a single-point load cell to measure bag weight and triggers a visual LED indicator and audible buzzer when the weight falls below a preset limit. The current prototype uses a simple shelf-style structure to house the Arduino-based circuitry and display the alarm components. Registered nurses have reviewed the current prototype, deeming it a feasible and efficient alternative to more expensive IV pumps. Future work will integrate a microcontroller and a compact 3D-printed encapsulation to improve durability, reduce size, and improve overall usability.

Index Terms

biomedical engineering, arduino, intravenous, IV