

FLUID MONITORING AND ALERT SYSTEM WITH CONDUCTION TECHNOLOGY

ABSTRACT

5 The present invention describes a novel IV fluid Monitoring and Alert System that leverages capacitive sensing electrode to monitor IV fluid levels in real time. The system consists of a capacitive sensor, microcontroller, Battery Management System (BMS), and Bluetooth modules, all integrated onto a Printed Circuit Board (PCB). The sensor accurately detects fluid levels in the IV
10 bottle and transmits this data wirelessly to a local server, enabling remote monitoring via a dedicated smartphone or computer application. A unique feature of the invention is its proactive alert system, which notifies healthcare professionals in an optimized duration before the IV bottle is depleted, allowing them to prepare for timely replacement. The device's energy efficiency is
15 enhanced through the use of a deep sleep algorithm and an optimized PCB design, ensuring extended battery life.

(Figure 1)