



IOT INTRAVEOUS FLUID MONITORING AND ALERTING

During the peak of the Covid-19 Pandemic, healthcare professionals found themselves spread thin among the ever-increasing wave of incoming patients. In such times, it is not possible for frontline workers to monitor and tend to each and every patient personally.

Intravenous therapy is a medical technique used to deliver fluids, medications and nutrition directly into a person's vein. IV therapy is commonly used for rehydration and to provide nutrients and is crucial to help an individual with making a speedy recovery.

However, IV drips need to be regularly monitored and replaced. The flow of the fluid also needs to be metered depending on the patient and their ailment. This IoT Intravenous Fluid Monitoring uses a weight sensor to detect as the fluid level in the IV Infusion bottle goes down and transmits the data over IoT.

Once the system detects that the bottle has gone empty, it sends an alert over IoT. The IoT Intravenous Fluid Monitoring and Alerting system provides the following advantages:

- Automatic IV Bag Monitoring and Alert
- Data Logging as well as IOT Online Transmission
- Easy to operate
- Makes it easier for a single individual to manage multiple patients.

The system makes use of a Weight Sensor with an Atmega microcontroller and Wifi transmitter and LCD display to achieve this functionality. This allows for an automated and robust IV monitoring system.

The Weight Sensor is attached to a small stand. The stand is fabricated with a cross section at bottom to balance it. A small rod stretching from the top allows user to suspend the weight sensor hook on the stand.

The weight sensor is used to measure the weight of empty IV bag at first. This is considered as empty weight. When the IV bag is suspended onto the sensor stand, it keeps on dripping until the fluid runs out.

The weight sensor value is constantly transmitted to atmega microcontroller. The controller constantly processes this data and processes it. The current level of IV bag is parallely displayed on an LCD display. Also this data is transmitted on IOT server via Wifi Module. This level is displayed on IOT server online. As soon as the level falls below certain level it LCD display as well as Online dashboard displays as bag empty.

Components:

- Atmega Microcontroller
- Weight Sensor
- Wifi Module
- IV Bag Stand
- Hooks
- LCD Display
- IC and IC Base
- Resistors
- Capacitors
- Transistors
- Diodes
- Adapter

Advantages:

- Easy to Operate
- Low Power Consumption

- Automatic Data Logging
- Useful for managing large number of patients during times of crisis.

Disadvantages:

- Limited Range
- Limited Operating Time as per Battery Capacity

BLOCK DIAGRAM

