

ABSTRACT

Intravenous therapy is the process of inserting medicinal liquid into the patient's blood vessels to replace fluids in the body. However, the use of infusions must be monitored both by patient waitors, nurses or other medical personnel, both in terms of the parameters of the liquid droplet rate to the infusion capacity. This is certainly a drawback if one day the infusion flows too fast or runs out without supervision. If the infusion runs out and then is ignored, it can cause the patient's blood to enter the infusion tube which can lead to blood shortages. Therefore an infusion monitoring system is needed to reduce the incidence. With the monitored parameters in the form of capacity and rapid infusion of liquid drops, a device can be designed using a loadcell sensor as a measure of fluid capacity and a photodiode sensor as a measure of the speed of liquid drops. Implementation of Internet of Things technology using an ESP8266-based microcontroller, an infusion fluid monitoring device can be accessed anywhere as long as it is covered by internet access. Judging from the results of the mass reading of the infusion fluid, the average value of error percentage of 1.889% and the average accuracy of 97.807%. The loadcell sensor works well because it is still within the loadcell sensor's error tolerance limit, which is 5%. Quality of service (QoS) testing showed that the average delay on all systems was 95,664 ms, the average value on jitter was 0.153 ms, and the average value on troughput testing was 5.510 kbps.

Keyword: *Intravenous therapy, Loadcell, Photodiode, Internet of Things, ESP8266.*