Title: Implementation of IOT in Intravenous Fluid Therapy by using Monitoring and Alerting System

Rationale:

Intravenous Fluid Therapy is a delivery method for fluids and medication. These are given to replace sugar, water, and salt that the patients need when they are ill or have an upcoming operation. "Intra" means within or inside, and "venous" means veins. Intravenous fluids are delivered through the veins. It is administered by a healthcare professional; usually, a nurse, using an IV drip or injection into the vein that makes the therapy move quickly through the patient's bloodstream. Some standard components of intravenous bags include saline, dextrose, lactated ringer's, vitamins b or c, calcium, magnesium, antioxidants, and antibiotics. These solutions containing medications can help with dehydration to medical emergencies. Proper regulation and monitored IV drips are vital as the untimely and wrong amount of IV fluids may likely cause complications that may put a patient's life at risk. Medical professionals need IV therapy to be regularly monitored and replaced. IV drips need to be administrated in the expected time, or there can be chances of reverse blood flow. Complications also occur when a patient receives too little fluid, such as the increased risk of dehydration to severe cases like kidney failure.

On the other hand, too much fluid can result in swelling of the ankles, difficulty breathing, increased risk of pneumonia, and severe cases like heart failure. This project aims to improve the traditional approach to Intravenous Fluid Therapy and address the above problems. Developing this project will help with complications like blood flowing backward and fluid overdose. This project also aims to develop a monitoring and alerting system for IV drips that will contribute significantly to caregivers and medical professionals using assistive e-health-care services by indicating the liquid surface level of intravenous fluid and alerting the healthcare

assistant for timely intervention, saving time and workforce, and increasing the success of Intravenous Fluid Therapy.

Statement of the Problem:

This study aims to design, build, and test an intravenous fluid therapy monitoring and alert system that will contribute significantly to medical professionals by regulating IV drip levels, alerting them for timely intervention, and saving their time and workforce. To obtain all necessary information, the research ought to answer the following questions:

1. How does this project aids in the matter of:

    1.1 Regulation of intravenous fluid intake,

    1.2 Timely administration of IV Therapy, and

    1.3 Patient's speedy recovery?

2. How do the Monitoring and Alerting System facilitate in terms of:

    2.1 Manpower,

    2.3 Prevention of significant complications and,

    2.4 Success of Intravenous Fluid Therapy?

3. What are the percentage of the project's accuracy with regard to:

    1.1 Determining the IV drip level,

    1.2 Notifying designated personnel for IV Fluid intervention

Scope and Limitations

The scope of this study is to devise a system for monitoring the quantity of fluids contained within the IV bag and for notifying the user through an application when the bag is ready to be emptied of its contents, as well as its details. This is useful for medical professionals because it makes it possible for them to get some rest and reduces the number of times they have to check on the patient to see if the IV bag is going to drain. This system is restricted to only being used for patients who are undergoing IV therapy.