IV BAG MONITORING SYSTEM

[1]B.VENKATESWARA RAO, [2]MD.ASMA,[3]K.RAJU,[4]Y.BHARATH,[5]B.UDAY KIRAN

[1]Assistant Professor, Dept. Of ECE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

[2]Assistant Professor, Dept. of CSE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

[3]Assistant Professor, Dept. of ECE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

[4-5]B-TECH,Dept.of ECE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

Abstract

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. 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.In recent times we faced many phases in that medical department played at key role many people in the medical field all though trying and giving their 100% it's not possible to monitor every patient in the pandemic so there is no such technology which monitors every single patient expecting enough staff in this critical time is not possible so we have come up with an idea of IV bag monitoring system

1. INTRODUCTION

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. For changing time to time we need to look after it continuously throw at the medication and should be alert which is practically little tough Neglecting or dealing may create problems like blood flowing bag towards the bottle and also patient may not receive the perfect. We provide the better choice for patient case with the excellent management system for hospitals and nurses this is manpower and help them to focus on more critical activities we also tried to add dashboard as a feature and a buzzer to monitor every wirelessly they help to reduce the pressure of Management work and better efficiency the work.In recent times we faced many phases in that medical department who played a key role in the pandemic Though many people in the medical field tried and given their 100% didn't possible to

monitor every patient so there is no such technology which monitors every single patient and also expecting enough staff in this critical time is not possible so we have come up with an idea of IV bag monitoring system.

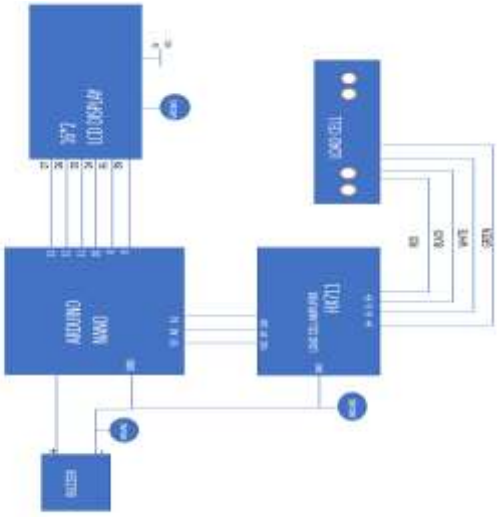
2. RELATED WORK

There are some existing solution for this in the market and they have much drawbacks.The system makes use of a Weight Sensor with an Arduino nano microcontroller and LCD display to achieve this functionality. This allows for an automated and robust IV monitoring system.Changing the IV Bag immediately after injecting or use is actually importantFor changing time to time we need to look after it continuously throughout the medication and should be alert Which is practically little tough. Neglecting or delaying may create problems like blood flowing back towards the bottle, Patient may not receive the perfect dose. We have only one solution in todays world that is manually done.We communicated with the medical department in community hospital located in our area and asked the problems they faced during pandemic. We figured out the major problem that there is no sufficient staff to monitor patients though they are many. As we know there are many cases and not possible to take care for every individual.

3. IMPLEMENTATION

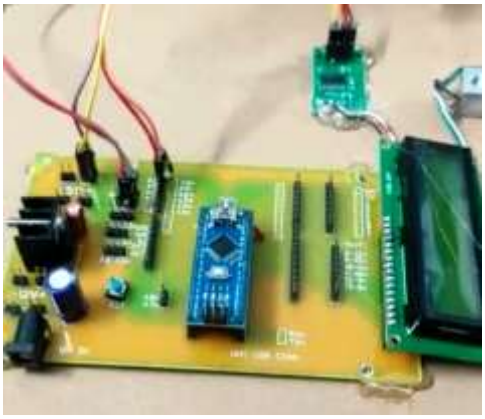
Fluid Monitoring uses a load cell to detect as the fluid level in the IV Infusion bottle goes down and transmits the data over IoT.The system makes use of a Load cell with an Arduino nano microcontroller and LCD display to achieve this functionality. This allows for an automated and robust IV monitoring 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. As soon as the level falls below certain level LCD display as well as Online dashboard displays as bag empty.Our main motto of our project is to monitor every patient and get medicated properly though we don’t have enough staff and it reduces the work of staff which ultimately helps them and make their work easy.All the existing solutions have some disadvantages. The following are the gaps we found in the existing solutions**:** Most automatic dispensers rely on batteries to operate. So, they require regular and timely maintenance in terms of refilling the batteries. This is an added expense as well

as a hassle forthe consumers, who will have to change the batteries as soon as they weardown.However, since the onset of this pandemic, many hand sanitizer dispenser brands have made innovations to make things easier for the buyers. Today's sanitizer dispensers run on electricity and thus, eliminate
the hassle of refilling batteries.



4. EXPERIMENTAL RESULTS

Now for the project we have mainly used aurdino nano microcontroller Simply hang IV bags on monitoring device. Set an alert based on whether the container gets empty or the amount of liquid remaining (100-500 ml, 25 percent , 50 percent) in the container using the spinning knob.The nursing staff will be notified by a glowing LED , a buzzer signal, and a warning on the dashboard.



5. CONCLUSION

We learnt much from this topic which we took up, with the hope that this will help the society for overcoming problems like spreading of covid-19 &otherdiseases.The primary goal of this project was to find & build a cheaper and mass producible design of an IV BAG monitoring system maintaining the accuracy as well. This project is further extendable. Modification of IV BAG can make this project suitable for a lot of applications. We tried our best in designing and implementing this model. Our lack of expertise & experience, manual fabrication of various parts sometimes hindered our progress and affected the perfection to be attained. Overcoming these obstacles and reaching the fruition was a wonderful experience for us.

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