

Intelligent Saline Monitoring System

Vyankatesh Gaikwad¹, Amol Rathod², Pralay Ringe³, Viraj Patil⁴, Divya Bihade⁵
Vishwakarma Institute of Information Technology

Abstract:- Previous health care systems gives poor performance, most often because of negligence, inattentiveness and more number of patients, the saline is totally consumed. Initially, this might be inferred as a casual phenomenon. But the consequences are often fatal. The blood rushes back into the bottle when saline gets finished from the bottle and due to difference between blood pressure and pressure in the empty bottle. Thus, propose Intelligent saline monitoring system is being developed will bring automation in the medical field plus it will be made available at low cost with high efficiency and performance. The patients are monitored continuously by the doctors and nurses, so they can monitor each and every patient without being physically present there.

Keywords:- Ultrasonic Sensor, Nodemcu Microcontroller, Actuator, Saline Bottle, Mysql.

I. INTRODUCTION

Now a days, hundreds may be dying and tens of thousands are being harmed in the hospitals due to negligence towards saline completion by doctors, nurses or caretaker of the patients. Therefore, there is a need for improvement of saline level monitoring in such a way that patient's dependency should not be there either on doctor, nurse or care taker. To develop a saline level monitoring which automatically alert to nurse when the bottle of saline needs to be changed after the saline reaches the critical level . Due to increase in the population, there is a need for improvement in health care. The bottle of saline needs to be changed after the saline reaches the critical level. So new idea called IOT based Intelligent Saline Level Monitoring System is emerged.

II. EXISTING SYSTEM

In the current healthcare measures, professional nurses are responsible for managing, monitoring and providing care to patient receiving saline. Basically roller clamp present on every saline bottle is used for controlling the flow rate of the saline manually at the hospitals. The roller clamp is rolled in anti-clockwise direction, to compresses the intravenous tube more tightly which make tube more thin resulting in to slower down the flow rate of saline fluid. If it is rolled in clockwise direction, it loosens or releases the saline tubing making the tube less thin allowing the saline fluid to flow through at a faster rate

[3]. Presently, there is no such monitoring system which will reduce the dependency of the patients on the nurses, doctors and would also reduce the need for the nurses to go to patient's bed every time to check saline level status of each patient. Therefore, there is need for development of IoT based saline level monitoring system.

III. PROPOSED SYSTEM

The prior objective of proposed system to be developed is to provide system reliability, efficiency, flexibility, less human dependent and more cost effective for automatic monitoring the saline level. Various medical concepts like heart rate, blood pressure, body temperature, pulse rate and body weight of patient are considered for injecting the saline into body. The bottle of saline needs to be changed after the saline reaches the critical level. The proposed system will have various components like Ultrasonic sensor for determining the status of liquid in the saline bottle whether it has reached to normal level(i.e 10cm) or at critical level(i.e 14cm)from the top if saline bottle is 15cm in length. By using Wi-Fi module of nodeMCU and message API, the notification is sent to the nurse on her mobile. Notification in the type of SMS is send on mobile phones to nurses after the saline gets to the critical level. Above programming is written and monitored using AurdinoIDE software and uploaded to microcontroller NodeMCU ESP-8266 using the same software

IV. EXPECTED RESULTS

The step by step procedure:

- 1) Level Sensor(Ultrasonic Sensor) will continuously check the level of saline liquid present in bottle whether it is just above(i.e 10cm) or below Critical level(i.e 14cm).
- 2) If the level of saline liquid is at or below critical point, Alarm will be generated.
- 3) Immediately notifications will be sent to the nurse or doctor that saline is below critical level and there is a need for replacement of saline bottle.
- 4) Prediction of the Saline bottle required based on the various perimeters or health condition is given to the doctors.
- 5) If in case, concerned patient is not been acknowledged by the nurse or doctor, automatically the reverse flow of blood into the saline bottle will be prevented.



Fig 1

Application-Interface

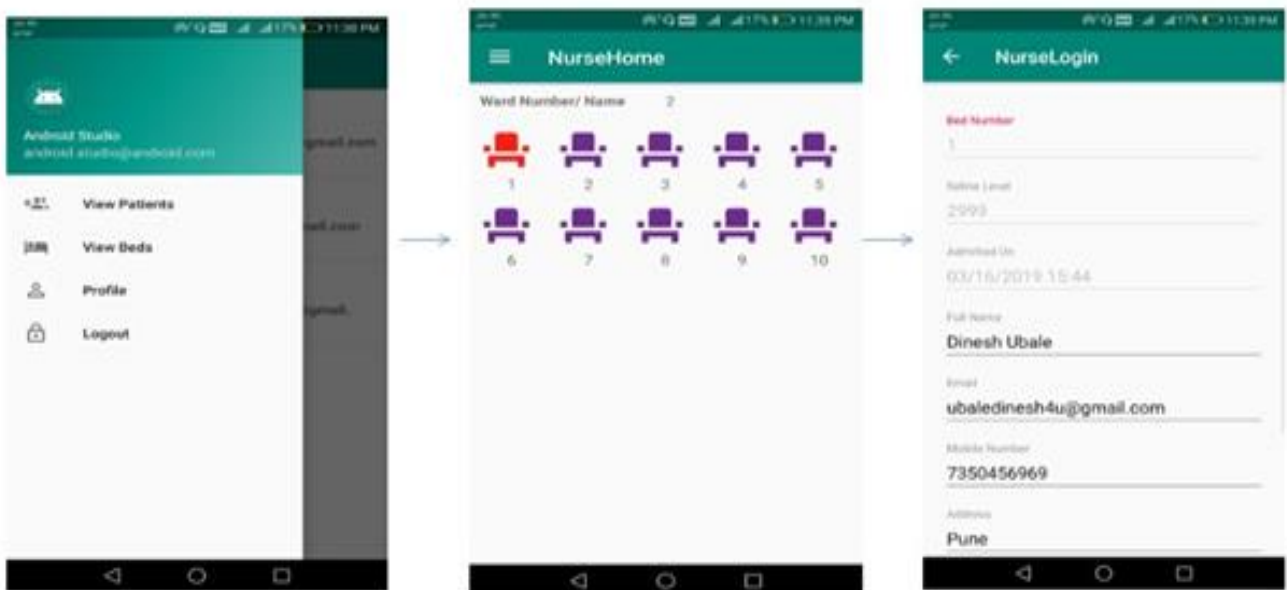


Fig 2

V. CONCLUSION

In this paper we are developing efficient and high performance automatic saline level monitoring system. By using this system, we are able to make all processes automated which reduces waiting time for doctors ,staff and nurse. This system will help nurse and staff to improve their work speed and performance all information will be digitalized .

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