

IOT BASED SMART SALINE BOTTLE FOR HEALTHCARE

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ABSTRACT

This project aims to remotely monitor the patient's electrolyte level and control the online drug system. The IoT project helps caregivers monitor blood sugar levels and fluid flow. Therefore, the patient can be monitored in real time without the need for regular visits from a doctor or supervisor.

Many portable devices are manufactured to perform monitoring and tracing functions within the parameters of a patient's body. These include, pulse rate, oxygen meters. The program involves a few steps such as hearing and learning the circuit, processing and transmitting signals, and finally connecting to the network to present the results. In addition, audio reading will be presented via the server. The challenging part was to build our product at a lower cost so that it could work across the hospital especially the public hospital. We found it difficult to measure the loading cell to achieve its accuracy. This app is able to notify local hospitals of a patient / person who needs help. One should be able to send SMS to relatives in an emergency.

Keywords: Wireless Patient Monitoring, heart rate sensor, temperature sensor, Saline flow control, Arduino uno, Smart phone.

1. INTRODUCTION

This project aim to remotely monitor the electrolytes bottle level of the patient and control the drip infusion system through internet of things. IOT project helps the caretaker to keep on watching of the level of glucose and the revers flow of the liquid. Thus, Patient can be monitored in real time without the need of frequently visit by the doctor or caretaker.

This project is very useful during Covid-19 pandemic because we are going to user this system on the Covid-19 positive patient. Doctors and nurses can not go near the positive patient because they have a more chance to infect. So this project is useful temperature, oxygen, pulse rate based on this measurements the saline drops given to the patients automatically with help of this system we can avoid the contact of positive patient.

Symptoms of Covid-19 disease include:

- Shortness of breath
- Loss of appetite
- High Temperature (above 38 °C) .

People of all age who experience fever and cough associated with difficulty breathing or shortness of breath, chest pain or pressure, or movement should seek medical care immediately. Among those who develop symptoms, most (above 80%) recover from the disease without needing hospital treatment. About 15% become seriously ill and required oxygen and 5% become critically ill and intensive care. People aged 60 years and over those with underline medical problems like high blood pressure, lungs and heart problem, diabetes or cancer are at higher risk of developing serious illness.

From Heart Pulse (HP) performance measurement, you use sensor technology to detect the heartbeat by delivering fingerprints with a sensor using the ARDUINO UNO microcontroller with an Ethernet shield to connect the heartbeat circuit to the internet and send the results to a web server and receive or where. The proposed program provided user (easy to use) and not just professional. Also, it has provided speed and results accuracy, the highest availability of the user continuously, within the lowest cost.

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2. RELEVANCE

A bottle of smart salt IoT health care. This project aims to remotely monitor the patient's electrolyte bottle level and control the flow of salt system via the internet of the object so Patients can be monitored in real time without the need for regular visits to the doctor or caregiver.

1. Smart Saline Level Monitoring System Using ESP32 and MQTT-S.
2. Smart IoT salt bottle for health care.
3. Smart IV fluid and oxygen control system.
4. Smart Health Care System Using the Internet of Things

3. LITERATURE REVIEW

This project depends on the heart rate and oxygen. we have created electronic devices for automatic salt movement.

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4. OBJECTIVES

1. Overcoming obstacles in a hand-controlled salt system.
2. Automatically stop the flow of salt bottle.
3. As our phone receives SMS employees are notified immediately. There is no chance of flowing backwards.
4. Human energy can be reduced.

PROPOSED WORK

Research is underway in the field of IoT health care that provides clinical evidence that raw data obtained from devices connected to a wireless network contributes to the management and protection of chronic diseases and patient monitoring. Therefore, a variety of health monitoring systems are being developed today, including glucose monitors, ECG monitors, pulse audiometers, and blood pressure monitors.

5.1 Proposed Architecture

An electronic circuit design that incorporates software and software requirements as well as proposed system monitoring methods. The program aims to measure and analyze Heart Pulse (HP), Oxygen and Patient Temperature. Computer and software components are required to use the electronic circuit. These items are selected based on different criteria namely low cost, availability. Hardware components required for use such as the ARDUINO UNO board, flow sensor.

5.2 Data Flow Diagram

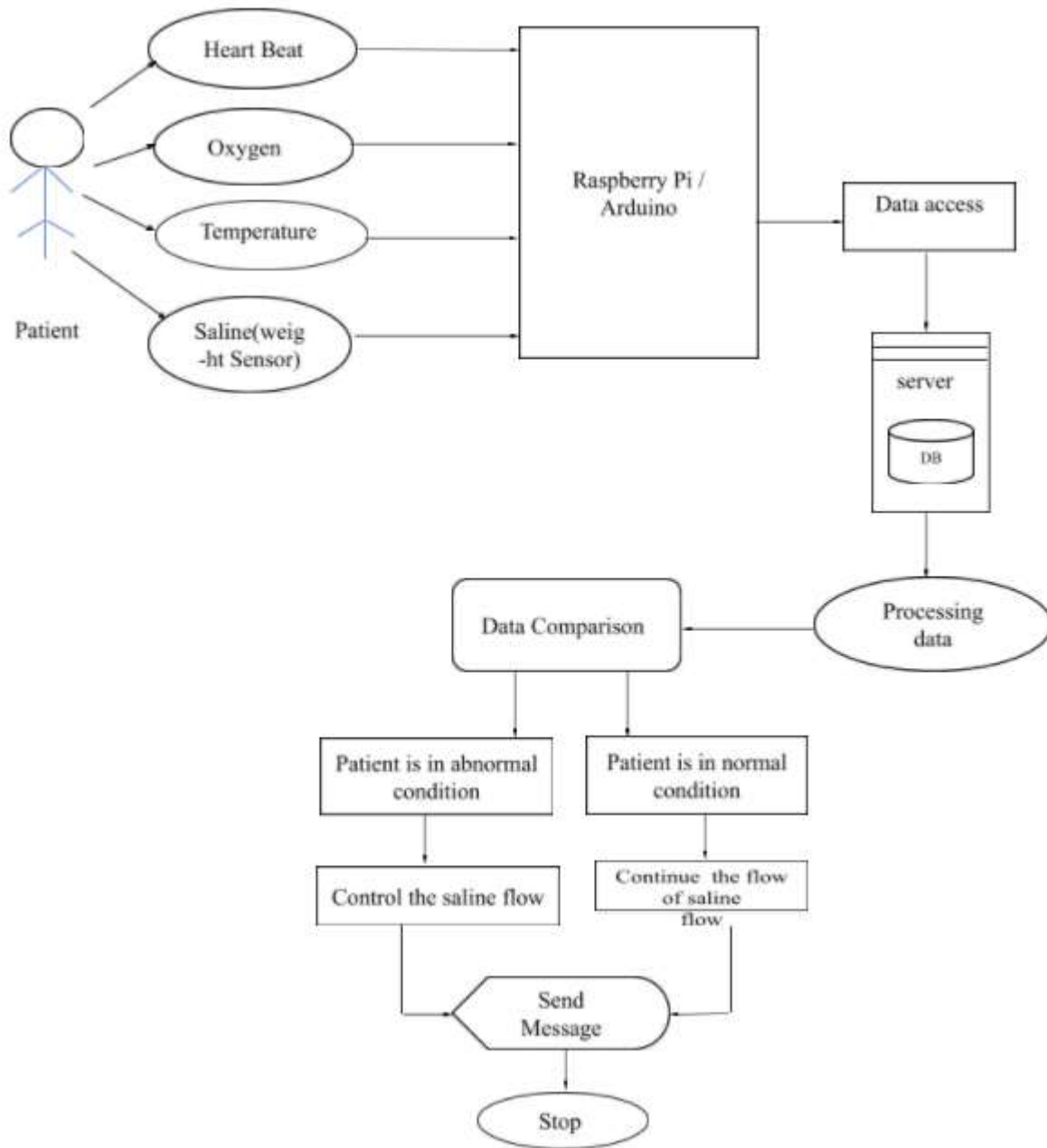


Chart -1: Flow Chart

6. IMPLEMENTATION STEPS

1. We PERFORMANCE STEPS find the heartbeat, oxygen level and patient temperature.
2. Afterwards send it to raspberry pi or ARDUINO UNO microcontroller
3. We create a database to store data (Heart Beat, Oxygen and Temperature) about the patient and this data can change many times.
4. We process this data collected, after processing the data it sends it to the server.
5. The next step will be to compare the data, in this case we can show that the patient's condition is abnormal or normal.
6. Using the processing data and flow sensor we can automatically control the flow of Bottle saline.
7. After a certain amount of weight a message is sent to the Nurse or Doctor.
8. Stop

In this project we want to use a device that automatically controls and stops the movement of the salt bottle. Then a message is sent to the Nurse or Doctor.

8. REQUIREMENTS

Hardware Requirement:

- RAM 512 MB or more
- Raspberry pi or Arduino
- A bottle of saline.
- Flow sensor

Software Requirements:

- Windows 7 or higher
- Server
- Website
- Language

9. REFERENCES

- [1]. Smart India Hackathon 2020.