

REAL TIME HEALTH MONITORING USING IOT

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ABSTRACT

Wearables are considered as the biggest innovation in technology since the smartphone – and the possibilities in this are endless. The components are the following: a hand worn device with Arduino board, an pulse sensor, a water proof temperature sensor. These devices collect data from the person wearing (like pulse, temperature and spO2.) and send to the cloud for storage and analysis. This multi-sensor device assembles a system which is very helpful for monitoring of wearer's health. The real time indication of the wearer's health state and can be further analyzed for medical diagnosis. The wearer or the care taker or the doctor are alerted in case of potential emergency i.e., if there is a fall detected or if the heart rate drops low or becomes high or if any unusual health changes occur. The wearer's location can be tracked immediately so that emergency measures can be taken without wasting much time and this very helpful in protecting life. Harmful situations can be avoided.

Keywords – BPM (Blood Pressure Measuring Machine) .

INTRODUCTION

This system helps to provide good interaction between the wearer, his environment and his care taker. This smart device enables different forms of interaction, communication, cooperation and integration between humans and electronic automated information systems. The use of several small sensors makes the overall cost low, transmission module used is Wi-Fi module and ATmega328P processor. These are well suited to keep track of physical health monitoring and do not impose limits on time or location. This system gives the collective information of several individual sensors. This feature can be considered as an advantage because comprehensive multi-parameter sensing model is more effective for analysis and evaluating each parameter separately. This is the best and most effective way. Medical diagnosis can be further analyzed by the data retrieved by the Wearable. Medical diagnostic center & guardian of the patient will get the first hand biometric information through a standard Wi-Fi communication protocol. Data can be sent to a cloud computing system to perform permanent storage or visualized in real-time by sending the information directly to a laptop or smart phone. Data can be transferred securely using encryption techniques which also meets privacy concerns. Data mining can be performed, main aim of the data mining process is to obtain details from the data set and transform it into a comprehensible structure so that it is possible to find earlier unknown information to make conclusion regarding.

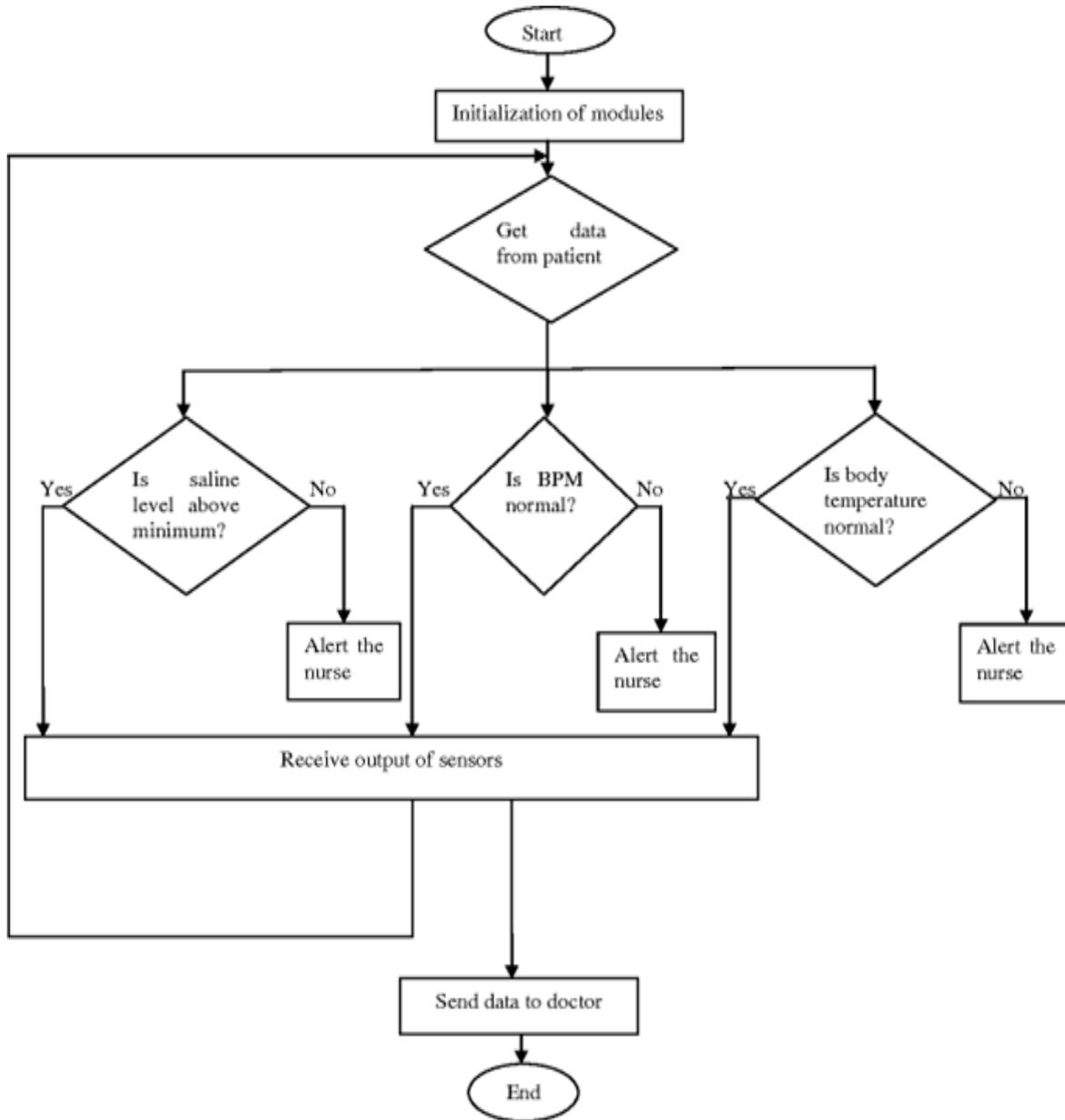
METHODOLOGY AND SCOPE OF WORKING

In this project we have BPM, temperature, Spo2 and Arduino UNO interface with different sensors is used to detect the different parameters of the patient. So as to detect the current data for health monitoring. Bluetooth module is used for

communication between Arduino device and Real-Time health monitoring system. In this system we have method of tracking the heart rate is more efficient than the traditional method

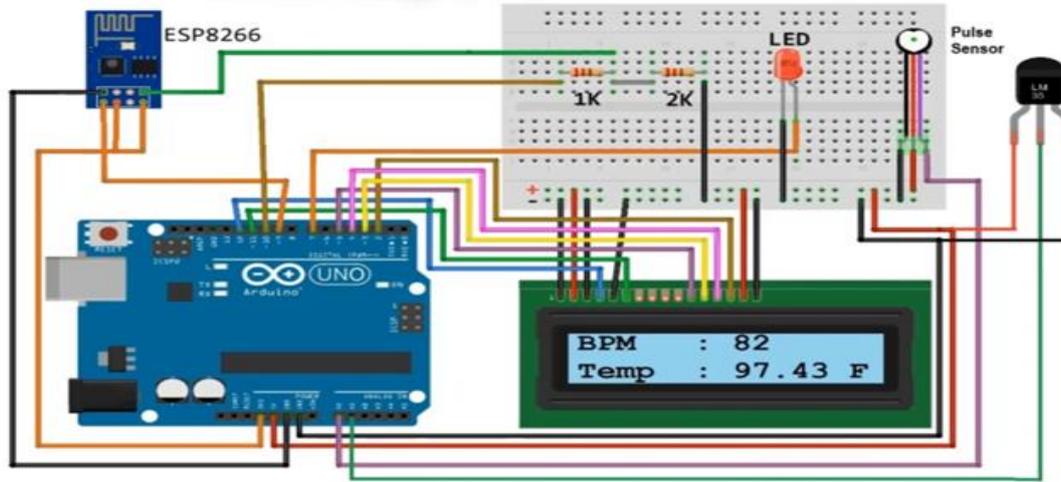
In future, this system can be enhanced in following ways:

- The improvement in accuracy of measuring the parameters.
- To provide communication without internet or to obtain a better way for connectivity

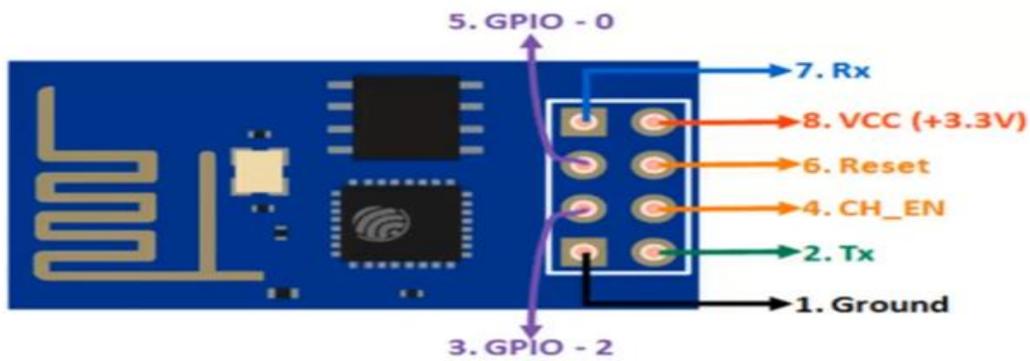


Circuit Diagram & Connections

Circuit Diagram & Connections



ESP8266 & its Pins





RESULT AND DISCUSSION

In this project we are using both software and hardware components. In advance body checkup i.e. blood pressure, heart beat, temperature of the body, diabetes etc. can be detected easily. The main thing in this model is that it can give information about the current location and alert messages. It is easy to use because its portable. It can be used by anyone and anywhere. The system can store the information about the patient permanently.

- Portable and easy to use.
- Reduces the consumption of unnecessary medicines.
- Data sent in server can access the patient from any place.
- The emergency alert messages minimizes the death rate.

CONCLUSION

In this paper a low cost e-health monitoring system was proposed. The system offers remote capabilities that enhance the level of medical support the patient receives while enabling them to be monitored in the comfort of their home. This is especially important for patients with chronic diseases and patients that require regular monitoring of vital parameters. Using web or mobile application, patients' data can be collected easily and efficiently, at the same time providing access to them from any location. Visualisation of this data as well as tracking the progress and facilitating communication between patients and doctors, are considered as a great advantage of this solution. Taking the medicine on time is considered to be a high priority for patients. Failure to take the medicine on time cannot only delay recovery, but can worsen the symptoms of an existing illness or cause serious side effects. In this context the use smart TV application for showing reminders and notifications, is very important. Our next step will be conducting the evaluation study with the end users in order to get the feedbacks from them, which will be used for further system improvement.

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