

# **Wi-Fi Based Vital Signs Monitoring and Tracking System for Medical Parameters**

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## **ABSTRACT**

Patients at a disaster scene can greatly benefit from technologies that continuously monitor their vital status and track their locations until they are admitted to the hospital. We have designed and developed a real-time patient monitoring system that integrates vital sign sensors, location sensor, ad-hoc networking, electronics patients status. This system shall facilitate communication between providers at a disaster scene, medical professionals at a local hospital, and specialists available for consultation from distant facilities.

## **I INTRODUCTION**

We have developed a system that facilitates collaborative and time – critical patient care in the emergency response community. Current research show that strategies to promote early recognition and treatment of symptoms and enhance self care management behaviours reduce unnecessary hospitalizations. Remote monitoring supports a more dynamic connection between healthcare providers and patients, improve health promotion and patients care through monitoring of health data, communicates health reminders, and makes provision for patients feedback. Wi-Fi based Wireless Heart rate monitoring and alerting system makes use of Wi-Fi technology. We can not only

increase the speed of life but also increase security with good ideas to make use of this technology. Heart beat monitor and display system is a portable and a best replacement for the old model stethoscope which is less efficient. During a mass casualty disaster, one of the most urgent problems at the scene is the overwhelming number of patients that must be monitored and tracked by each first responder, increase the quality and quantity of patient care and more efficiently deliver patients to the hospital. Current research show that strategies to promote early recognition and treatment of symptoms and enhance self care management behaviours reduce unnecessary hospitalizations. Remote monitoring supports a more dynamic connection between healthcare providers and patients, improves health promotion and patients care through monitoring of health data, communicates health reminders, and makes provision for patients feedback. The system was developed in conjunction with the UCLA school of nursing and the UCLA wireless health institute. Congestive heart failure is a cardiovascular disorder that affects approximately 4.6 million Americans and is a leading cause of death in the United States.

Congestive heart failure is a condition in which heart function is inadequate to supply oxygenated blood to the patient. Remote monitoring programs provides a potentially feasible option for dealing with expanding population of patients that have CHF but are unable to access clinics due to either a lack of resources, location, or infirmity.

The functioning of this device is based on the truth that the blood circulates for every one heart beat which can be sensed by using a circuit formed by the combination of an LDR and LED. Depending upon the rate of circulation of blood per second the heart beat rate per minute is calculated. This device consists of a micro controller which takes the input from the heart beat sensor and calculates the heart rate of the patient. The micro controller also takes the responsibility to convey the same information to the remote PC via wireless communication.

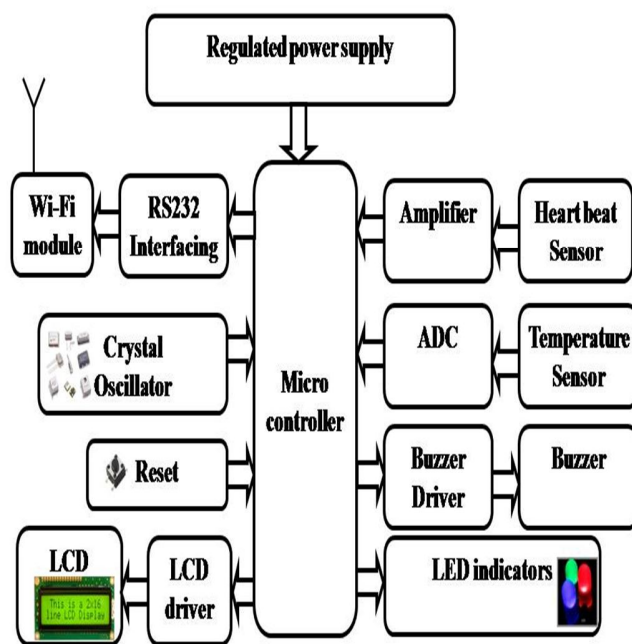
## II SYSTEM DEVELOPMENT

The project aims in designing a system which helps in remote monitoring of patients heart rate, body temperature based on Wi-Fi communication. The medical parameters can be monitored on website in real-time. The advantage of this is the system is that doctors across the world can monitor the medical parameters and suggest the suitable medication. Wi-Fi Based Monitoring system for medical parameter has resulted from the helps in remote monitoring of patients heart rate, body temperature. This system has the advantages is that doctors across the world can monitor the medical parameters and suggest the suitable medication. The web communication is very the economical compare to any other modes of communication for longer distances. Through the Wireless sensors, and Sensor network, Whether it is an ECG, blood pressure values, blood glucose level, pulse oximeter, weight, or other vital signs. All those Vital parameter are effectively transferred to a monitoring center enabling accurate diagnosis. The patient information and the

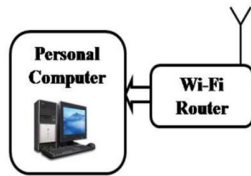
transmitted data can be viewed locally or via the Web. We introduce a concept of reference design which called Wireless Patient monitor sensor platform (WSP) architecture, WSP offer flexibility of reducing development time . The WSP firmware automatically sends different types of warning and notifications to desire destination, or as e-mail directly to Doctor 's PDA/Laptop by using Open standard transportation protocol and leave Voice message.WSP can Continuously do health monitoring and control. The WSP firmware monitors all important vital parameters like temperature, blood pressure, ECG ,SPO2 etc. continuously.

**Block diagram:**

### Wi-Fi based Wireless Heart rate monitoring and alerting system 1. Patient section



**Wi-Fi based wireless Heart beat monitoring and alert system**  
**2. Monitoring section**



**Advantages:**

- 1) Death ratio is reduced due to this system.
- 2) No use of old model stethoscope
- 3) Easy to use this system
- 4) There is no need to get patient in the hospital when you use this system.
- 5) Treatment will be started as per doctor's prescription.

**Disadvantages :**

- 1) Hard to handle model.
- 2) There are two models, that's why it is costly.

**III CONCLUSION AND FUTURE SCOPE**

**Conclusion:**

The proposed "WI-FI BASED VITAL SIGNS MONITORING AND TRACKING SYSTEM FOR

MEDICAL PARAMETERS " Heart failure is a leading cause of death in USA, and there are about 4,600,000 Americans currently suffering from heart failure. Wireless health technology that uses sensors and wireless communication methods can help those heart failure patients by monitoring them and providing guidance and feedback. Using this system we can find the number of disease from the patient's body when they are at home and quickly start the treatment on that disease and the death ratio will get decreases.

**Future Scope :**

In the future we can use new technologies in this model, which is used by hospital easily. We have designed and developed a real-time patient monitoring system that integrates vital sign sensors, location sensor, ad-hoc networking, electronics patients status.

**REFERENCES**

1. Haider, A. W., Systolic blood pressure, diastolic blood pressure, and pulse pressure as predictors of risk for congestive heart failure in the Framingham Heart Study. *Ann. Intern. Med.* 138(1):10–16, 2006
2. Chaudhry, S. I., et al., Randomized trial of telemonitoring to improve heart failure outcomes (Tele-HF): study design. *J. Card. Fail.* 13(9):709–714, 2007.
3. Desai Akshay, S., et al., The circle from home to heart-failure disease management. *N. Engl. J. Med.* 363:2364–2367, 2010.
4. Suh, M. K., Evangelista, L., et al., WANDA B.: Weight and Activity with Blood Pressure Monitoring System for Heart Failure Patients, *IEEE Workshop on Interdisciplinary Research on E-health Services and Systems*, 2011.
5. Suh, M K, 2010, WANDA B.: Weight and Activity with Blood Pressure Monitoring System for Heart Failure

Patients, The Second International IEEE WoWMoM Workshop on Interdisciplinary Research on E-Health Services and Systems (IREHSS)

6. Hara T, 2006, The relationship between body weight reduction and intensity of daily physical activities assessed with 3-dimension accelerometer, Japanese Journal of Physical Fitness and Sports Medicine

7. Soran, O. Z., et al., A randomized clinical trial of the clinical effects of enhanced heart failure monitoring using a computer based telephonic monitoring system in older minorities and women. J. Card. Fail. 14(9):711–717, 2008.

8. Lloyd-Jones, D., Adams, R., et al., Heart Disease and Stroke Statistics 2009 update: a report from the American Heart Association statistics committee and stroke statistics subcommittee. Circulation 119:e21–e181, 2009.

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