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## PREVENTIVE MEASURE TO HEART ATTACK BY COMBINED USE OF WEARABLE SENSOR NETWORK WITH GSM MOBILE AND GPS

MR. NAGESH D. MATHARIA<sup>1</sup>, PROF. S. V. DHOPTÉ<sup>2</sup>

1. Second Year M.E Scholar, Department of Information Technology, PRMIT&R, Badnera.
2. Senior Faculty Member, Department of Information Technology, PRMIT&R, Badnera.

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**Abstract:** The rate of death due to cardiac diseases has been increased now a day in elderly patient. So it seems to be an important issue in human society so we have to look after this. The development in the wireless technologies is on the edge especially in smart phone. So we are trying to propose a system which will use your cell phone as an important part of the system, which will be used in combination with wearable sensor network and GPS. Which will not only provide preventive measure for this but also it will provide life assistant to the peoples those who don't have any one to look after them in their old age.

**Keywords:** GSM Mobile, GPS

Corresponding Author: MR. NAGESH D. MATHARIA



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## INTRODUCTION

Now days the use of internet has been drastically increased in every field because it has number of advantages of online system, the one and most important reason behind this is, it reduces the time required for the work. [4] So this project is proposed to save the time required for providing the medical assistant for the cardiac patient, those who are having the history of the heart disease by providing real time monitoring the patient through the use of internet by using wearable sensor network, this project will also help to locate the person remotely with use of GPS from this GSM mobile. [3] This project will not only locate and track the patient but also will send the alert message to the mobile ambulance and to the closest relatives of the person in case of any emergency. The goal behind developing the system is mainly to save the peoples those who are suffering from heart problems. In our India most of the senior citizen are living alone in their home as their offspring are busy in due to work load or a employment issues, and as we know with increase in the age factor of the person the threat of stroke also increases and it will be difficult for the person who is elderly and living alone to overcome the situation. So to overcome this problem we are proposing a real time patient monitoring system as explained in above paragraph. This facility is enabled due to the development in the mobile computing, wireless sensor network and distributed computing it very easy to develop such kind of system which can be able to monitor the elderly anytime anywhere. Biomedical sensors are playing very vital role in the development of such systems for specially the elderly suffering from diabetes, high blood pressure or heart disease .this system can not only monitor the patient but also it is one secure intelligent system for transmitting medical results to doctors. Wireless sensor network provides the useful method to remotely acquire and monitor physiological signals without the need of disrupting the patient's normal life. We intend to develop a real time patient monitoring system. It can monitor the old people anytime and anywhere. Through vital physiological data monitoring, accidents perception, real-time emergency response and other functions, our system will reduce sudden accidents and life-threatening. It is convenient that the elderly can have access to medical care at home. At the same time, we feature auxiliary functions which cater for the need of the elderly without anyone accompanied or health professionals as their life assistant. Therefore, the system acts as not only one remote health monitoring system, but also the life assistant. [11]

## 2. Related Work

Today, patient monitoring systems are mainly classified in three groups depending on their working methodology. Out of these three groups the first group records signals and takes action offline. The second group has the feature that systems perform remote real-time

processing. The last group provides local real-time processing, with taking into account the level of mobility. The data logger devices store the data of last 24 to 48 hours and as per need of the doctors provides them the required data, the main drawback of the data logger system is that they do not provide real time monitoring to the ICU patients which are in the intense need of today. Due to this data logger devices falls under group one. In order to overcome from these limitations, many systems and devices are developed. RFID based systems also designed to overcome this problems but they are now outdated. Vita phone have made a card marketable that can transmit ECG data to a mobile phone. The mobile phone automatically transmits ECG data to the service center where ECG data are analyzed.[5] Similarly, Cardio Control, MediSense and Mob Health project are all included in the group two, using mobile phone/PDA to get physiological signals and sending signals to other devices in which physiological signals are remote real-time monitored.[6][12][15] Besides, MORF is also one respective application of the group two, which uses cell phone as an intermediary to get important data from various sensors and transmit data to the server which processes the data.[16] However, the above applications still present certain limitations related to the fact that the analysis is not performed in the place where the signals are received. As compared to group two, the third group performs the local real-time monitoring in order to detect some anomalies and send alert to a control center or a hospital. Wu et al proposes a wearable personal healthcare and emergency aid system called WAITER. [17] It employs tiny wearable sensors to continuously collect users' vital signals and uses Bluetooth devices to transmit the sensory data to a cell phone, which can perform on-site important data storage and processing. After processing the data locally, the cell phone can report users' health status after regular interval of time to the healthcare centre via its GSM module and issue alert for medical aids when detecting the emergency.[7][8][9]

But it only develops one relatively static monitoring system in which the status is set statically and doctors are called when mobile phone send alert messages.[8][9][10] It is not sufficient in real-time and dynamic monitoring. Prognosis is a physiological data fusion model of wearable health-monitoring system for people at risk which contains decision support system and finite-state automata. This can provide users' health status and offer corresponding alerts. [17][18] Gay and Leijdekkers have developed one application that can monitor the wellbeing of high risk cardiac patients using wireless sensors and smart phones. Depending on the situation, the smart phone can automatically alert pre-assigned caregivers or call the ambulance. Although it performs real-time monitoring, it still does not consider the increasing life demand of the elderly.

### 3. Proposed work & Objectives

Our system is basically based on the wearable wireless sensor network which will communicate with the mobile phone of the patient and transmit important data regarding the patient health through the SMS and will also maintain the log of current situation in data login module with the help of the TCP/IP protocol to the doctor's cell phone and his and monitoring system. This system does not only transmit the data to patient but also help his/her family member to monitor her remotely and also provide the location of the patient so that he/she can get the medical assistance in emergency. The basic block diagram of proposed system is given below.

However, it is not only a remote and real-time monitoring system which takes both doctors and the old people's family and friends into account, but also a life assistant of the elderly including unique auxiliary functions.[19] The unique auxiliary functions cater to the increasing life demand of the elderly who are living alone in their homes. It also integrates both the health information system and medical guidance to assist the life of the elderly. [12] Therefore, it provides convenient and indispensable healthcare service for the elderly. [13] The objective behind the development of the system is not only to provide the health services to the patient but also to provide him the freedom to go anywhere by giving them the life assistance service through the development of the this system. [20][21]

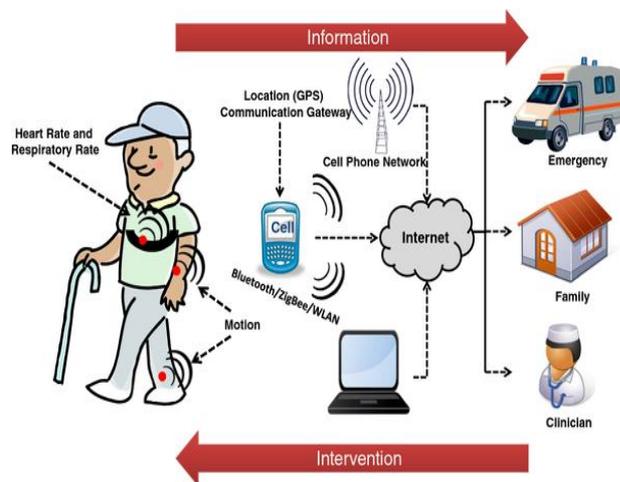


Figure 1: Proposed System

#### 4. CONCLUSION

Here we are giving a try to develop a system which will help the patient those who are having the history of heart attack to reduce the risk of sudden health by using the available resources and the technologies which will easy to adopt with cost effectiveness.

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