

# Wireless Zigbee Health Monitoring & Feedback System in Animal Health Care

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## I. INTRODUCTION

In recently, wireless sensor networks are used to structure Remote care system in many researches. Wireless sensor networks application for physiological signals communication transmission has many technologies. Such as the ZigBee, used for physiological signal transmission. Although ZigBee has lower power consumption. Hence, ZigBee is used for 24 hours monitor of communication transmission systems. ZigBee provides higher network flexibility and a larger number of nodes, and a better transmission range with low power consumption. Large number of nodes enables the expansion of such systems. Recently, ZigBee based wireless networks were check in various applications. The proposed Animal monitoring system would be beneficial for medical practitioners to do proper and treatment; also it would be useful for health care providers to improve disease management. The Animal is monitored the data transferred to the PC is wired. Recent work [1,2] includes using Bluetooth technology coupled with the GSM technology to report signs to PDAs held by the Animal or his doctor.

## II. PROBLEM DEFINITION

The normal core body temperature of a healthy, resting adult human being is stated to be at 98.6 degrees Fahrenheit or 37.0 degrees Celsius. Though the body temperature measured on an individual can vary, a healthy human body can maintain a fairly consistent body temperature that is around the mark of 37.0 degrees Celsius.

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## III. OBJECTIVE

Continuous monitoring in daily life is important for the health condition control of the animals. However, portable or wearable devices need to carry by user on their own will. On the other hand, implantation sensors are not adoptable, because of generic users dislike to insert the any object in the body for monitoring. Therefore, another monitoring system of the health condition to carry it easily is necessary. In addition, ID system is necessary even if the subject live with few families. Furthermore, every measurement system should be wireless system, because not to obstruct the daily life of the user. In this paper, we propose the monitoring system, which is mounted on the body surface. This system will not obstruct the action or behavior of user in daily life, because this system attached the body surface on the back of the user.

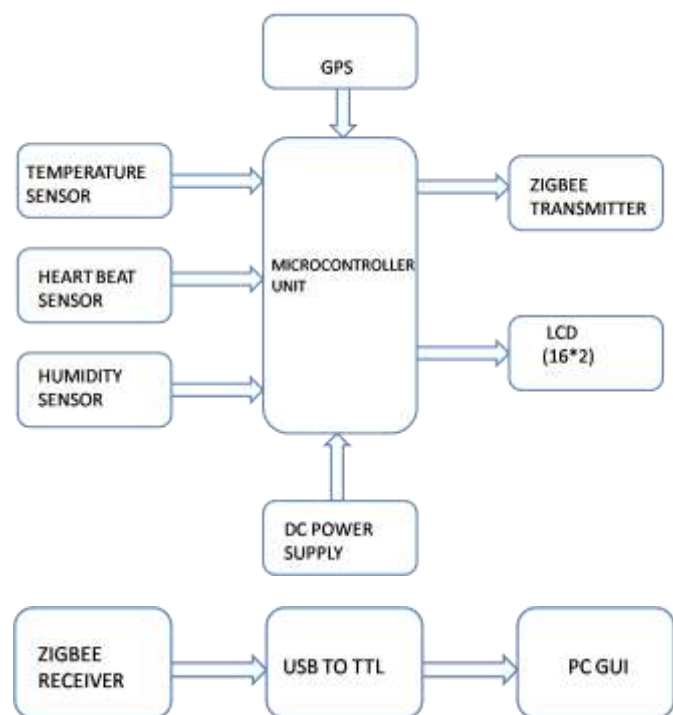
## IV. DESCRIPTION OF THE PROPOSED WORK

Modulus 2 – Microcontroller Programming  
Microcontroller programming for receiving data from the sensor parallel and converting into Serial data.

Modulus 3 - Zigbee programming  
Zigbee programming for generating PAN(personal area network)

Modulus 4  
Development of monitoring and control software

Modulus 5  
Interfacing with hardware and software and generating result for feedback system



**Block diagram of proposed system**

## V. WORKING

The surrounding temperature and relative humidity based real time calculation of temperature humidity index (THI) and also has been classify the stress level of the animal. The output signal of the developed sensor modules are sent to a host computer through zigbee module. The values of body

temperature, surrounding humidity, surrounding temperature, rumination, heart rate, stress level, and TH index (THI) can be displayed on the GUI PC. The design of system is an autonomous device, if you need the monitoring of other health parameter which makes it comparatively easy to add extra sensor modules.

The sink module is used to collect data from different sensor modules. The developed sink module is consists of zigbee coordinator and graphical user interface running on PC. The transceiver unit is the main device of the zigbee coordinator and the transceiver unit is serially interfaced to the microcontroller. The microcontroller is serially interfaced to the PC through USB. The serial data converses depend on the UART.

The front panel of the system handles functions of the measuring parameters such as settings the time interval, start button (ON), OFF, data saves for the access memory of the PC

or in the data base, and a digital and a graphical output. Here the developed GUI module can perform for four sensing module and display the seven valuable

physiological and behavioral parameters. The USB slot of the PC is present the 100mA at 5V and it does not require any external power source in the sink module during the experiments. The power consumptions in the AHM system is depend only on the wireless sensing modules. During experiment, the 11.1V battery (rated 350mAh) is used. The system has been developed ergonomically with the reference of the animal, the veterinary staff and primary user of the device. The following points are followed by the designing of the system in terms of the reduction of environmental factors, such as, the module is protective covering of PVC (Polyvinyl chloride) to shield it from rain and insects as well as the design of the casing for the collar to be threaded through, minimum noise is achieved in the case of the developed multilayer circuit board which includes a ground plane, and sensor and its associated Circuitry are connected through wires with grounding Connection.

## VI. CONCLUSIONS

In order to overcome various health issues and problem related to animal, we have proposed a smart animal health monitoring system. This system consists of various sensor modules which will help to improve the animal health and their various problems. The system will be useful for testing real time monitoring of body temperature, rumination and heart rate as well as surrounding temperature. This system also uses Zigbee for the implementation of animals health.

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