# IOT BASED SMART WEARABLE FOR TEMPERATURE ADJUSTMENT IN AC FOR PATIENTS IN HOSPITALS

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## ABSTRACT

Most of the patients in hospital are in compulsion to adapt to unfavourable conditions such as burn injuries, dehydration in their critical situation. But this may not be so much comfortable with all ill patients in hospital or one who is having or undergone critical operation. The climatic conditions such as room temperature which are needed in the operating room Provides an optimal and comfortable environment. Air-conditioning system in Intensive care unit or surgery centre should be mandatory. The temperature most suggested by doctors is 18-21 degree C; some doctors prefer a range of 21-22 degree C. The critical surrounding temperature desirable is 21 degree C.For both infants and children this may be tremendously increased up to 24 degree C. It is tedious or unbearable to achieve climatic conditions in the operating room that are acceptable to all. To overcome the issues faced by patients in hospitals we developed a Smart Watch with AC Temperature Control which adjusts the temperature automatically.

**Keywords: Temperature , Smart Watch, Patients, IoT, AC**

## 1. INTRODUCTION

Development in engineering and science has caused intensity extend in hoping for new effortlessness which leads to tremendous increase in their needs for some fascinating products such as AC to produce most comfortable at house and workplace. AC in workplace and residency produce most comfort surroundings for residents, in the thermic conductivity such as melting point, room temperature can be controlled [5-7]. Experimentally researched that room temperature in AC control intersection points rather than a point which extend thermic comfortness for resident or householder of AC to greater decay of an energy including to residents where lack of satisfaction in their thermic comfortness .A standard temperature for

the accumulation for some fixed value against thermic comfortness assist freezing point will produce six percent have been accumulation in power utilization is mentioned. Several problems are awaking by using an A/C with limitation in its switch controlling methods.

In recent times many attempt have been took place, cost to grow some similar freezing point like thermic comfortness are achieving on because of the properties modelled overall resident's adapting behaviours with respect of clothing and metabolic actions, desirous, nervousness amidst all substitute All such factors begin to be relevant since the temperature acceptance obtained residents with the help of ac controlled system would influence yielding and also including welfare. Modern times AC been readjusted in such a method, safeguard that the freezing point of the residency is managed at a specific level and similar to the surrounding room temperature [8-12] .

## 2. LITERATURE SURVEY

The Measuring of Human Body temperature Based on ARM[1] is a  controlling system for (room)temperature in accordance with the human body is implemented based on ARM9 2440 embedded microprocessor in this research paper, which consists of number of intelligence control platforms such as a multi-channel temperature module, a touch sensitive display and control module, an air temperature detection and warming module, and a air flux detection and the results show that the ideal core temperature of human body can be retained by controlling the temperature and air flux onto the human skin in accordance to the immediate temperature.

Dynamic analysis of inner metabolizing status based on the surface temperature distribution of body [2].A new method to analyse metabolic status of inner body on the base of surface temperature distribution of body and to apply incitement on the particular posture of human body. To determine the temperature time sequence of data obtained from thermography. It defines the controlling method of the pulse response along with sequence of body temperature and then define the inner metabolism function whether it is normal or abnormal.

Temperature control system [3] monitor the level of temperature discrete other places such as morgues, health center, clinic, dispensary, aircrafts, house, etc, to assure that thermal comfort is retained. To fabricate a Temperature Control System that can automatically controls the environment temperature and it is placed by the functioning of the effecting devices to impact the temperature in relation to the set-point.

In [4], Human Body Temperature control system explained about advancement on behalf of the working conditions of usual or ordinary switch method of the A/C by using indistinct method. These switch techniques used in A/C cooling system were used for its in distinct remote control in accordance for minimize power energy utilization of its equipment. In research applications, IR is used to predict human body area of occupant is to protect and safe-guard that the operation of the system trememdously. Anyhow such system is not profitable.

## 3. PROPOSED SYSTEM

This work has therefore proposed occupant body temperature is sensed and sensor is connected to the raspberry pi device. To vary the AC temperature with aspect to human body temperature the processing modules are programmed with algorithms that will calculate the AC temperature to be changed with favour of the measured body temperature. The change of AC temperature will work like, increases the temperature when the body temperature is cold and reduces temperature when the body temperature is warm. This prototype regulates AC cooling system in accordance with the thermic conditions of the occupant, henceforth occupant is comfort during all stages.

The proposed model provide effective usage of power supply as well as the AC operating condition is only depend on the householder body temperature, instead of manual changes by human which is used in recent times and AC will works only when the occupant is the room. The working methodology of this proposed method is fully depend on the temperature of the human which is harmonized with the surrounding humidity. Henceforth, based on the humanbody temperature along with surrounding infrastructure such as resident activity level, wearables, hungryness are considered.

New control method of air-conditioning systems was proposed. The human psychological reaction through a new signal transfer technique using the signals sent from

human body were applied in that work to control the room's temperature so that the resident's actual requirement is satisfied.

We have applied the use of the wrist skin temperature as the parameter to control the A/C system in this work, due to the fact that the wrist remains the only physical and accessible part of the human body that reflects the real thermal comfort.
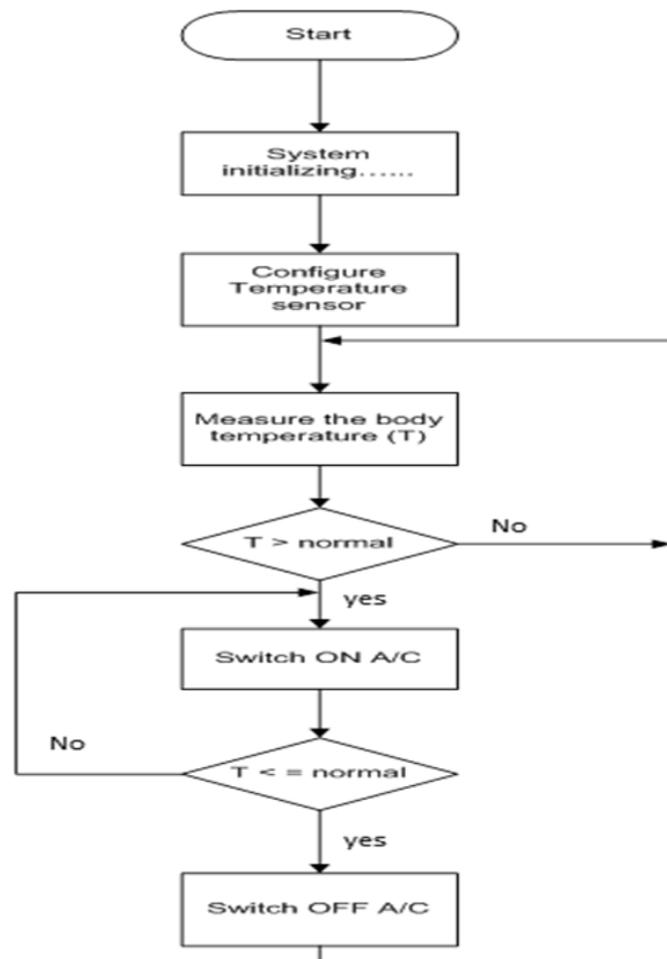


**Fig. 1 Flow chart**

### MICROCONTROLLER

Microcontroller mainly used for synchronization purpose .The most used microcontroller is AT89C52. AT89C52 is 40pin, nadir potentiality, lofty execution, 8bit microcomputer, with 8bytes of flash memory chip which is programmed and also reprogrammable of the chip. AT89C52 is highly flexible and profitable for n number of embedded results.
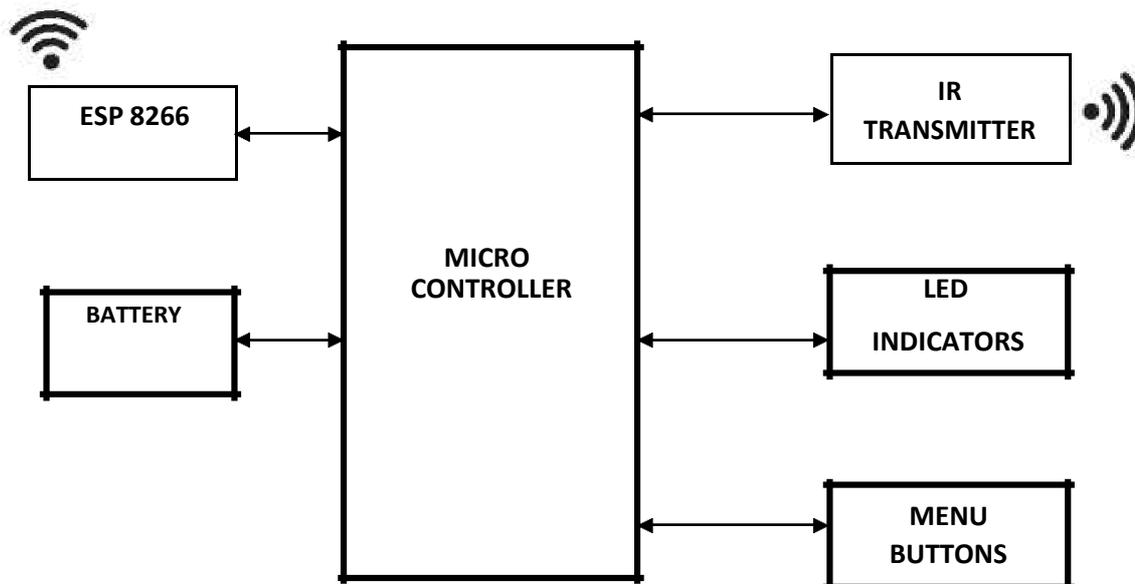
**Figure 2. System architecture**

### TEMPERATURE DETECTION

Detecting the temperature by using various sensors in accordance with the resident temperature or inhabitant of some residency. In the temperature detection unit, the thermistor MF5B1 is chosen for the implementation on the behalf of several features like temperature tolerance , less in amount holding huge stoutness. The resistance of 5000 ohm which is $25^oC$ and abundance. In such a way, thermistors to be used are replaced at different areas of the inhabitant location and are combined through stroom things that obtaining resident temperature is monitored and always it is connected along the thermistor such as safeguard things.
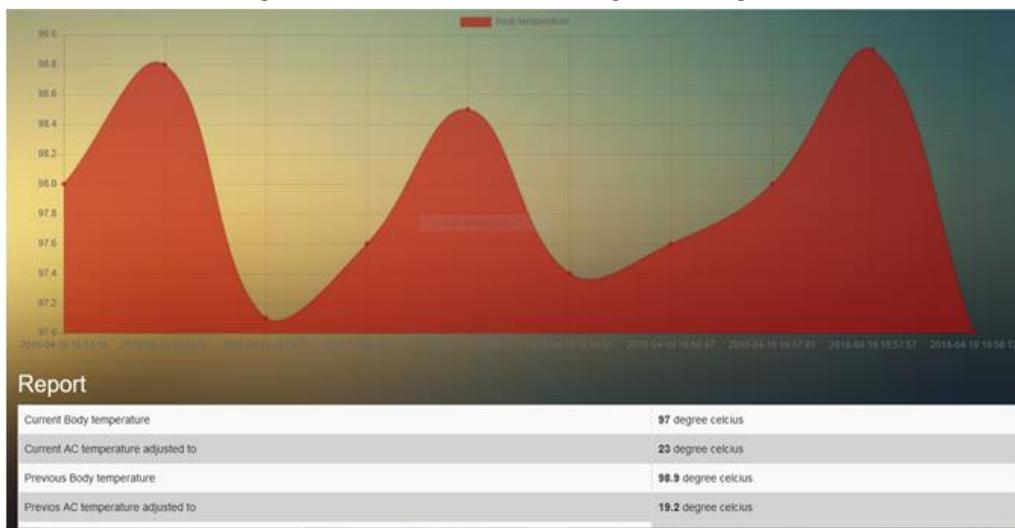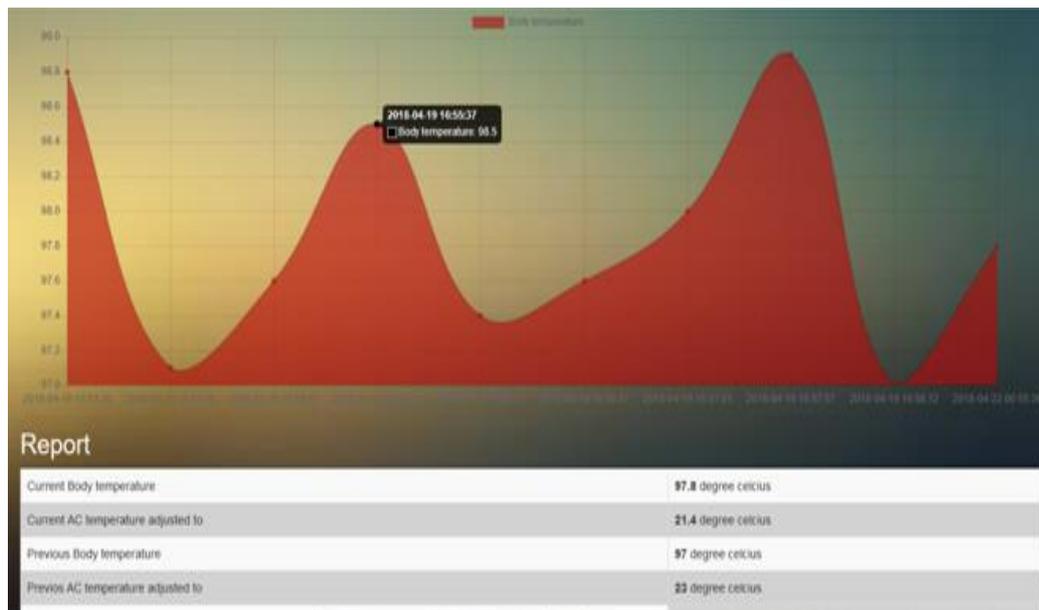


Fig.1: Human Body Temperature

Fig.2: Dynamic Variation in Temperature

## CONTROL KEY AND DISPLAY UNIT

The display and control unit is block off in the controller unit and it perform various input and output unit to the microcontroller. The projecting unit is under the control for displaying the result and the microcontroller feedback. In this section LCD act as a output .Control unit key consists of a shift and fixed button.

## RELAY UNIT

Broadcast is a controlling device which is used for closing or opening conductivity inorder for activating or deactivating functions for some devices. Hence the voltage is of 13A/2220V electrical control device is in consideration for the reduction in failing state accordance with the negligence of circuit scheme. The changes are made in the broadcast which stops the open connecting stage while other is closed and it gets boosted. In this research very less amount of voltage from AT89C52 is used to handle peak ampere of electricity or volt absorbing device such as AC.

## CONCLUSION & FUTURE SCOPE

The implementation and advancement of an enhanced controller for the air conditioner controlling framework dependent on human body temperature has been exhibited. The proposed framework has demonstrated critical outcomes as far as its reaction time to typical or more ordinary human body temperatures. One preferred standpoint of the new framework is in the decreased operational time at the point when contrasted with the traditional strategy because of the way that the human temperature is the guideline factor and not founded on the

temperature of the room. Another commitment reduces the processing time in which the operation is the main exertion in the event that the occupant is in association with the work station at which point the different sensors are set. In spite of the fact that, the new control has demonstrated compelling some change might be required to make it increasingly proficient, for example, the substitution of the connection sensors utilized by some type of connectionless and remote sensors that would not require the occupant to situate on the work place before the air conditioner controlling framework that would upgrade its capacities. The brand-new invention provides most comfort thermic condition and it is profoundly savvy. In Future this work   can be expanded widely for physically challenged persons.

## REFERENCE

1. Lianfa Yang ; Zhen Zhang ; Miaomiao Zhang ; Qin Wang , 2010, "The measuring and controlling system of shell temperature of human body based on ARM" International Conference on Intelligent Computing and Integrated Systems, Guilin University of Electronic Technology, Guilin, 541004.

2. Zhigang Shang ; Guotai Jiang, 2001, "Dynamic analysis of inner metabolizing status based on the surface temperature distribution of body" 2001 Conference Proceedings of the 23rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Tongji University, ShangHai, China, Volume: 3.

3. Ogu Emmanuel C, EkundayoJohn, April 2011," Temperature control system" Babcock university, Ilishan-Remo,ogun state Nigeria.

4. K.W.H Mui and W.T.D Chan ,2003, "Adapting according to the comfortness along with a temperature model of AC apartment in Hong Kong" environment and building, volume 38,pp.

5. W.F Chuck, J.T Kim, May 2, 2014, "very low carbon housing usage and indoor air quality" FEB 2012 are available at http://ibe.sagepub.com.

6. Thananchai Leephakpreeda , "Implementation of Adaptive Control via Embedded System for Air Conditioning Unit" ,Journal of Mechnical Science and Technology vol.26(1), Springer 2012.

7.  E.Uyigue , A.Edevbaro , O.O Godfrey ,P.O Uyigue , O.G Okungbowa "Energy Efficiency Survey in Nigeria" Community Research and Development centre Nigeria,pp 10-pp12,2009.

8.  K.W.H. Mui and W.T.D.Chan , "Adaptive Comfort Temperature Model of Air Conditioned Building in Hong Kong,vol .38 ,pp 837-852 ,2003.

9.  A.Patanik, "Fuzzy Logic Control of Air Conditioners" , Indian Institute of Technology ,pp 1-8,2008.

10. G.S Song et al, "Air Conditioner Operation Behaviour Based on Students Skin Temperature in a Class Room ",Applied Economics ,vol.43 ,pp.211-216,2012.

11. M.Verle , "PIC Microcontrollers programming in C", Mikroelectronica,2009.

12. Vladimir Gurevich, "Electric Relays: Principles and Applications" ,CRC Press , FL,2006. Internet:http://www.taylorandfrancis.com, vol.32 ,pp 200-206, May 5,2004