



# SNS COLLEGE OF TECHNOLOGY

## (AN AUTONOMOUS INSTITUTION)

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Recognized by UGC Saravanampatti (post), Coimbatore-641035.



## Department of Biomedical Engineering

Course Name: **19BM0302 & WEARABLE TECHNOLOGIES** Unit 3

**Topic :Body Area Network**

**Semester :6**

19BM0302/ Body Area Network /Mr.S.Prince Samuel /AP/BME



# WIRELESS BODY AREA NETWORK



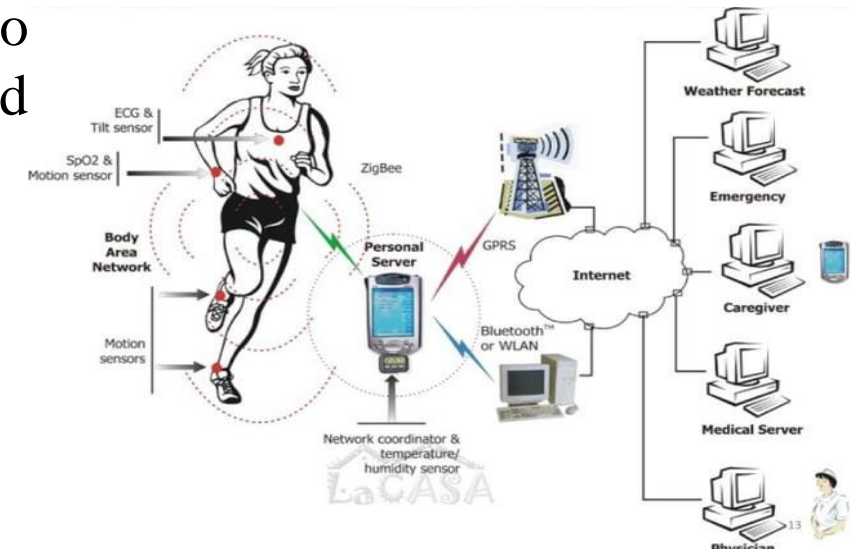
- *wireless body area network* (WBAN) is a wireless network of wearable computing devices.
- The body area network field is allow inexpensive and continuous health monitoring with real-time updates of medical records through the Internet.
- WBAN is a special purpose sensor network designed to operate autonomously to connect various medical sensors and appliances , located inside and outside of a human body.



# PROTOCOL

- The protocols developed for WBANs can span from communication between the sensors on the body to communication from a body node to a data center connected to the internet.
- Thus communication in WBAN is divided into
  - Intra body communication
  - Extra body communication

Vision Tit 2

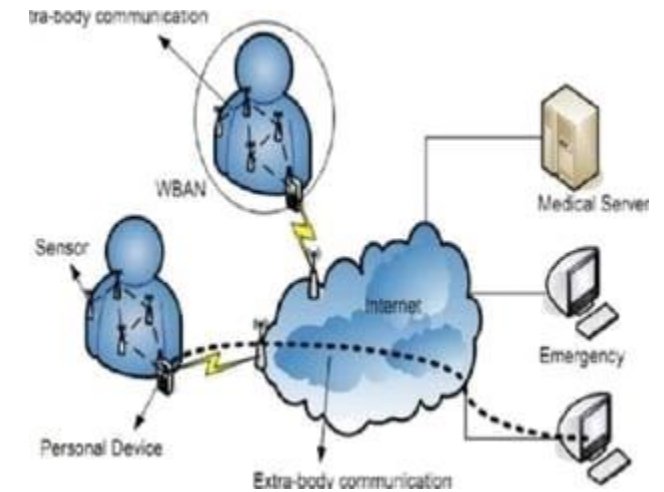




# TYPE OF COMMUNICATION



- Intra body communication controls the information handling on the body between the sensors and personal device.
- Extra body communication ensures communication between the personal devices and an external network .

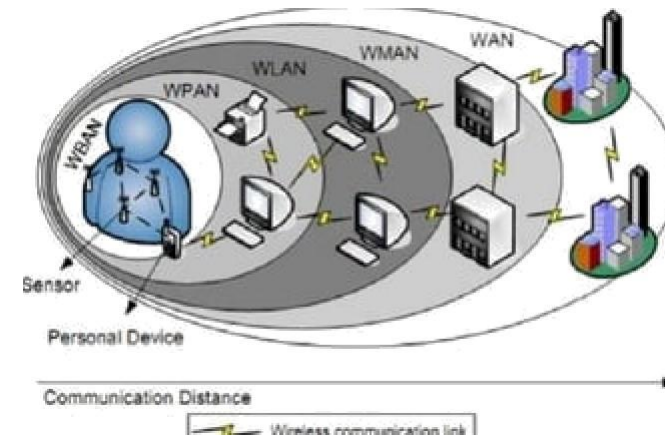




# FORMULA TO CALCULATE BP

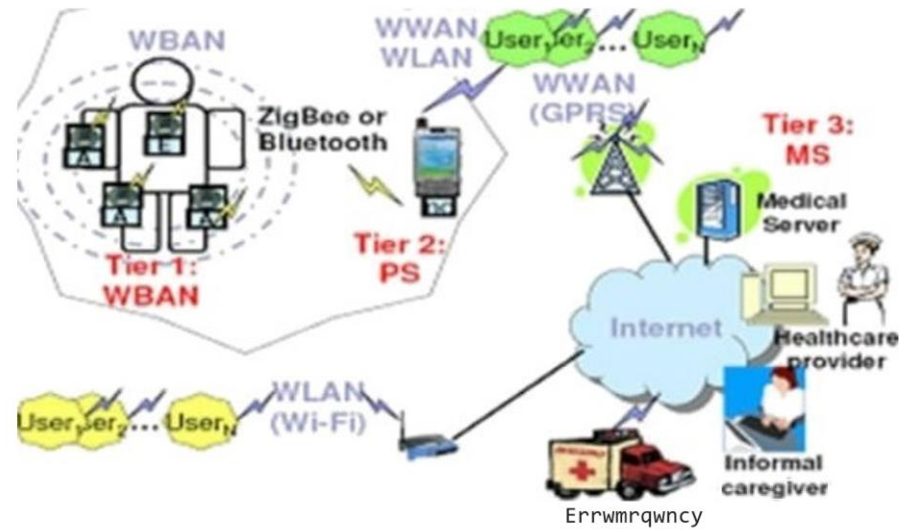


- A WBAN is operated close to human body and its communication range will be restricted to a few meters, with typical values around 1-2 meters.





# ARCHITECTURE

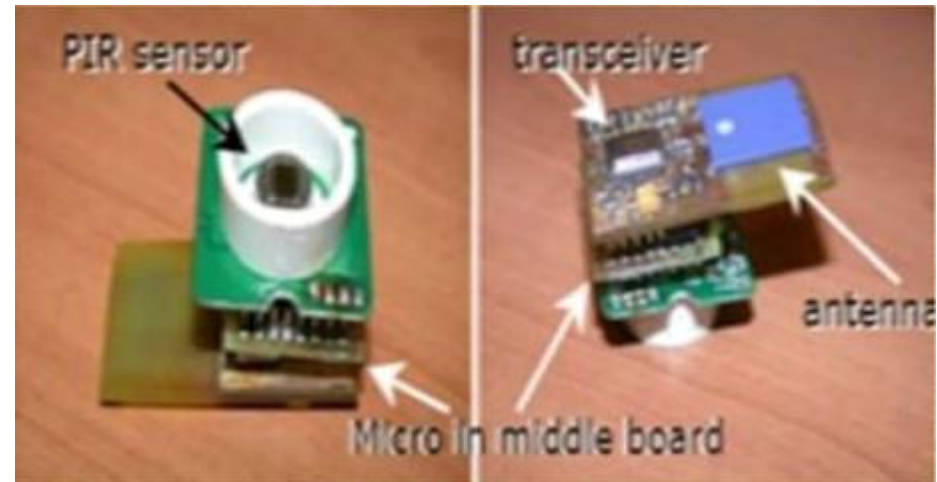


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## TYPE 1



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## TIER 2:PERSONAL SERVER

- Interface the WBAN sensor nodes through Zigbee or Bluetooth.
- Connected with the medical server through
- Mobile telephone networks (2G , GPRS, 3G) or WLANs-Internet.
- Implemented regularly at cell phone.
- Functions
- Register type and number sensor node.
- Manages the network channel sharing, time
- synchronization , and processing data.
- Send data to MS.

Vision Tit 2

Vision Title 3





# TIER 3 : MEDICAL SERVER



## ➤ Function

- To authenticate users.
- Save patient details in medical server

Analyze the data

- Recognize serious health cases in order to contact emergency care gives
- Forward new instruction to user.

Vision Tit 2

Vision Title 3



## TYPES OF PATIENT CAN BE HANDLE

- Patients who is suffering from chronic diseases such as diabetes, asthma and heart attacks.
- A WBAN network in place on a patient can alert the hospital, even before they have a heart attack, through measuring changes in their vital signs.
- A WBAN network on a diabetic patient could auto inject insulin through a pump, as soon as their insulin level declines.

A top-down photograph of a white card with the words "Thank you" written in purple, glittery cursive calligraphy. The card is placed on a light-colored, veined marble surface. To the left of the card is a bouquet of small purple flowers with green leaves. To the right of the card is a black pen with a white polka-dot grip. In the bottom right corner, there is a small gift wrapped in white paper with a grey polka-dot pattern, tied with a red and white striped string. A spool of this same string is visible in the top right corner.

Thank  
you