



# **SNS COLLEGE OF TECHNOLOGY**

## **(AN AUTONOMOUS INSTITUTION)**

Approved by AICTE & Affiliated to Anna University  
Accredited by NBA & Accredited by NAAC with 'A++' Grade,  
Recognized by UGC Saravanampatti (post), Coimbatore-641035.



## **Department of Biomedical Engineering**

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

**Topic :Medical Diagnostics**

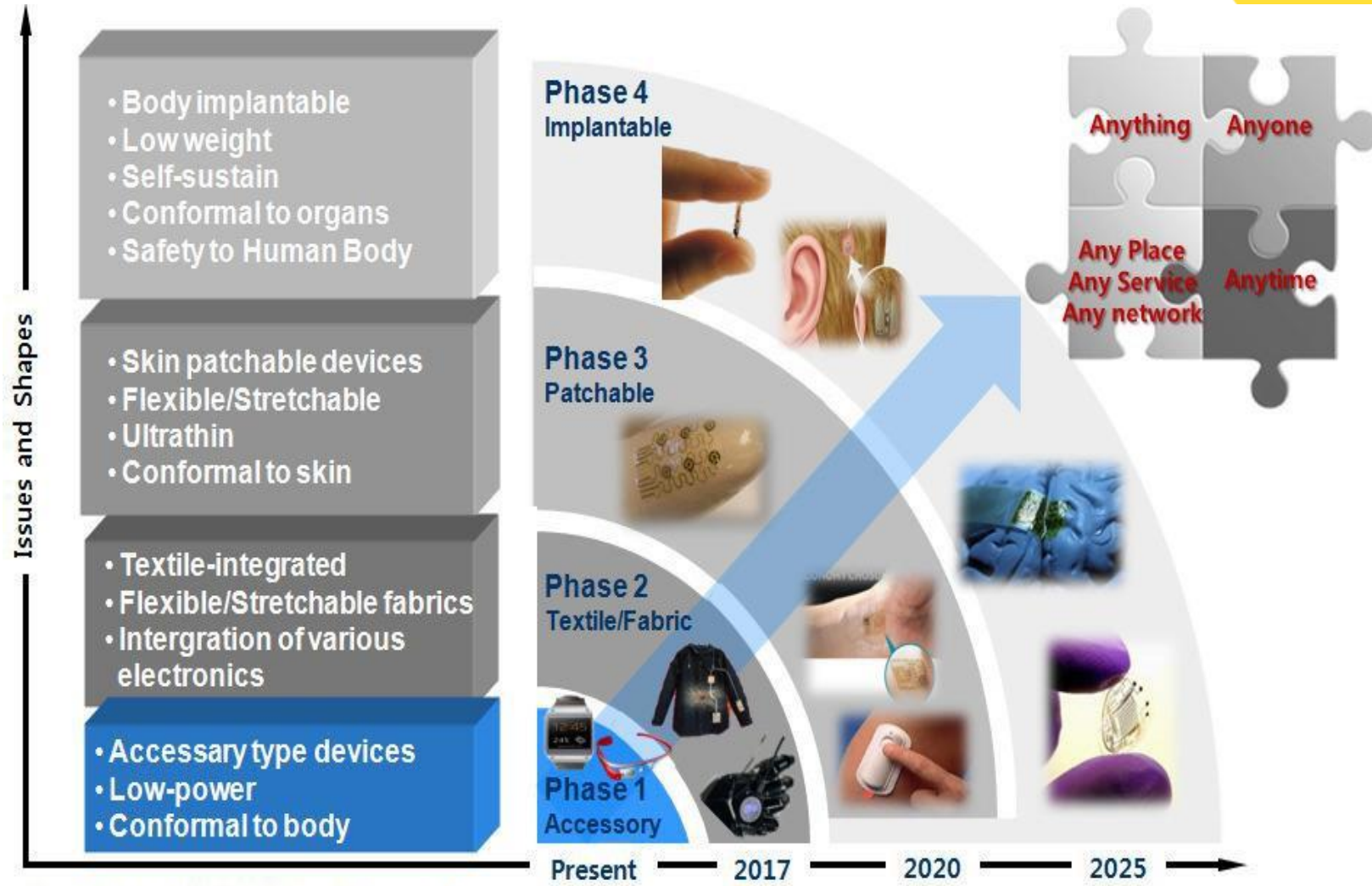
**Semester :6**

19BM0302/ **Medical Diagnostics**

Mr.S.Prince Samuel /AP/BME



# INTRODUCTION



source : Ministry of Trade, Industry & Energy of Korea



# MEDICAL ELECTRONICS



## ➤ **Wearable Smart Devices:**

- electronic devices and components intended to be located near, on or in an organism that have intelligent functionality and/or may be a part of an intelligent system via connectivity

## ➤ **Near-body electronics**

- electronic devices and components intended to be located near an organism where it does not contact the external surface of the organism directly

## ➤ **On-body electronics**

- electronic devices and components intended to be located on an organism where it contacts the external surface of the organism directly

## ➤ **In-body electronics**

- electronic devices and components intended to be located internal to an organism

## ➤ **Electronic Textiles**

- fabrics or textile-based electronic devices and components



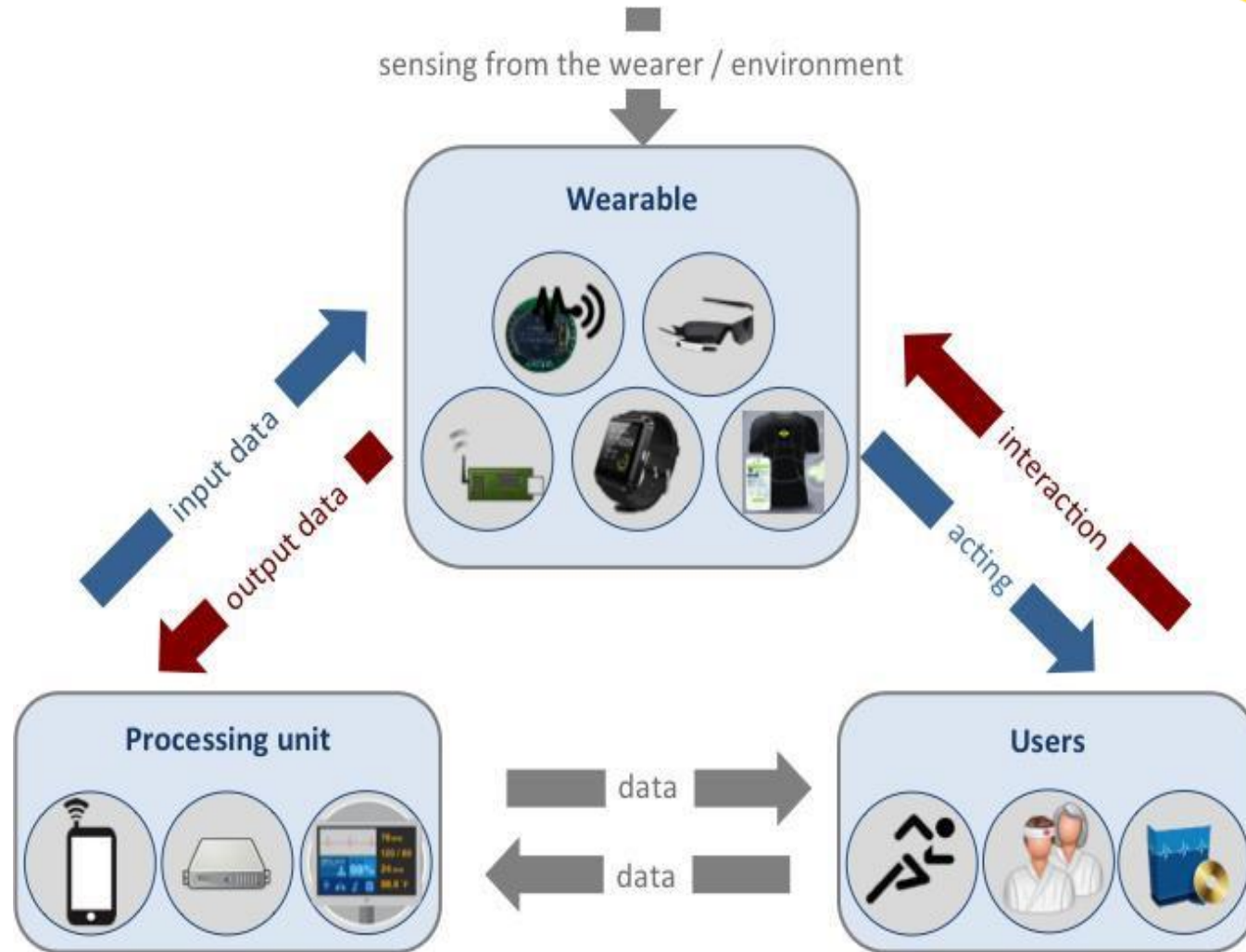
## DIFFERENT KINDS OF WEARABLES



- **Wearer:** any living organism that is sensed by a Wearable.
- **Wearable:** any thing that senses the Wearer; it may have control, communication, storage and actuation capabilities, and sense the Wearer environment.
- **Mwearable:** a Wearable having at least one of media communication or storage capabilities.
- **User:** any living organism, physical object or software interacting with and / or acted by a Wearable; it may also interact with the Processing unit through devices and interfaces out of the scope of MPEG Wearable. In some applications, the Wearer is also the User.
- **Processing Unit:** a unit or a set of units, some of which can reside in a local client and/or in a remote server that intelligently processes the information received from and provides the results to the Wearable and/or the Wearer.



# COMMUNICATION METHODS



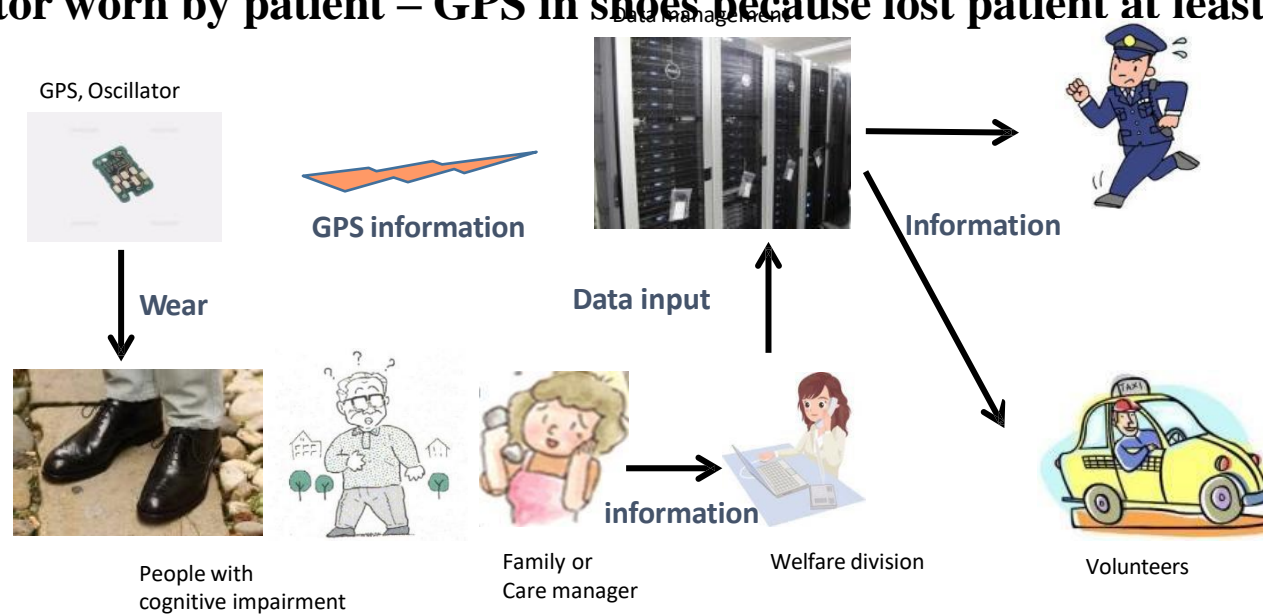
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# On-body electronics: A searching system for people with cognitive impairment

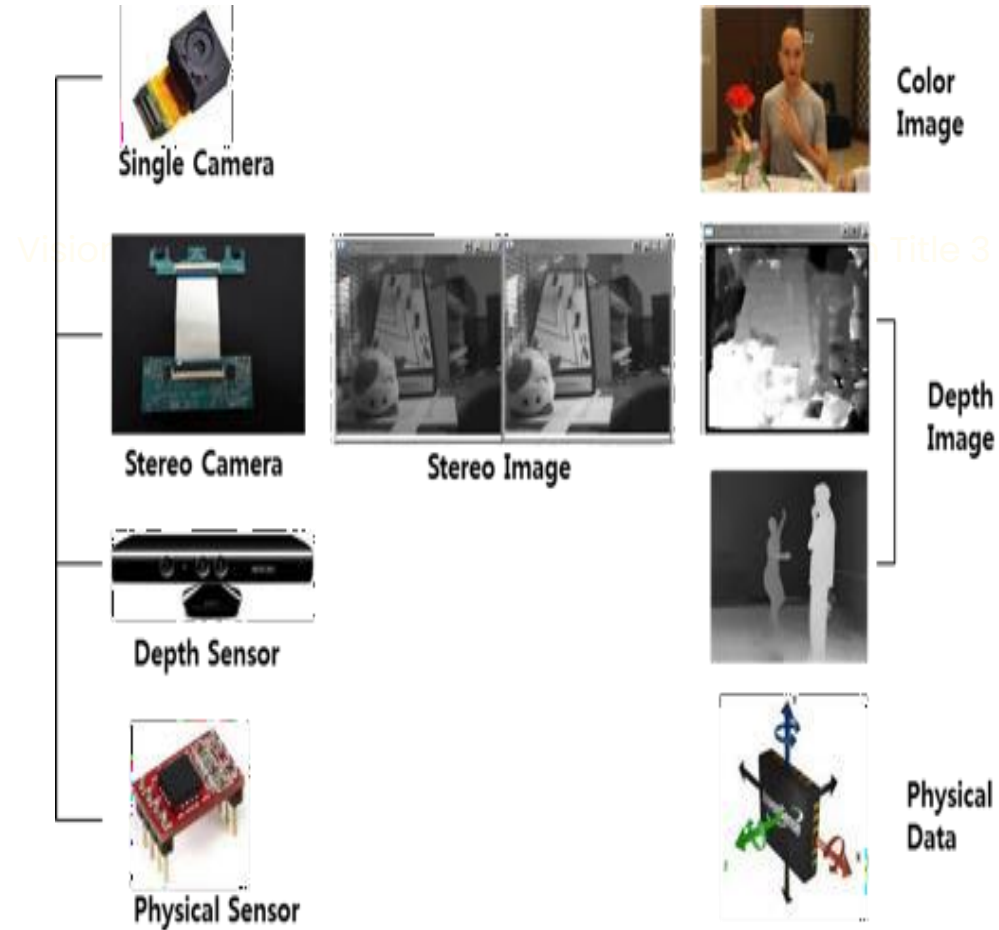
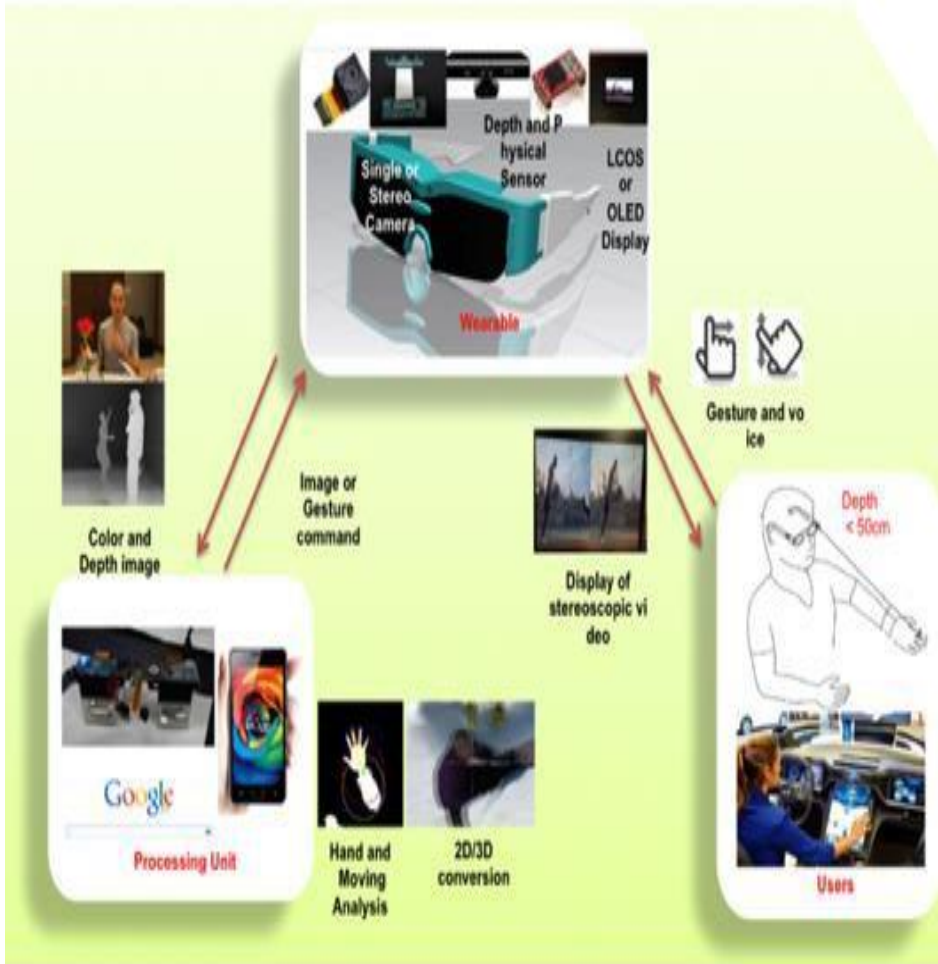


- To find patients in early stage with secure data management system
- Secure personal information system
- Registration of patient and quick information delivery of lost patient
- GPS and oscillator worn by patient – GPS in shoes because lost patient at least wears shoes.





# ENABLING IOT TECHNOLOGIES





# INNOVATION PRINCIPLE

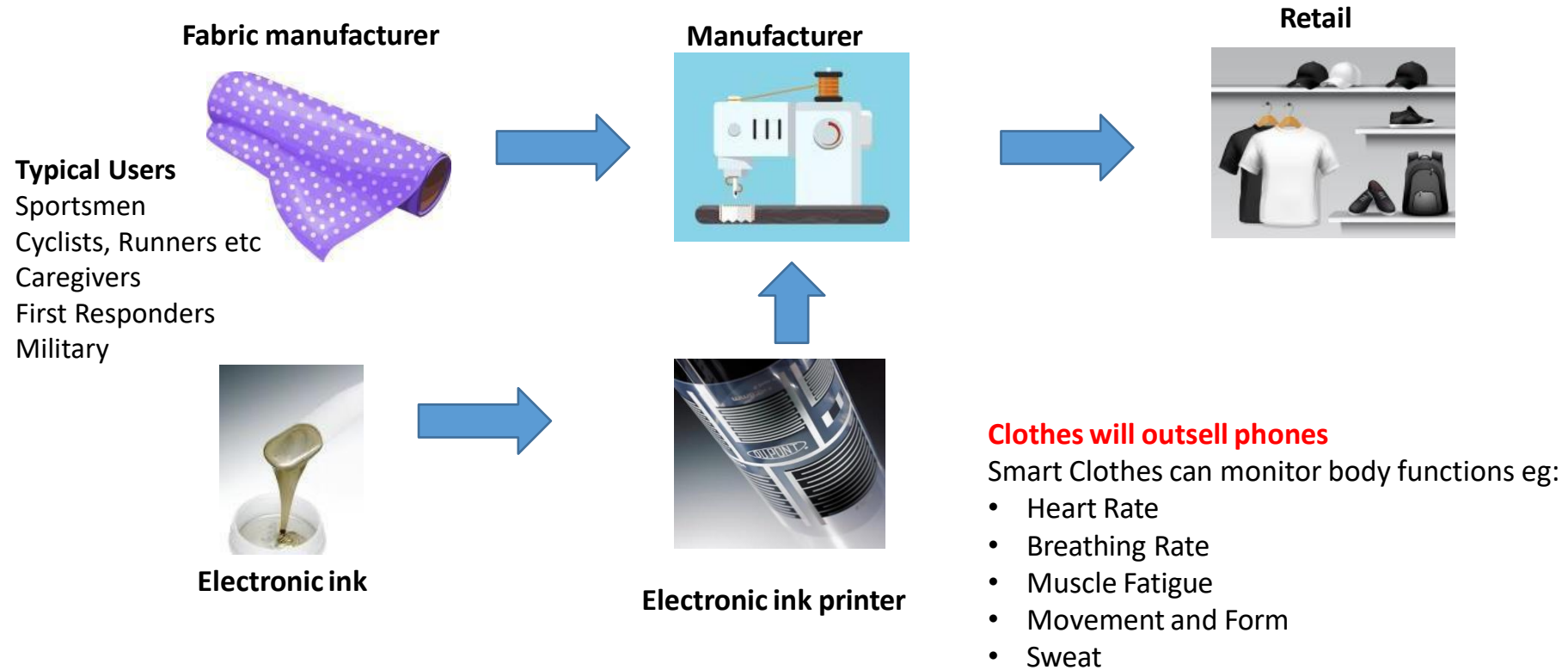


- Human body communication (HBC) is a technique for transmitting signals between apparatus connected to a human body by using the human body having conductivity as a communication channel.
- JTC1 SC6 has a NWIP on HBC to support 6 Mbps data transfer rate using Frequency Selective Digital Transmission (FSDT) over galvanic coupling in 8~16MHz frequency band for transmission of images from inside the body.





# COLLECTION OF WEARABLES



A top-down view of a white card with 'Thank you' written in purple glitter calligraphy. The card is on a light grey marble surface. To the left is a bouquet of purple flowers. To the right is a gift wrapped in white paper with small grey dots, tied with red and white striped twine. A black pen with a white polka-dot grip lies next to the card. A spool of red and white striped twine is in the top right corner.

Thank  
you