SNS COLLEGE OF TECHNOLOGY

(AN AUTONOMOUS INSTITUTION)

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

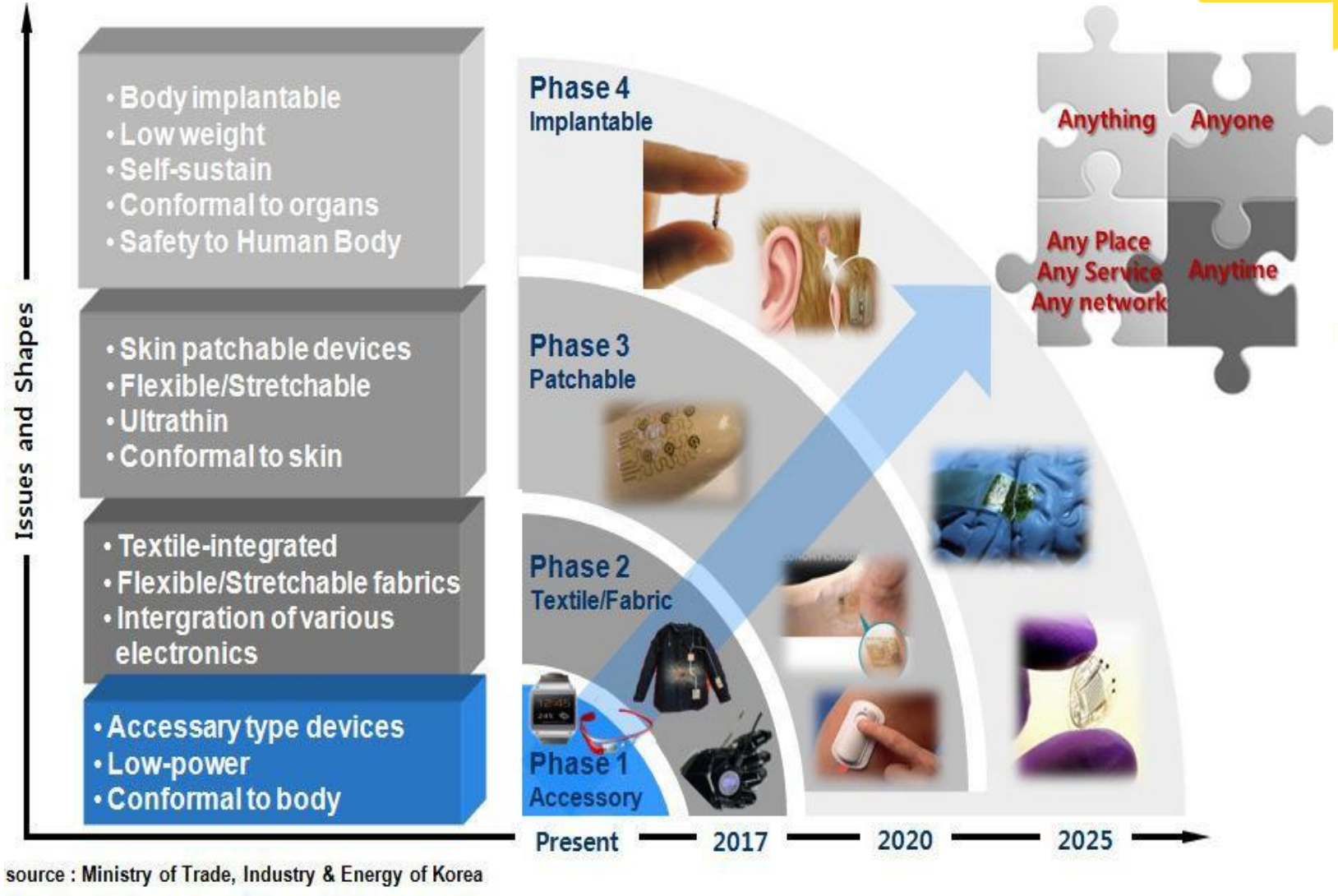
Department of Biomedical Engineering

Course Name: 19BMO302 & WEARABLE TECHNOLOGIES

Topic :Medical Diagnostics

Semester :6

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

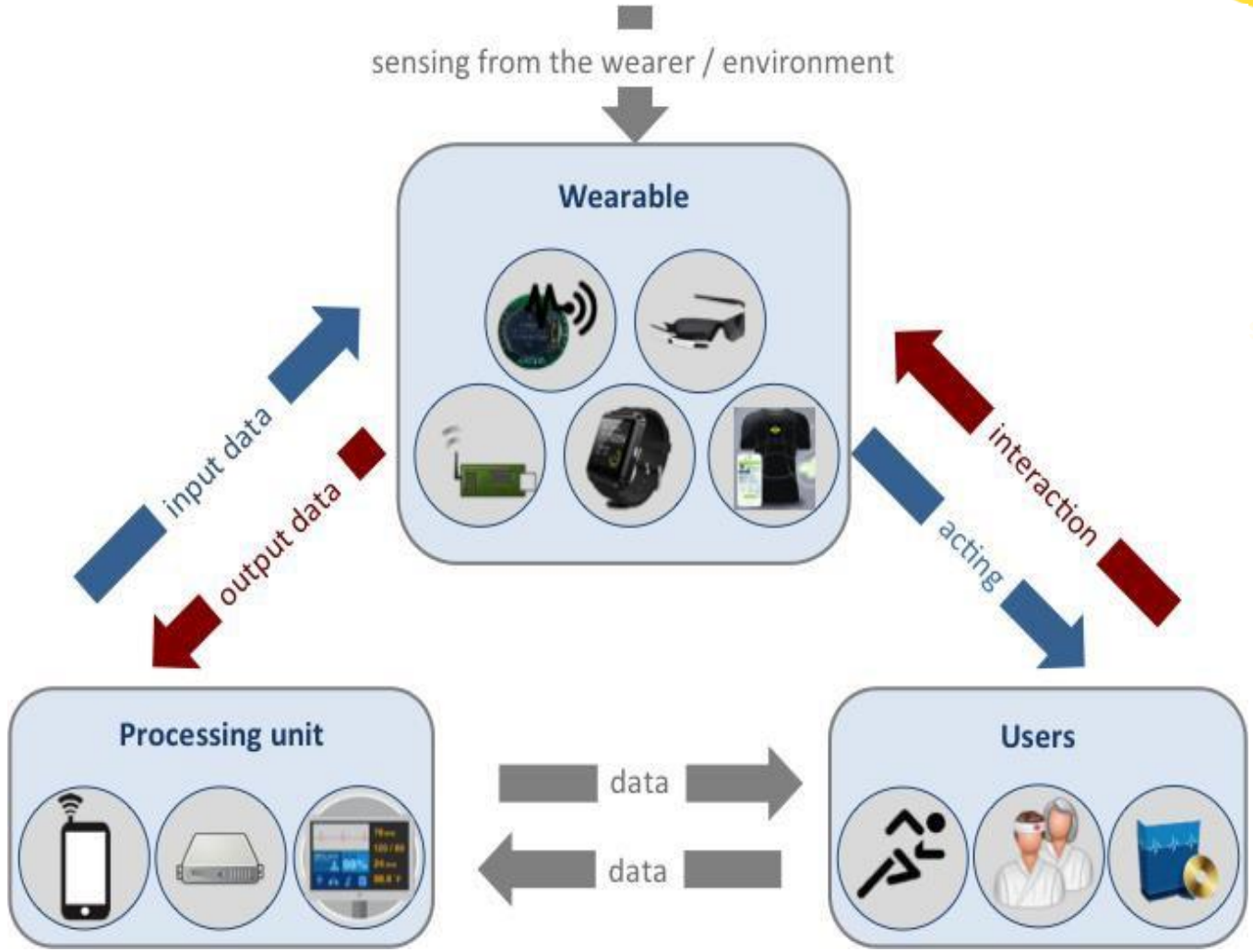
- **Near-body electronics**
  - electronic devices and components intended to be located near an organism where it does not contact the external surface of the organism directly

- **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

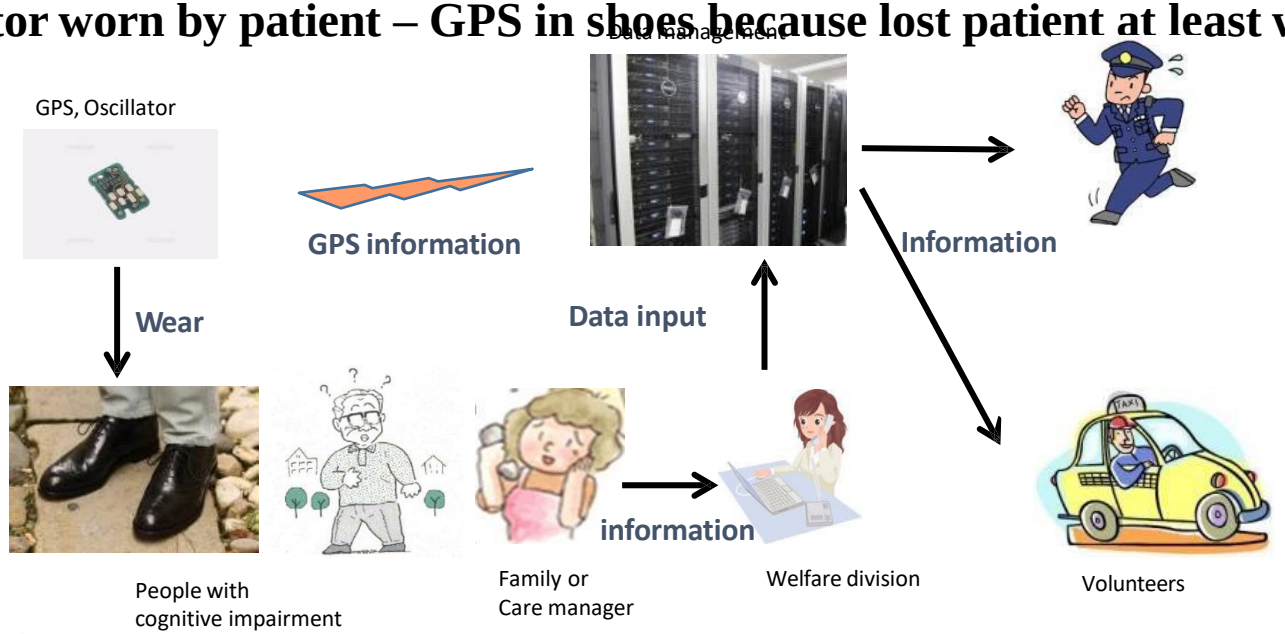
- **Wearer:** any living organism that is sensed by a Wearable.
- **Wearable:** any thing that senses the Wearer; it may have control, communication, storage and actuation capabilities, and sense the Wearer environment.
- **Mwearable:** a Wearable having at least one of media communication or storage 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 trough 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

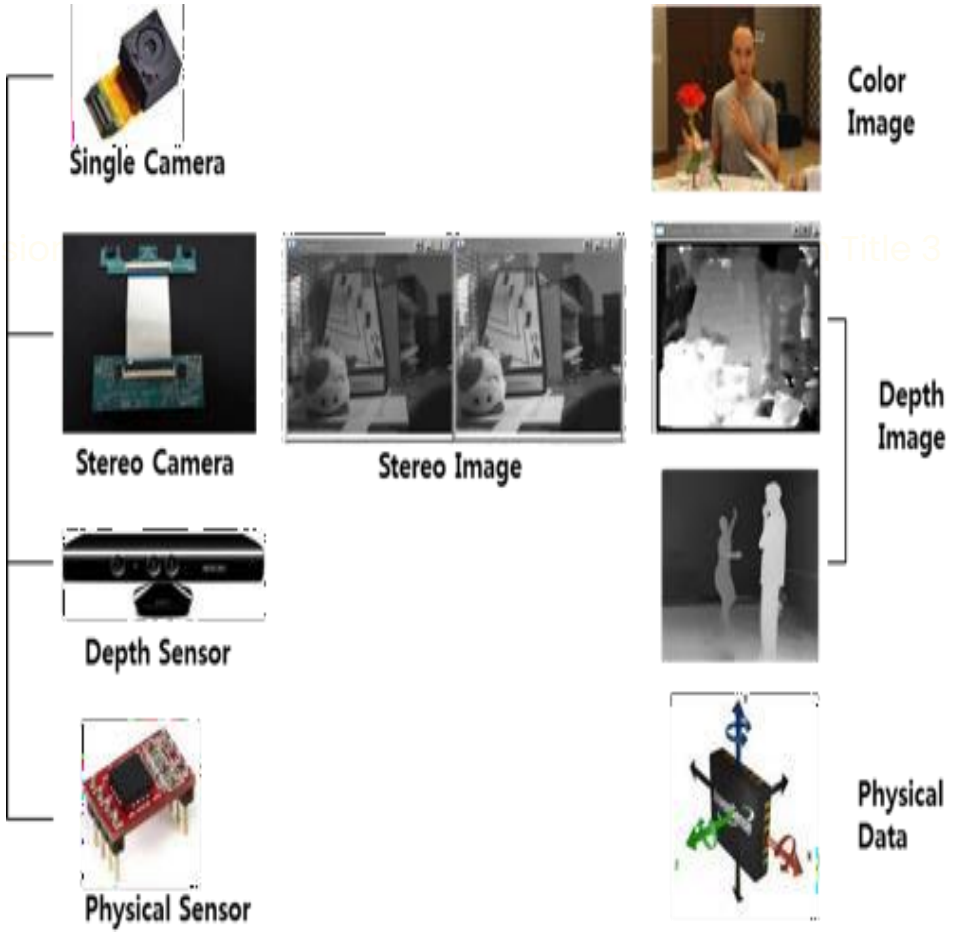


On-body electronics: A searching system for people with cognitive impairment

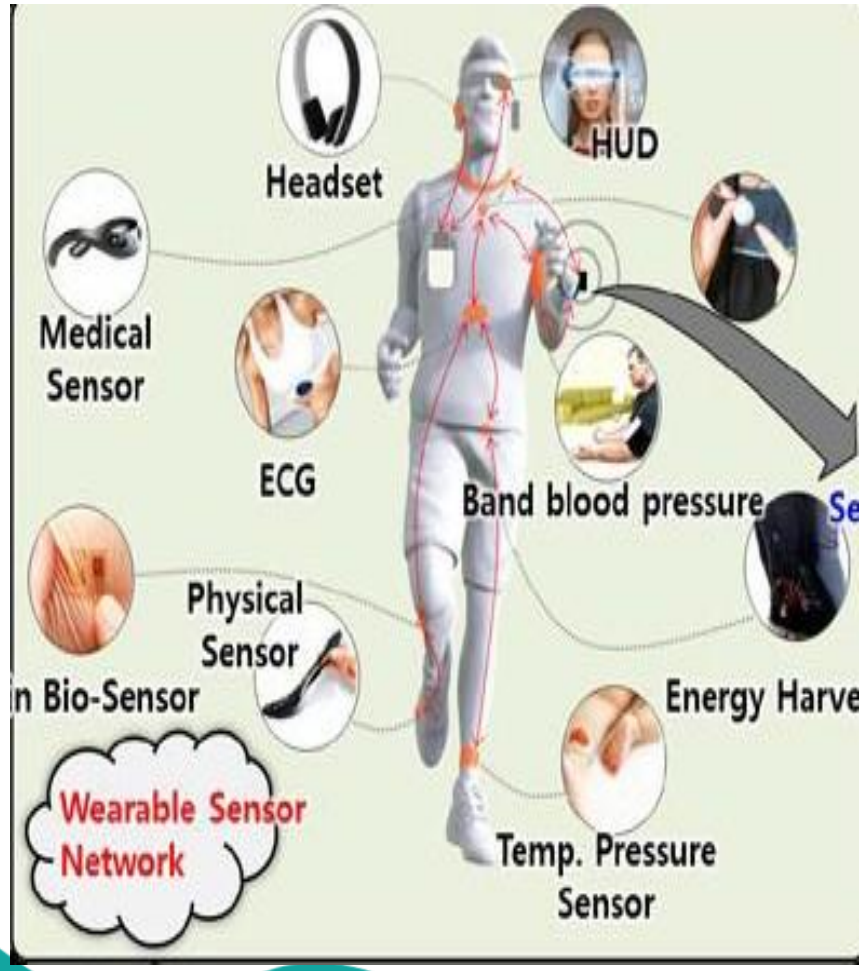
- **To find patients in early stage with secure data management system**
- **Secure personal information system**
- **Registration of patient and quick information delivery of lost patient**
- **GPS and oscillator worn by patient – GPS in shoes because lost patient at least wears shoes.**



ENABLING IOT TECHNOLOGIES



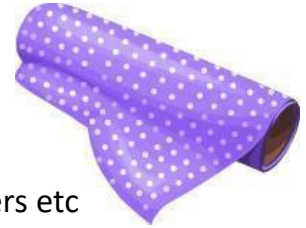
INNOVATION PRINCIPLE



- 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

Fabric manufacturer



Typical Users
Sportsmen
Cyclists, Runners etc
Caregivers
First Responders
Military

Manufacturer

Retail

Electronic ink

Electronic ink printer

Clothes will outsell phones

Smart Clothes can monitor body functions eg:

- Heart Rate
- Breathing Rate
- Muscle Fatigue
- Movement and Form
- Sweat


Thank
you