

Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: [Applications of Human Body Communication]

Date Submitted: [12 May, 2008]

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Abstract: [Introduction of Applications of Human Body Communication for BAN]

Purpose: [To encourage discussion]

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Applications of Human Body Communication

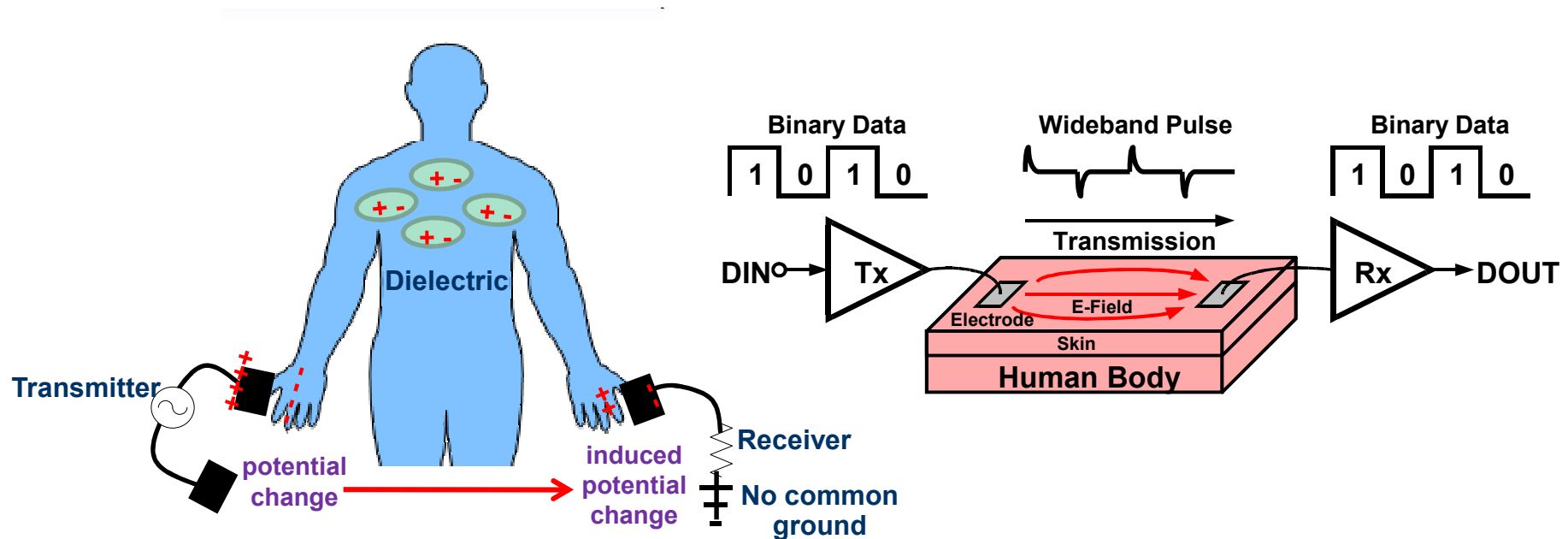
Telecommunication R&D Center
Samsung Electronics
May 2008

Motivation

- To share ideas of Human Body Communication (HBC) applications
 - Some ideas may never be realized
 - All ideas are non-medical

What is Human Body Communication?

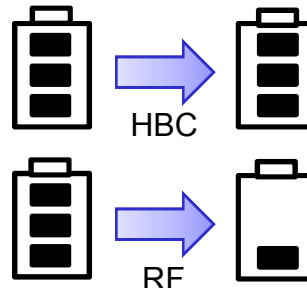
- Data is transmitted by inducing electric fields and capacitive coupling on the body
- No Antenna / Extremely low power consumption



Characteristics of HBC



No Wire



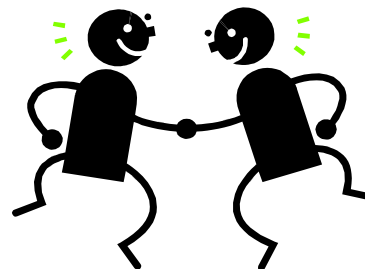
Extremely
Low power



Inherent
Security



Intuitiveness



Communication
via Contact



Fun

Mobility and HBC

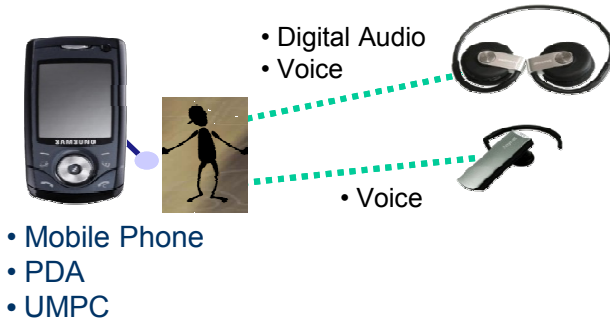
- Extremely low power and very small size
 - Attractive for mobile phones, PDAs, UMPCs, etc.
- Inherent security, a plus for mobile devices
 - Connection formed by actually touching the devices
- Intuitive (Touch & Play) data communication
 - Easy connection, no complex pairing process
 - Simple protocol, light enough for small mobile devices
- Many interesting mobile HBC application possibilities



Mobile Multimedia/Entertainment

Audio/Voice

- High quality audio streaming (MP3)
- External HBC Dongle or built-in HBC module
- Bi-directional voice support for handsfree service
 - ✦ A watch phone and a handsfree earpiece

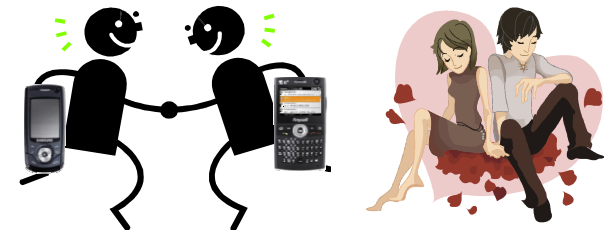


Video

- High quality video streaming (video or DMB)
- From one mobile to another or a wearable display unit

Fun/Emotional experiences

- A couple listening/watching together holding hands
 - ✦ One mobile device & two headphones, for example
- Personal/Secret/Love message transfers (TMS)
 - ✦ Business card, address book, love message, etc.



Intuitive Services

■ “EZ Connect”

- Quick, simple connection between devices
 - ✦ “touch and play” instead of “plug and play”
 - ✦ No cables needed
- HBC dongles (USB), HBC memory cards

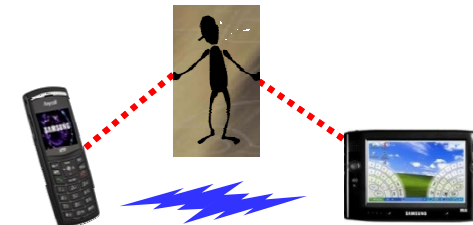


■ “EZ Authorize”

- Quick authorization of valid users
 - ✦ Access to cars, PCs, servers, file cabinets, etc.
- Wearable USIM card (watch, ring, necklace, etc.)
 - ✦ Use any phone in your hand as if it's yours

■ “EZ Pairing”

- Quick, simple pairing of wireless devices
 - ✦ Device selection not needed
 - ✦ Once paired data transfer via wireless method



Other HBC Application Ideas

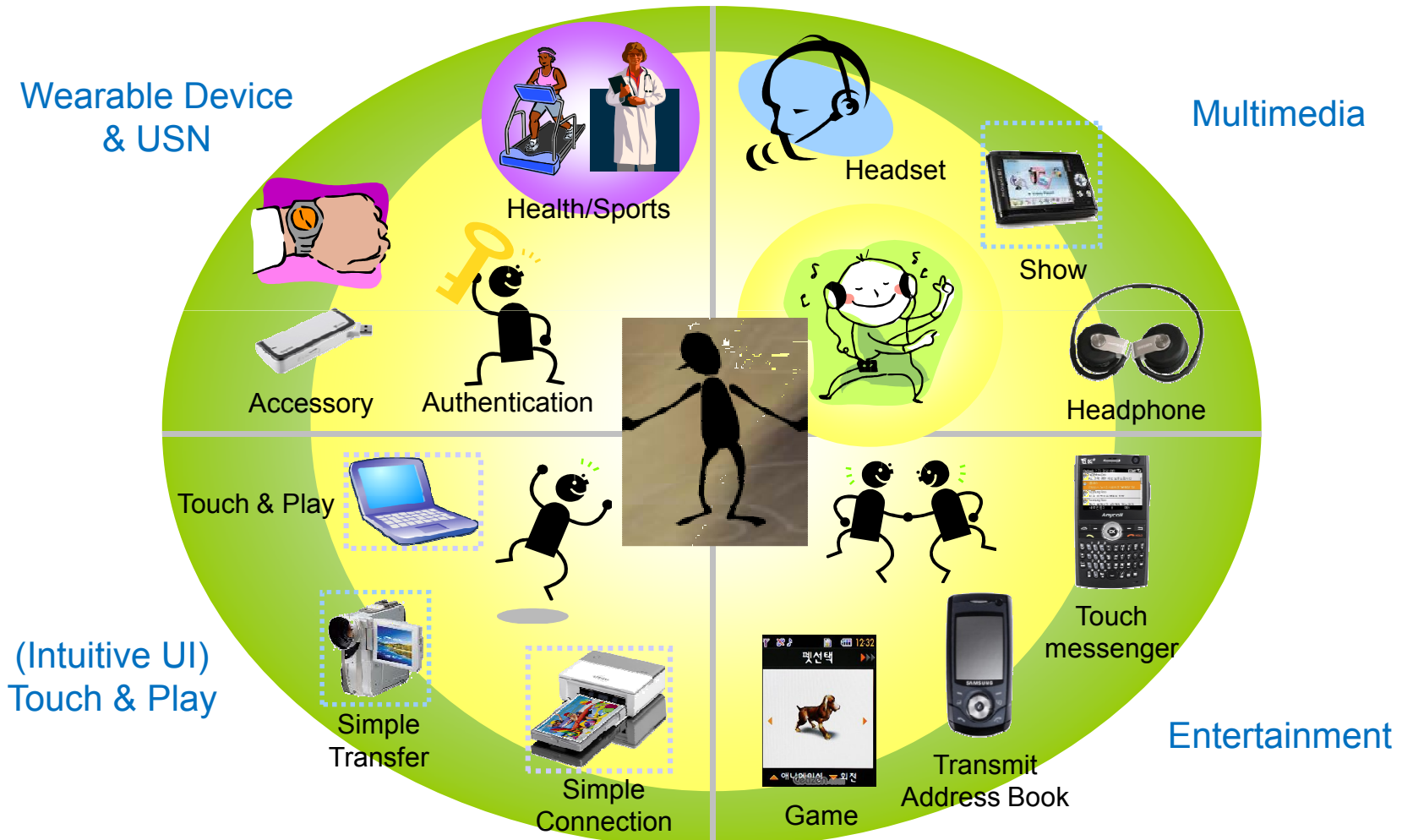
■ “EZ Info” System

- Provides product information (prices)
 - ✦ When product tag is touched while holding the cart, information and/or coupon is shown on the display mounted on the cart
- Music album sampler
 - ✦ Touch an album’s display while wearing store provided headphones
- Display information in museums, art galleries, etc.
 - ✦ Touch a displays info tag while wearing provided headphones

■ e-Health / e-Fitness / e-Sports

- Wearable health monitoring sensors
 - ✦ For the elderly
 - ✦ Self monitoring while exercising
 - ✦ Training aid for athletes
- Touch-based assistance for the disabled
 - ✦ Touch a Braille sign & hear information via an earpiece

Possible Applications of HBC



Summary

- Many different applications are possible based on HBC technology
- Different applications will have different technical requirements
- Hopefully created more interests in HBC and HBC applications