“Wearables” Standards

Presentation to
IEEE 802 Standards Committee
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The “Wearables” World of FedEx

1. Introduction/Definition of “Wearables”
2. FedEx Courier Tools
3. FedEx Requirements
4. FedEx Support of “Wearables Activities
5. FedEx Development Activities
6. FedEx Support of Standards Development
7. Closing Remarks
8. Questions?
“Wearables” Standards

- Purpose of Presentation: To encourage development of standards for “Wearables”, and solicit IEEE 802 support to develop the standards. (Form SG).
- “Wearables”: Computing devices, networking devices, software and peripherals - worn or carried by individuals - that will enhance their ability to perform productive work. (Unobtrusive).

History of “Wearables” Standards

- June, 1997: Request to IEEE for consideration of Wearables Standards development. Permission to proceed as Ad Hoc Committee within PASC.
- Three meetings held since then: July, December and January. About 35 companies and academic institutions participated.
- Defined potential areas for standardization
- IEEE 802 most appropriate for PAN
War of the Cyborgs?

Courier Technology

DADS
Digitally Assisted Dispatch System

SuperTracker
Hand Held Computer

ASTRA
Courier Printer

Submission

Dick Braley, FedEx
The “Wearables” Market

Service Organizations  DARPA/U.S. Military
Medical Applications   Manufacturing
Maintenance & Repair   Car Rental Agencies
Operations Coordination Inventory
Bar Code Reading/Printing Training

FedEx Requirements

• Communications Between Courier Tools  
  (Cost effective systems, tools, and connectivity)

• Communications Back to Base Station/Dispatch  
  (i.e., nomadicity in a limited sense)
FedEx Support of “Wearables” Activities

- “Wearables” Conference, 1997
- Member of MIT Media Lab “Things That Think” Consortium
- Initiated the “Wearables” Standards Activity with IEEE last June
- Invited Speaking Engagements (XIWT, IEEE, VRAIS, State of MA)

Participants in Standards Activities (Partial List)

FedEx  Motorola  DARPA
Symbol  Boeing  BBN
Norand  M/A-COM  MIT
ViA, Inc.  Xetron  DEC
CMU  H.P.  GTE
“Wearables” Standards: Potential Areas for Standardization

- Personal Area Networks
- “Wearable Computing” and Interfaces
- “Wearables” System Architectures
- Nomadicity
- Humionics

LAN Standards, 802

OSI RM Model

Submission

March 1998
We want to form a Study Group in IEEE to review your PHYs & MAC against PAN requirements

Functional Requirements

- Mobility: 0-10mph
- Power Management: Very Low current consumption
- Range: 0-10 meters
- Speed: 19.2 - 100Kbps (actual)
- Small Size e.g., ~.5 cubic inches no antenna
- Low Cost: i.e., relative to target device
- Should allow overlap of multiple networks in the same area
- Networking support for a minimum of sixteen devices