Bodynet Architectures: The Meaning of Wearability

[Invited Paper]

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Figure 1: The propsed Multi Layer Wearable System Architecture.

Wearable systems are often vaguely described as electronics somehow integrated with clothing. We argue that while this is the way many systems are implemented, the definition of a wearable system is much more broad. Wearable systems are better defined through their functionality as systems that are usable always and everywhere. It is only from such functional definition that viable architectures and concepts for the integration of electronics with the users outfit can be developed.

Starting from this thesis we describe a multilayer wearable architecture concept that addresses on of the key questions of on body electronics: "What sort of integration between clothing and electronics makes sense for which application ?". The architecture is based on a system partitioning that makes sure that different components are embedded in the user's outfit to a different degree, adequate to their func-

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, to republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. BODYNETS 2007, June 11-13, Florence, Italy Copyright © 2007 ICST 978-963-06-2193-9 DOI 10.4108/bodynets.2007.10406 tionality, their relation to a particular part of the outfit, and implementation technology. It views the user's outfit as a complex, hierarchical system that combines different 'device' classes with a wide ranges of application domains and functionalities. For each device class the user has well defined ideas about their expected life cycle, price ranges and the way he needs to treat it. The architectural concepts are illustrated through examples of specific systems and applications.