

Prototype BANs for Health Monitoring and Visually Impaired People

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A Body Area Network (BAN) is a wireless network that comprises small devices placed on surface of, inside of, or in the vicinity of a human body and connected by wireless communication. A well designed BAN with built-in or linked bio-signal sensors enable real-time collection of body data such as body temperature, electrocardiogram (ECG), carotid pulse, body attitude. A well designed BAN can also be used to assist people with impaired functionality.

IEEE 802.15.6 is an international standard of BAN and it is expected to be formally published in the first quarter of 2012. Three physical (PHY) techniques are defined in the draft of IEEE 802.15.6. Among the three PHYs, a PHY based on ultra wideband (UWB) technology has a number of distinguished characteristics including low complexity and low emission power density. Two prototype BANs developed by NICT will be illustrated. Both of them were implemented using UWB. One was developed for real-time collection of various body data. Another one was developed for safety assistance to visually impaired people. Both BANs work well with respectively designed functionality.