

Introduction to the Minitrack on Wireless Personal Area Networks (WPANs)

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In the last quarter of the previous century we saw the rollout of three generations of wireless cellular systems attracting an increasing number of end-users by providing ~~with~~ efficient mobile communications. On another front, wireless technology became an important component in providing a relatively inexpensive networking infrastructure for localized data delivery. This later revolution was made possible by the introduction of new networking technologies and paradigms, such as wireless local area networks (*WLAN*) and wireless personal area networks (*WPAN*).

Wireless personal area networks (WPANs) are short to very short-range wireless networks that can be used to exchange information between devices in the reach of a person. WPANs can be used to replace cables between computers and their peripherals, to establish communities helping people do their everyday work making them more productive, or to establish location aware services. It is predicted that not only will most PDAs, phones, laptops include WPAN technology but that the number of small WPAN enabled devices (e.g., pens, cameras, headsets, various sensors) will soon outnumber the computers on the Internet. The best example representing WPANs is the recent industry standard: Bluetooth, other examples include Spike (for real time gaming – proprietary technology), and Zigbee. The IEEE 802 committee has also realized the importance of short-range wireless networking and initiated the establishment of the IEEE 802.15 working group to standardize protocols and interfaces for wireless personal area networking.

Today, WPAN research covers a very broad area, starting from technical issues like automatic formation of networks or security issues and going up all the stack, to the question of what kind of applications will be used in WPANs. We expect that the availability of a cheap short-range wireless technology will further fuel research and development in what, where and most importantly how WPAN technologies could be used.

One key issue of the feasibility of WPANs is the cost of the chips enabling the actual wireless data transfer. Companies developing Bluetooth chips claim, that in the near future complex one-chip solutions of the Bluetooth specification will be available in the \$5 price range. With this target price it is predicted that not only will most PDAs, phones, laptops include such technology but that the number of small WPAN enabled devices (e.g., pens, cameras, headsets, various sensors) will soon outnumber the computers on the Internet.

The interest to submit papers to this mini-track was enormous, and not surprisingly strongly biased to Bluetooth and its application. We have accepted six papers for this mini-track (an acceptance rate of about 40%). The first paper in this mini-track deals with mobile peer-to-peer environments while the remaining five papers focus on Bluetooth. More precisely, the second paper provides a description of a security application of Bluetooth, the third paper introduces a novel scatternet formation algorithm, and the fifth paper deals with scheduling in piconets. Papers four and six investigate the inquiry procedure of Bluetooth.

We hope that this minitrack provides researchers with thought-provoking, high-quality work on wireless personal and local area networks and that you will enjoy reading the proceedings. We also take this opportunity to thank all the reviewers for their valuable and professional work as well as all the authors of submitted papers who helped us to create such a strong minitrack.