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Trends in Wireless Sensor Networks

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Wireless Sensor networks (WSNs) became one among the foremost interesting areas of research in the past few years. A WSN consists of variety of wireless sensor nodes which form a sensor field and a sink. These large numbers of nodes, having the skills to sense their surroundings, perform limited computation and communicate wirelessly form the WSNs. Recent advances in wireless and electronic technologies have enabled a good range of applications of WSNs in military, traffic surveillance, target tracking, environment monitoring, healthcare monitoring, and so on. There are many new challenges that have surfaced for the designers of WSNs, so as to satisfy the wants of varied applications like sensed quantities, size of nodes, and nodes' autonomy. Therefore, improvements within the current technologies and better solutions to those challenges are required. the longer term developments in sensor nodes must produce very powerful and costeffective devices, in order that they'll be utilized in applications like underwater acoustic sensor systems, sensing based cyberphysical systems, timecritical applications, cognitive sensing and spectrum management, and security and privacy management. This paper also describes the research challenges for WSNs. Sensor Localization and Location Aware Services Smart Home/Smart Office Smart home environments can provide custom behaviors for a given individual. Considerable amount of research has been dedicated to this subject . The research on smart homes is now starting to make its way into the market. It takes a substantial amount of labor and getting to create a smart home. There are many samples of products currently on the market which may perform individual functions that are considered to be a part of a sensible home. Several useful applications which cash in of data collected by WSN are presented by Hussain et al. (2009).

Military

New and emerging technologies, like networks, support military operations by delivering critical information rapidly and dependably to the proper individual or organization at the proper time. This improves the efficiency of combat operations. The new technologies must be integrated quickly into a comprehensive architecture to satisfy the wants of times .Improvement in situation awareness (ChienChung Shen, 2001) is must requirement. Doumit and Agrawal (2002) described another important application is detection of enemy units' movements on land/sea, sensing intruders on bases, chemical/biological threats and offering logistics in urban warfare. Command, control, communications, computing, intelligence, surveillance, reconnaissance, and targeting systems are well described by Akyildiz (2002).

Industrial & Commercial

Since the while wireless transmission of knowledge is being wiped out industrial applications, but recently it's gained importance. Successful use of wireless sensors in systems like supervisory control and data acquisition has proved that these devices could effectively address the needs of commercial applications. The critical process applications of WSNs in industry are monitoring temperature, flowlevel, and pressure parameters. With the rapidly increasing technological advances in wireless technology and its subsequently decreasing prices, numerous wireless applications are being developed in industry. WSN in manufacturing industries can monitor and optimize internal control.