WIRELESS DATA ACQUISITION

MOLDOVAN Ovidiu
University of Oradea

Keywords: sensors, data acquisition system, wireless data acquisition, Wi-Fi.

Abstract: In order to analyze a phenomenon or the control and device data must be acquired. In order to acquire the data DAS are used but as the variety of systems is larger so the DAS must keep up with them. One on the major problems associated wit traditional DAS is the method of data transmission. The paper is describing a method of data acquisition based on the previous system in combination with the new wireless technologies initially developed for internet data transmission:

A data acquisition system is a device designed for measuring different parameters (signals). The data acquisition system is made of hardware and software. The hardware part is made of sensors, cables and electronics components. The software part is made of the data acquisition logic and the analysis software (and some other utilities that can be used to configure the logic or to move data from data acquisition memory to a laptop or to a mainframe computer).

The wireless data acquisitions system have the same main structure as wired system do, the only difference consists in the way the information is transmitted between the actual DAS and the PC. There are a large number of possibilities for wireless data transmission, the most con being infrared data transmission, Bluetooth, WI-Fi. Each method has his advantages and disadvantages. The infrared data transmission and Bluetooth are suitable for short distance data transmission with low power consumption; witch makes them suitable for integration in mobile devices, especially in mobile phones.

The Wi-Fi technology (known also as wireless fidelity) uses radio waves and is a technology designed for internet communication. As any technology related to the internet Wi-Fi data transmission is largely spared and also has become affordable. Do to this factors the preferred method of wireless data transmission for data acquisition systems is the Wi-Fi technology.

For setting us a wireless data acquisition system we need a series of components: a DAS with Ethernet port, a wireless router, wireless access points and a PC running the adequate software for the DAS. In figure no.1 is presented a general setup for a wireless data acquisition system.

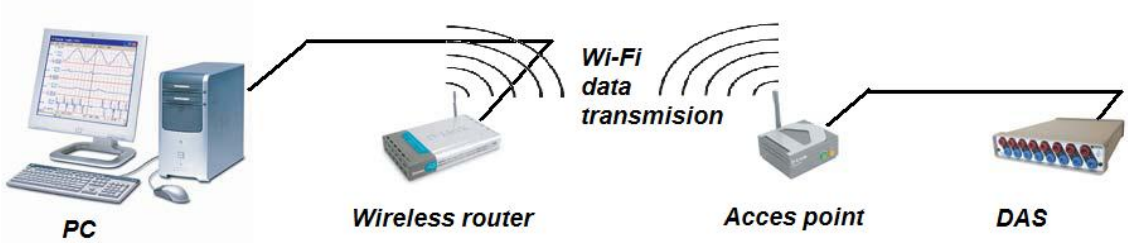

Figure no.1- Wireless data acquisition system.

Bibliography:

1. Shawn MacDonald – DATAQ Instruments, Inc – Data acquisition systems.
2. Wi-Fi Alliance- http://www.wi-fi.org
3. Joseph Moran - Wireless Home Networking, Part II - Wi-Fi Standards