An ANT-based Sensor Measurement Data Gathering System

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Large-scale industries involved with a great amount of sensor measurements in their work are facing many challenges in data collection. Sensors are not on the same network; therefore each measurement has to be managed separately. Gathering all the measurement data to one terminal could be difficult. Once a measurement is obtained, it takes significant amount of time to process the data.The approaches our group takes here is to build a giant ANT wireless network that holds all the sensors' measurements. To be more specific, every sensor has an ANT chip set up on its side. Each ANT chip is as a single node. And on PC terminal, there is also a ANT chip which is collecting data from all the nodes. Microsoft Visual C++ and Keil uVision are used to program the program on PC and the program on ANT chip, respectively. Sending a "start measurement operation code" from ANT USB stick on PC terminal to the embedded ANT board starts the measurement. During the development, acknowledged data transfer type was found to be most effective, out of three data transfer types: broadcast, burst, acknowledged. This generalized solution can be easily applied to all kinds of sensor application.