

Michael A. Hunt

Major: Mathematics

University: University of Maryland, Baltimore County (UMBC)

Faculty Mentor: Dr. HongChi Shi

Mentor Department: Computer Engineering and Computer Science

Funded by: Louis Stokes Missouri Alliance for Minority Participation

A study of wireless sensor networks with focus on node localization

Michael Hunt and HongChi Shi

Due to research in low-power, cheap wireless communications, Wireless Sensor Networks (WSN) has become one of the most exciting new fields of interest within computer science and engineering. Just as the Internet has made data readily available to many users, so will wireless sensor network, but on a different and larger scale. Because of Wireless Sensor Networks, we will be able to receive measurements of the physical phenomena around us, leading to their understanding and ultimately the utilization of this information for a wide range of applications. This research allows the evaluation of the many requirements that a wireless system must meet in order to be considered an effective WSN. Furthermore, because of these requirements, there still exist several unresolved research issues. Wireless Sensor Networks are composed of individual of sensor nodes. Once the nodes are deployed, it is very important to be able to determine where each node is; furthermore, the position of the nodes need not be engineered or pre-determined. Being able to immediately locate a sensor node without having to rely on satellites or any other external infrastructure is one of the major research components of Wireless Sensor Networks that has received a great deal of attention.