

INFORMATION ON DOCTORAL DISSERTATION

Title of the thesis:

Solutions for Performance Improvement of Multievent Wireless Sensor Network.

Specified field of study: Telecommunications Engineering

Code of specialty: 9.52.02.08

Name of the candidate: **Nguyễn Thị Thu Hằng**

Name of the research supervisors:

1. Assoc. Professor Nguyễn Tiến Ban, Ph.D.

2. Nguyễn Chiến Trinh, Ph.D.

Academic Institution: Posts and Telecommunications Institute of Technology

THE SCIENTIFIC CONTRIBUTIONS

The scientific contributions of the thesis are as follows:

1. Propose two solutions to improve multievent wireless sensor network performance using dynamic routing algorithms called DRPDS and EARPM to meet the different requirements of delay and reliability of three different event types while ensuring efficient use of energy, prolonging the life of the network.
2. Proposing a solution using the priority MAC protocol named PMME, this protocol incorporates a CSMA p-persistent mechanism that changes according to the priority of data with earliest Beacon accepting mechanism to reduce data transmission delay while ensuring high success rate of packet transmission and using network energy efficiently.

ON PRACTICAL APPLICABILITY AND FURTHER STUDIES

The thesis proposes new solutions in terms of theory and provides mathematical analysis and simulation tools to evaluate multievent wireless sensor network. The research contributions of this thesis could help to further studies in designing routing and MAC protocols for multi-event wireless sensor network applications in houses, hospitals, smart cities. In addition, these solutions also have potential application in teaching and studying at the Universities.

Research supervisors

Candidate

Assoc. Prof. Nguyễn Tiến Ban, Ph.D. Nguyễn Chiến Trinh, Ph.D.

Nguyễn Thị Thu Hằng