

Benchmarking Low-Power Wireless Technologies

Master Thesis project at RISE SICS in Kista.

Description of the units

The Networked Embedded Systems (NES) group at RISE SICS is a part of the Computer Systems Laboratory. The current research focus is on the Internet of Things. Among the group's key technologies are the Contiki operating system, uIP stack, ContikiRPL, SICSLoWPAN, SICS th Sense, and lightweight implementation of IPsec and DTLS. The NES group conduct projects together with industry and academic partners from Sweden and across the world.

Thesis description

Research in low-power wireless technologies has produced a large number of communication protocols, covering medium access or routing. Experimental research results are, however, difficult to compare, as there exist no standard benchmark. Our research group is part of an international initiative whose goal is to define such a benchmark. In this thesis, you will investigate repeatability aspects and develop tools to facilitate benchmarking. A testbed and a number of reference protocols will be provided. You will be required to:

- Study the state-of-the-art in benchmarking of networking protocols, including repeatability aspects
- Implement tools to facilitate benchmarking, e.g. weekly runs, topology extraction and collection of logs
- Evaluate different protocols
- Evaluate repeatability of experiments
- Document the results as a thesis document.

Competence

We are looking for a good student with good embedded programming skills, and with interest in IoT, who have fulfilled the course requirements. Good skills in spoken and written English are required.

Applications should include a brief personal letter, CV , and

recent grades. In your application, make sure to give examples of previous programming or other projects that you consider relevant for the position. Candidates are encouraged to send in their application as soon as possible. Suitable applicants will be interviewed as applications are received.

Start time: As soon as possible

Where: RISE SICS Kista, Stockholm

Please contact

Dr. Simon Duquennoy

E-mail: simon.duquennoy@ri.se

Web: <http://simonduquennoy.net>

RISE SICS AB

Networked Embedded Systems Group,

Electrum Building, Isafjordsgatan 22SE-164 40 Kista, Stockholm