Thesis Title: Approximation for Battery-less IoT

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, 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
Ambient energy harvesting is enabling a battery-less Internet of Things (IoT). Energy provisioning from the environment, however, is generally erratic. IoT devices consequently experience frequent shutdowns and executions become intermittent, namely, they consist of intervals of active computation interleaved by periods of recharging energy buffers. We want to look at how approximate and anytime computing, that is, algorithms able to return approximate answers at lower costs, play in the field of the battery-less IoT. Focus of the thesis will be exploring what existing approximate or anytime algorithms may be used in the battery-less IoT, what are the performance gains in terms of energy consumption, and what are the losses in terms of precision of computed results.

Competence
Passion for technology, inner drive, and basic knowledge of C programming and embedded systems are the only prerequisites.

Application
Applications should include a brief personal letter, CV, and recent grades. 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
Location  RISE SICS Kista, Stockholm

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