

Power Aware Design Method for Secure and Private Smart Homes

by

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Major concerns for the deployment of future home monitoring systems (i.e. smart homes) using low-power wireless sensor network (WSN) nodes are the privacy and security of the data that is collected and transmitted. Currently, public and private key systems are very popular for security but the power requirements of these systems in low-power WSN nodes are not fully characterized. A probabilistic lifetime estimation tool will be described to evaluate the power consumption and impact on network lifetime of public key encryption techniques. This tool will shed new light on the influence these protocols have on the overall performance of a power constrained sensor network. Designers may then choose the most effective methods to achieve their requirements. Parameter optimization may also be performed once a specific technique is selected to enhance performance. Preliminary data will be provided to show the effectiveness of this technique for the selection of routing protocols.