



Authorized Access to WSN via Mobile Device

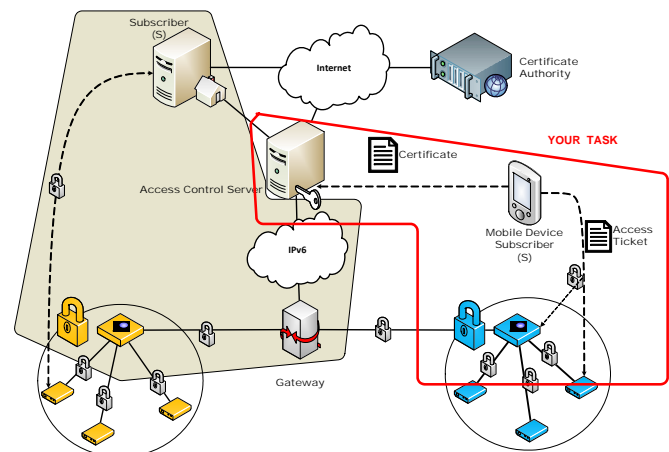
Motivation

Many use cases for sensor networks involve the collection and transmission of sensitive data. Yet, many deployments currently do not protect this data through suitable security schemes. We have developed an end-to-end security scheme build upon existing internet standards, specifically the Datagram Transport Layer Security protocol (DTLS). By relying on an established standard existing implementations, engineering techniques and security infrastructure can be reused which enables easy security uptake from application developers.

One of the major shortcomings of existing scheme is the heavy communication overheads paid for the security. In this project, we will design and implement an efficient security protocol to allow authorized access to the data via a mobile device. The authorization should work over certificates.

Your task

You are tasked with bringing standard compliant security to mobile devices (such as PDA, Smartphone...) in an end-to-end security architecture. Based on an existing implementation of a DTLS-handshake within the existing infrastructure, you will design and implement authorization protocol for mobile devices which allows authorized groups access to the collected data and the network itself.



The implemented protocol should allow mobile devices to (1) interact with the sensor network directly and (2) allow access for the already collected data. In case (2) the mobile device can either access the data directly from WSN intern or from the global server where the data is stored. On the server site data banks must be implemented for the certificates and for the collected data. The protocol must be easy adaptable for new scenarios and devices. Finally the protocol must be evaluated.

Requirements

- Basic familiarity with security concepts and data management systems
- Knowledge of C and/or Java required, nesC and TinyOS a plus
- Integration with an existing WSN security framework

Keywords

Wireless Sensor Networks, Security, Standardization, Data Management Systems

