UNIVERSITÄT ZU LÜBECK
INSTITUT FÜR TECHNISCHE INFORMATIK

Master / Bachelor Thesis

Applications of Intelligent Sensors in Smart Cities

The concept of smart cities arises with the purpose of providing citizens with optimal and sustainable services, as well as better quality of life. As an important tool, smart sensors help the government and decision makers in the resource management process and the collection and processing of relevant data related to strategic central regions or neighborhoods. However, deploying smart sensors in the context of smart cities has its challenges. Since sensors can be spread throughout cities, they can collect data from different networks or devices, where security and privacy are not trivial requirements. Based on this, network managers must ensure optimal security connections and security tools to prevent the collected data from being misused, in which intruders can cause damage to the entire network. Further, due to the large number of deployed sensors, acquiring management and filters for data reliable for each scenario can be a challengeable task. Although the use of smart sensors within smart cities aims to make citizens' lives easier, both technologies have open issues that still require further research in different areas [1]

Scope of the project

Starting with a literature analysis and asking the experts, general requirements of intelligent sensors in one of the following aspects of smart cities should be gathered and protocolled.

- Public transport systems,
- Traffic control
- Energy and water efficiency systems
- Secure, privacy and trust mechanisms
- Smart waste management systems
- Intelligent sensors for connected and smart mobility
- Data analytics and fusion for intelligent sensors.

Afterward, an analysis of state of the art should prove the needs and shortages of existing solutions in the considered topic. Suggestions and Ideas should be developed for overcoming these shortages. This also includes the extension of existing solutions or implementation of new solutions. An evaluation against the general requirements mentioned above is preferred when possible.

Your Profile:

- You are enrolled at the University of Lübeck as a master or bachelor student.
- You are interested in exciting research projects.
- You like to work in a team, are flexible and reliable.
- You have good programming skills in Java.

How to apply:

Write us an email at javad.ghofrani@uni-luebeck.de to arrange a meeting and talk.

The language and the start time of the project is optional.

[1] Telecom Journal, "Applications of Intelligent Sensors in Smart Cities", Naercio David Pedro Magaia