

FMH606 Master's Thesis

Title: Environmental Public Health Information Management System

TUC Supervisor: Hans-Petter Halvorsen, Nils-Olav Skeie

External Partner: Tel-Tek, Porsgrunn kommune, Sykehuset Telemark

Task Description:

Development and maintenance of infrastructure and data system for gathering, acquiring and analysis of environmental and public health information data for Porsgrunn and Grenland. Typical data for acquiring and analyzing are air pollution and air quality, emissions from industry, emissions from cars, number of cars, etc. Design and development of stations for data acquiring and monitoring, or integration with existing stations.

The system will be important in the development of new industries, research and development areas.

The thesis includes the following key elements:

- Get an overview of data for acquiring and analysis
- Planning and System Design
- Database modeling, design and implementation
- Web design and web development, ASP.NET Core/ASP.NET MVC 6 and C # Programming
- Big data - acquiring and analysis of large amounts of data
- Data acquiring and management. Development of modules with flexible import and export options, including REST APIs system, etc.
- Analysis, statistics, and presentation of data. Generation of reports in connection with analysis and reporting of data to authorities and other contracting authorities.
- Design and development of monitoring stations in connection therewith, or integration with existing monitoring stations.
- Infrastructure, servers and network infrastructure
- Development of relevant decision support tools
- Get information of the various forms of data storage, such as SQL databases and NoSQL databases, etc.
- Hosting of the data, either locally or in the cloud.
- Safety aspects (data security, backup, load balancing, redundancy, etc.)

This is a preliminary draft of content and tasks; more specific contents and tasks will be made towards the project start.

Task Background: USN has collaborated with Tel-Tek, Porsgrunn kommune, Sykehuset Telemark for a prototype of such a system. The goal is to develop and establish an operational system for registering and monitoring of data regarding environmental public health information.

Student Category: IIA students

Practical Arrangements:

Signatures:

Supervisor (date and signature):

Students (date and signature):