

# DYNAMIC INTELLIGENT SENSOR-INTENSIVE SYSTEMS (DISS)

How could the environment adapt to your needs? This project is about how sensors can be used to create better services in order to make, for instance, your work environment better.

## WHY?

There are many internet connected devices with sensors in our everyday environments. These sensors can measure temperature, humidity, carbon dioxide, presence or absence of people, etc. The data from these sensors can be used to better understand what is going on in, for example, an office space. If we know what is happening in an environment, we can provide better services for both office users and management. For instance, the room temperature and sun shades could be controlled based on the actual activity taking place, or you could be recommended to move to a cooler room that has been detected to be empty.

## WHAT?

The DISS project explores methods for fusing data from various sensors in order to identify what we call the current state of an environment. We use machine learning to improve the predictions of what state an environment is in, and this is done by users giving feedback to the system, telling it whether the prediction is correct or not. We also explore how to rapidly configure a system of multiple devices and sensors to predict states in a new environment.

## HOW?

One research challenge we focus on is how to achieve high accuracy when identifying states. How do you best use training data and user feedback? What different types of user feedback could improve the accuracy?

Another challenge is how to achieve new system configurations. That is, how to efficiently set up services in a new environment. Is it relevant to reuse information from similar systems and similar environments?

The project also explores how to support privacy, how to achieve energy efficiency, and how to make use of mobile devices such as smartphones, which have built-in sensors.

Project partners: Axis, Sigma Technology and Sigma Connectivity  
Application area: SMART CITIES  
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## USE AND ABUSE?

By using sensors, we can find out what is going on to support a number of useful services. However, sometimes it can also be detected what person is involved in the activity. For instance, it can be detected who is responsible for not putting the dishes in the dishwasher. Do we want such systems?