Building an air quality monitoring network using low cost sensors

Background
Air quality in Stuttgart is a hot topic, discussed frequently nowadays. Stuttgart is the German city with the highest concentration of fine particulate matter and nitrogen dioxide exceeding the legal limit values regularly. Thus, Stuttgart is under strict monitoring by the authorities using expensive air quality monitoring stations. Since these stations are mostly located at the “hot spots” and cannot capture the spatial and temporal variability of the pollutants in the entire city atmosphere, there is a requirement to establish a dense network for monitoring air quality. This can be done by using low-cost air quality sensors, which are less costly and can provide a good picture of the air quality in the city.

Objective
The objectives of this study is to establish an air quality monitoring network by using low-cost sensors for measuring particulate matter as well as gases such as NO, NO₂, O₃ and CO.

Approach and tasks
1. Literature review
2. Preparing the sensors for air quality monitoring
3. Establish the air quality monitoring network
4. Field measurements
5. Assessment and compilation of the results
6. Report and presentation

Requirements
- Ability and interest in practical and field work
- Working independently
- Interest in learning basics of programming and electronics
- Ability to handle large amount of data
- Have basic knowledge regarding air quality control and ambient air pollution

Start date: immediately!

Master Thesis, Bachelor Thesis and Student Research Project: Scope of work will be adapted depending on ECTS gained and the degree i.e. Bachelors or Masters.

Interested students please contact
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