Master Thesis
for students in ‘Umweltschutztechnik’, ‘Maschinenbau’, ‘Verfahrenstechnik’, WASTE or similar study programs

**Investigation of air quality in Stuttgart using low cost air quality sensor platform**

**Background:**
Air quality in Stuttgart is a hot topic, discussed frequently nowadays. Stuttgart is the German city where the concentration of fine particulate matter and nitrogen dioxide in the air exceeds the legal limit on more days per year than any other German city. Thus, Stuttgart is under strict monitoring by the higher authorities throughout using the expensive air quality monitoring stations. Since those stations are located only in the “hot spots” and cannot capture the spatial and temporal variability of the pollutants in the city atmosphere, there is a requirement to develop an innovative low cost and mobile air quality measurement solution.

**Objective:**
The objective of this work is to investigate the low cost air quality sensor platform and apply it to the measurement of the most crucial ambient air pollutants in Stuttgart.

**Approach and Tasks:**
1. Literature review
2. Investigation of the study about the sensors from previous work done at IFK
3. Laboratory tests of sensor characteristics
4. Laboratory evaluation of sensor uncertainties according to the given protocol
5. Actual measurements in the city
6. Results and evaluation
7. Report writing and presentation

**Requirements:**
- Ability and interest in practical and field work
- Work 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:** latest at the beginning of October

**Interested students please contact:**
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