Master Thesis (MA)/ Research Internship (FP)

Development of a sensor node on Raspberry Pi and comparative air quality measurement

The Professorship of Environmental Sensing and Modeling offers a project for development of a sensor node for automated air quality measurement in collaboration with StMUV (Bayer. Staatsministerium für Umwelt und Verbraucherschutz). This sensor node is supposed to collect data from existing commercial NO₂ sensor systems for a long-term measurement with low maintenance effort.

Your tasks
- Hardware engineering: housing, power supply and electronics
- Firmware programming on a Raspberry Pi to gather the data from NO₂ sensor systems
- Implementation of comparative NO₂ measurement
- Optimization to low maintenance effort
- Error management and remote configuration
- Proper and structured programming (code maintenance)

Your profile
- Programming knowledge in Python or other firmware languages
- Experience with microcontrollers, Raspberry Pi and Linux system
- Interest in air quality and sensor system
- Interest in independent and practical work ("hands-on")

Time constrain
- Start date: 01.07.2021.
- Development of the sensor node and comparative measurement (first 3 months with fixed deadline)
- Data analysis for the rest of the time

Interested?
- Then send your CV, transcript of records and a short cover letter to Xiao Bi (xiao.bi@tum.de)