Smart Air Quality Network, the measurement network for the future [Poster abstract]

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Air Quality and with this, subjective and health related life quality, is one of the biggest topics of modern cities and developing countries in our time. For many regions and cities it is difficult to take action regarding air quality in mobility, residential or working areas, because there is no fine-meshed and profound database available for making right decisions in time.

Although the required basic data as well as the measurement principles would be available, a proper platform for connection, combination and evaluation of measurement data to get profound decisions is still missing.

SmartAirQualityNetwork shall be a very pragmatic and data driven attempt in which all available data will combined with mobile measurements to an integrated measurement strategy for the first time. With the connection and combination of open data sources as meteorological data as well as research data about air pollution levels, city development plans, remote sensing data about influencing factors as mixing layer heights, comprehensive coverage with ultra-low-cost-Sensors, "scientific scouts", demand-oriented usage of UAVs together with methods of real-time-modelling and analyzing, a new measurement and analyzing concept will be developed.

In the test region of Augsburg (Bavaria, Germany), the intension is, to establish a prototype of a measurement network 2.0 using IoT-Methods and analytics of big data that will be able to be scaled and multiplied to any other region.

The main target is to give new real time information that can be used for several in-time actions and measures based on air pollution levels as alternative routing in navigation systems. High polluted zones and traffic control activities in order to reduce traffic and pollution levels as well as to inform people via mobile apps about pollution levels will be given and recommendations for actions and valuable information for clean air strategies will be developed.

Fig.2: Based on a central Data Cloud, important information will be available for navigation systems, traffic control systems or apps to inform the public in-time.

Beside a broad awareness of possible influencing factors to the public as well as for decision makers, it will provide a broad database for controlling an increased individual mobility, alternative mobility concepts and development of new traffic control systems.

References & pictures
GRIMM Aerosol Ainring GmbH & CO.KG, Wikimedia Commons, University of Augsburg, KIT-TECO, Open Street Map, World Air Quality

Fig.1: Different measurement technologies and air pollution sources will be combined via a new platform and modelling concept using efficient algorithms getting valuable information to develop valuable measures against pollution levels.