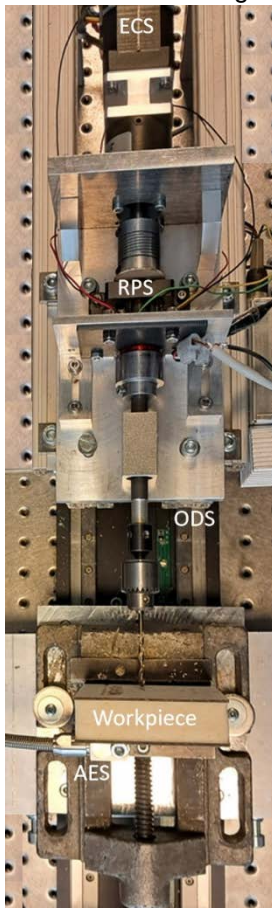
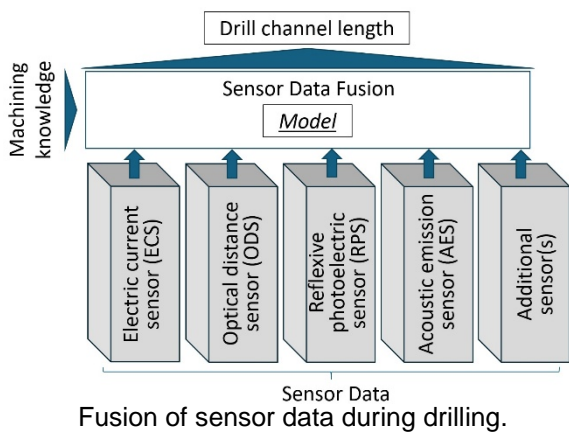


## Development and investigation of a sensor fusion real-time method for drilling of inhomogeneous materials



Test bench for drilling inhomogeneous materials (based on Sorg et al. 2019).

As part of a top-level German research project, the BIMAQ is working on the application of sensor data fusion techniques in manufacturing processes. For this purpose, a test bench for drilling inhomogeneous materials is being developed. This test bench incorporates various sensors on the drilling machine and the component to enable automated process testing and the determination of characteristic parameters (of the process or component) through signal analysis.

The aim of this work is to develop and investigate a real-time sensor fusion method for both automated determination of the drill channel length during the drilling process and material characterization.

### Possible tasks include:

- Selection and definition of suitable sensors.
- Expansion of the test bench + conduction of experiment.
- Development of signal processing algorithms for the signals acquired by various sensors.
- Implementation of a method for real-time sensor data fusion.
- Evaluation of experiment results.
- Assessment of the measurement uncertainty of the drill channel length.

### Your profile:

- Interest in technology, machining processes, and experiments.
- Knowledge of the programming languages LabVIEW and/or MATLAB. Python is advantageous but not required.
- Self-motivation and focus to achieve project goals. Team spirit and collaborative work.

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