# AFFORDABLE SMART ENERGY MONITORING

☐ **Bachelorthesis** ☐ **Masterthesis** ☒ **ADP** ☐ **ARP**


**Start:** as soon as possible
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**Posting date:** 19.04.2022


## Motivation

The raised needs for achieving sustainability goals require high transparency on the resource consumption of manufacturing plants inside and outside of P&G (water, electricity, natural gas, compressed air, ...). Additional functionality like intelligent analysis of consumption behaviour of equipment and automated energy reporting is mostly offered through third party suppliers that require additional license cost and further efforts for implementation.
Following the statements above lead to the need of an affordable system that can be installed in every production machine and utilities to enable identification and specific work on improving resource efficiency. Therefore, the aim of this project is to develop an affordable solution to measure and analyze collected data of resource consumption from technical systems automatically with potential use of artificial intelligence.

## Scope

The project includes the following content:

- Development of a measuring point recommendation system with monetary and non-monetary benefit aspects
- Development of a cost-efficient technical system for resource monitoring including hardware frame and software package based on low cost and widely used affordable single-board computer hardware (e.g. Raspberry Pi, ...)
- Implementation of a service for automated detection of significant characteristics of energy data (e.g., load cycles, operating strategies, annual operating times, anomalies, etc.) in Python.
- Evaluation of suitable energy efficiency measures based on key performance indicators
- Short documentation of the results

## Benefits

- Participation in a contest with awards
- Industrial cooperation
- Devolopment of a product with industrial relevance

If you have any questions, please do not hesitate to contact me by phone or e-mail.