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UNIVERSITY OF APPLIED SCIENCES  
Verwaltung - Gestaltung & Entwicklung



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COMPÉTITIVITÉ

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Fonds Européen de Développement Régional (FEDER)  
Europäischer Fonds für Regionale Entwicklung (EFRE)

Dépasser les frontières : projet après projet  
Der Oberrhein wächst zusammen, mit jedem Projekt



SMI  
Smart Meter Inclusif

# The developed SMI prototype



Daniel Weißhaar (PhD)  
Prof. Djaffar Ould Abdeslam  
Prof. Dirk Benyoucef  
Dr. Pirmin Held



7 décembre 2022

# Agenda

- Hardware of the Prototype
- Software of the Prototype
- Research Results and further usage of the Prototype

7 décembre 2022

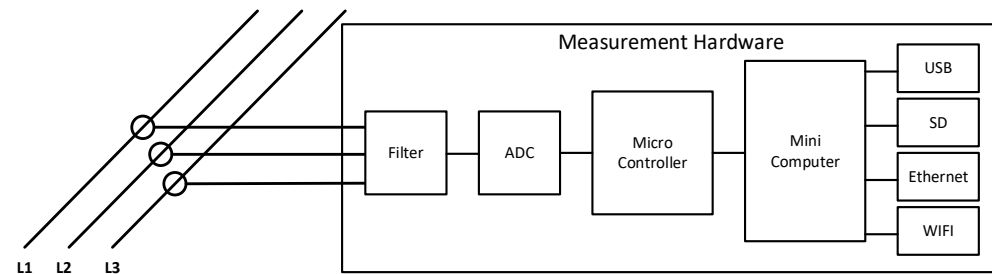


# Hardware of the Prototype



first version

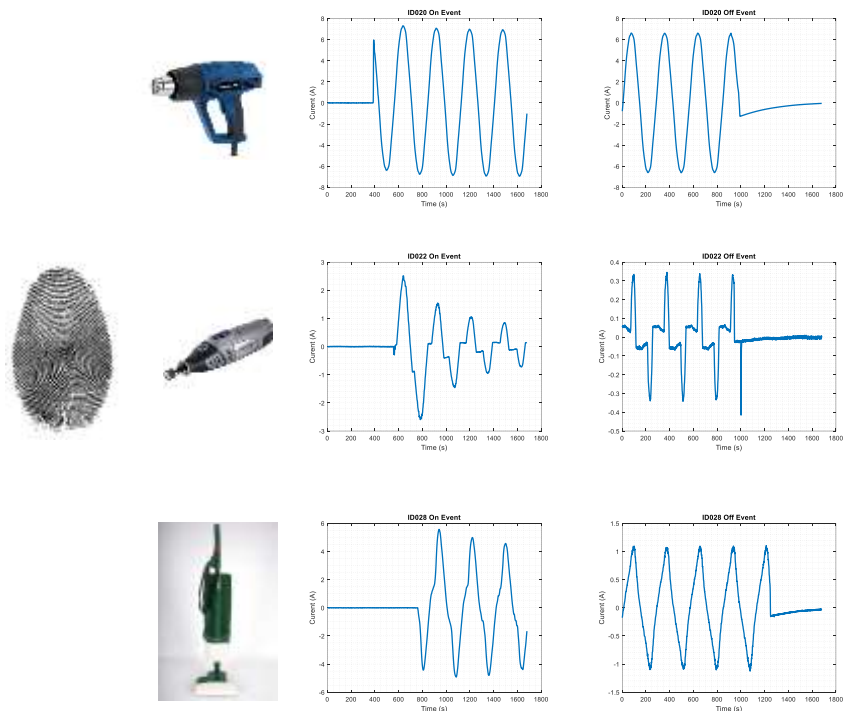
actual version



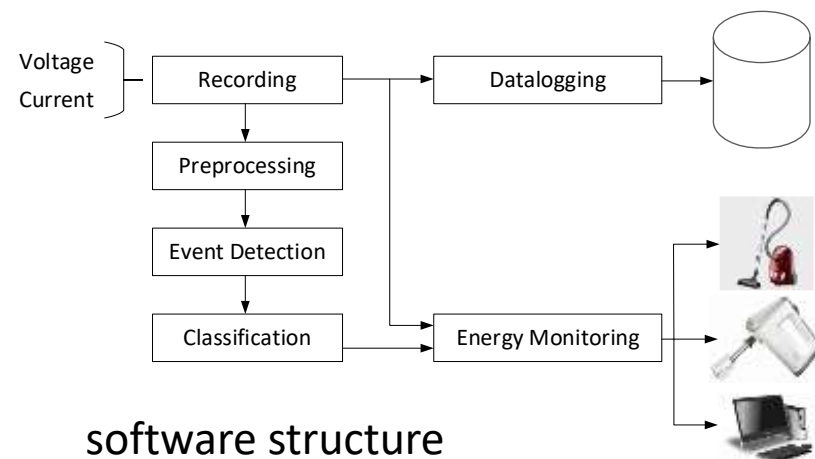
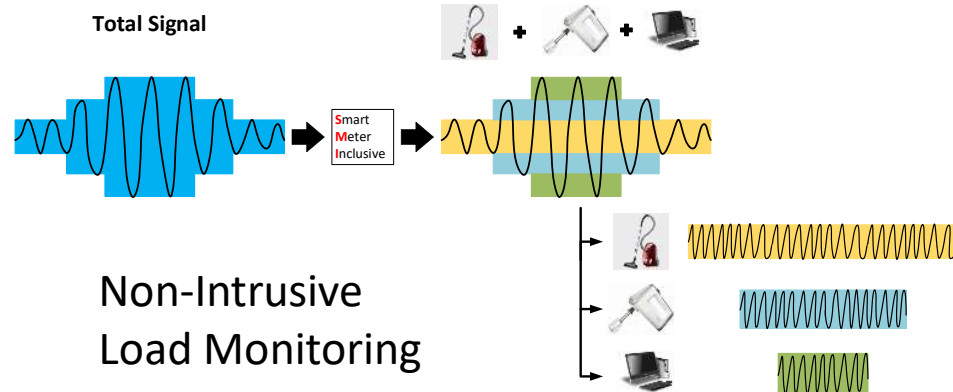
current sensors



# Software of the Prototype



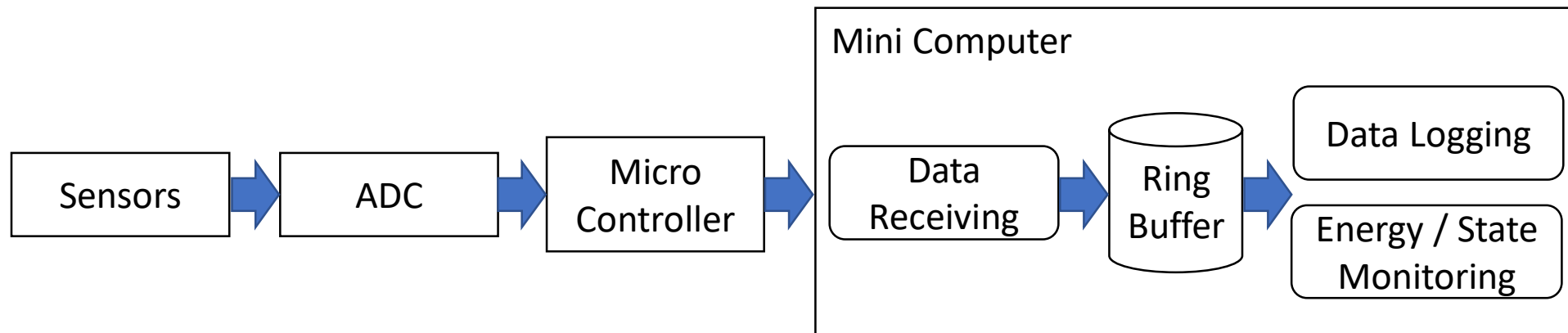
current profile of different appliances



software structure



# Software of the Prototype



**synchron  
data processing**

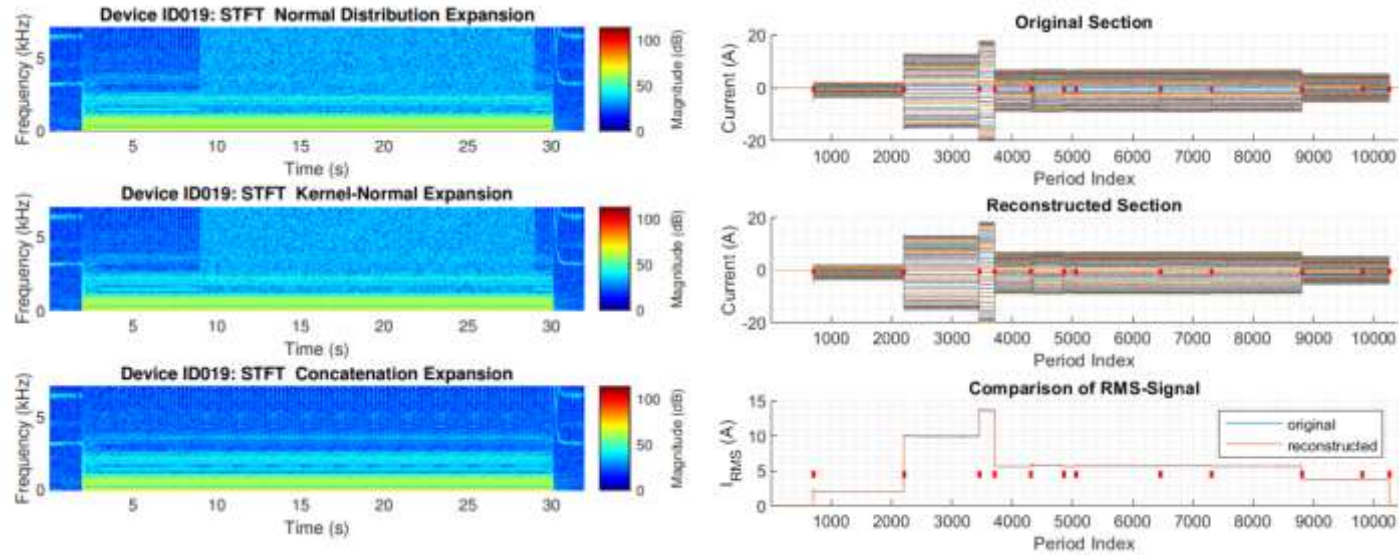


**asynchron  
data processing**



# Research Results and further usage of the Prototype

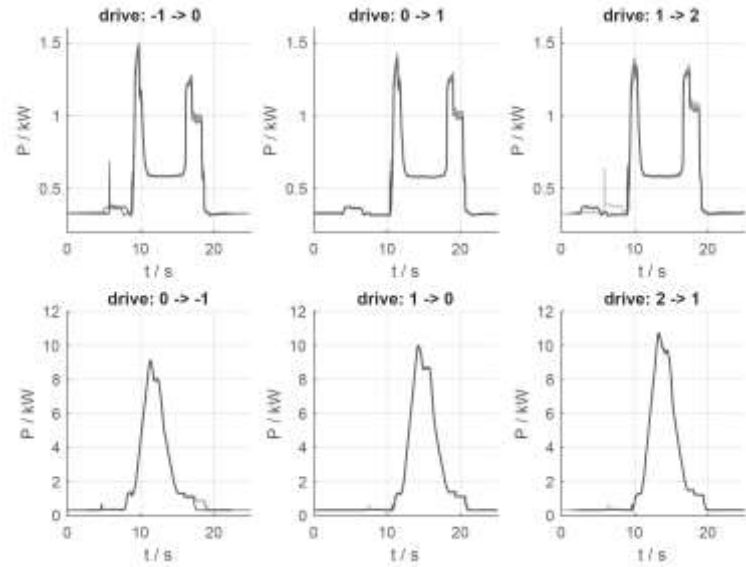
Device-ID	Type	P(W)
ID002	Black Hair Dryer (setting 2)	1155
ID003	Radio	6.2
ID007	Hair Straightener	56
ID009	Heat Gun (setting 1)	820
ID010	Router	9.2
ID012	Black Desk Lamp	20
ID017	Kettle	2100
ID019	Black Hair Dryer (setting 1)	500
ID020	Heat Gun (setting 2)	1603
ID021	Fan 1	22
ID022	Multifunction Tool (Dremel <sup>®</sup> )	30
ID023	LED Lamp	1
ID028	Vacuum Cleaner (Kobold)	210
ID030	WIFI Range Extender	1.4
ID031	Fan 2	22
ID032	Fan 3	22
ID033	Desk Lamp	23
ID035	Angle Grinder Bosch	1800
ID036	Angle Grinder Hitachi	840



recording of appliances and publishing of the HELD2 dataset

reconstruction of signals with parts of single appliance datasets

# Research Results and further usage of the Prototype



State detection  
of elevators



Unsupervised recognition  
of complex appliances



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