JUNE 2023

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Optimize heating and maximize savings

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In Europe, heating is the largest energy consumer...

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HEATING ACCOUNTS FOR

64.4%

OF TOTAL ENERGY CONSUMED IN HOUSEHOLD OR BUILDING

HOT WATER CONSUMES

14.5%

OF TOTAL ENERGY IN HOUSEHOLD OR BUILDING

LIGHTS, APPLIANCES, COOKING, ETC. CONSUMES

21.1%

OF TOTAL ENERGY IN HOUSEHOLD OR BUILDING

Source: Eurostat

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In most of homes and buildings heating works inefficiently

Homes, apartments and offices

Manually controlled heating

- Radiator temperature set 25°C and remains unchanged
- Heating works even when nobody is at home
- The heating works even if it's sunny outside
- Remotely controlled heating requires human control in which people lose enthusiasm after 1-3 months.

Heating provider

There is way more potential in generated data

- Heating inefficiency limits the expansion of district heating to new potential customers.
- Weather temperature drop increase energy demand unexpectedly, causing blackouts.
- Heating performance in homes and offices is not analyzed.
- No heating management from generation to consumption.

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Solution: Heating efficiency through data processing

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Automatic heating on demand without human control

- The heating is activated only when needed.
- Heating is activated in specific areas used by the users.
- Heating adjustment based on weather forecasting.
- Heating temp comfort based on users' preferences.
- Heating Activation based on Geofencing.

Real-time & Forecast Energy Data sharing with heating providers

- Real-time heating consumption analysis.
- Forecast heating consumption analysis.
- Weather forecasting correlation with heating consumption.
- Efficiency expanding network of district heating.
- Heating consumption analysis
- Temperature optimization

Note: Our solution can be used in residential and commercial markets as technology is the same for both markets

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How it works

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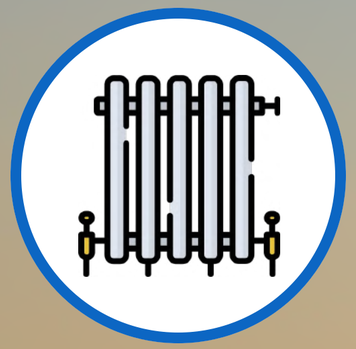

Old radiators has mechanical heat controllers installed

Uninstall old radiator valve

Install Enchele Radiator Valve

Configuring and control with Enchele App and HUB

Users set mechanical radiator valves at 25°C when the heating season starts on 15 October and radiators remain unchanged for the entire winter season until 15 April next year, heating home and office spaces the entire time 24/7.
Replacing the old mechanical radiator valve with Enchele Radiator Valve to heat spaces only when needed can save up to 30% on heating bills. In different scenarios, in offices saves can go up to 40%.

Source: Eurostat, Statista

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Disclaimer: Although the data found here has been produced and processed from a past pilot project in Kosovo and Switzerland, different scenarios affect changes in savings such as the need for a constant +22°C by users who want to have very hot temperatures in their homes or offices and don't want to save on heating bills. Savings are achieved by keeping the home warm at <22°C and heating only when people are there and turning off the heating when nobody is frequenting spaces in homes/offices during non-working (offices) or working hours (homes/apartments).

Enchele Heating System

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Enchele Application

Radiator Valve

Smart Thermostat

Temperature Sensor

Motion Sensor

Window Sensor

Boiler & Heat Pump Controller

Enchele Application:

- Remote Control of Heating in each room/office.
- Set specific schedules for different scenarios.
- Monitor activities, and temperature and detect window openings.
- Geofencing.
- Weather forecasting.
- Bill estimations, calculations, and monthly reports.
- Data sharing.

Hardware:

- The radiator valve controls the heating level.

Additional Hardware:

- The thermostat controls underfloor heating.
- The boiler/heat pump controller controls and monitors the consumption of electricity by the boiler and heat pump.
- Temperature Sensor for rooms bigger than >25m2 to measure temperature.
- Motion Sensor for large spaces to detect movements.
- Window Sensor to detect window/door openings and airflow.

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Key benefits

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Typically, there are areas within buildings that are not actively occupied but they are heated and lights are on all the same since it is very difficult to control heating and lights in specific areas using conventional methods.
Enchele Operating System uses heat controllers to heat only specific areas used by the occupants, by analyzing activities in the building, the system is capable to predict events based on historical and real-time activity which increases energy savings.

- *e.g. 3 people in the living room, the system will heat only the living room. Other rooms may not need lights on, heating, etc.*

Energy Management

Energy monitoring, energy storage (batteries) management, and monthly bill forecasting.

Algorithms automate heating based on activity areas and set the optimal temperatures to increase energy savings by up to 35%.

Notify users for low-tariffs and activates things to run on low-cost tariffs.

Building Automation

Connect, visualize and control all hardware in a single solution. Remotely control lights, appliances and heating systems.

Algorithms automate the building based on preferences and needs of the users.

Automations, scenes, and schedules are set by AI to increase the quality of life and save energy.

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Energy data optimization with grid operators

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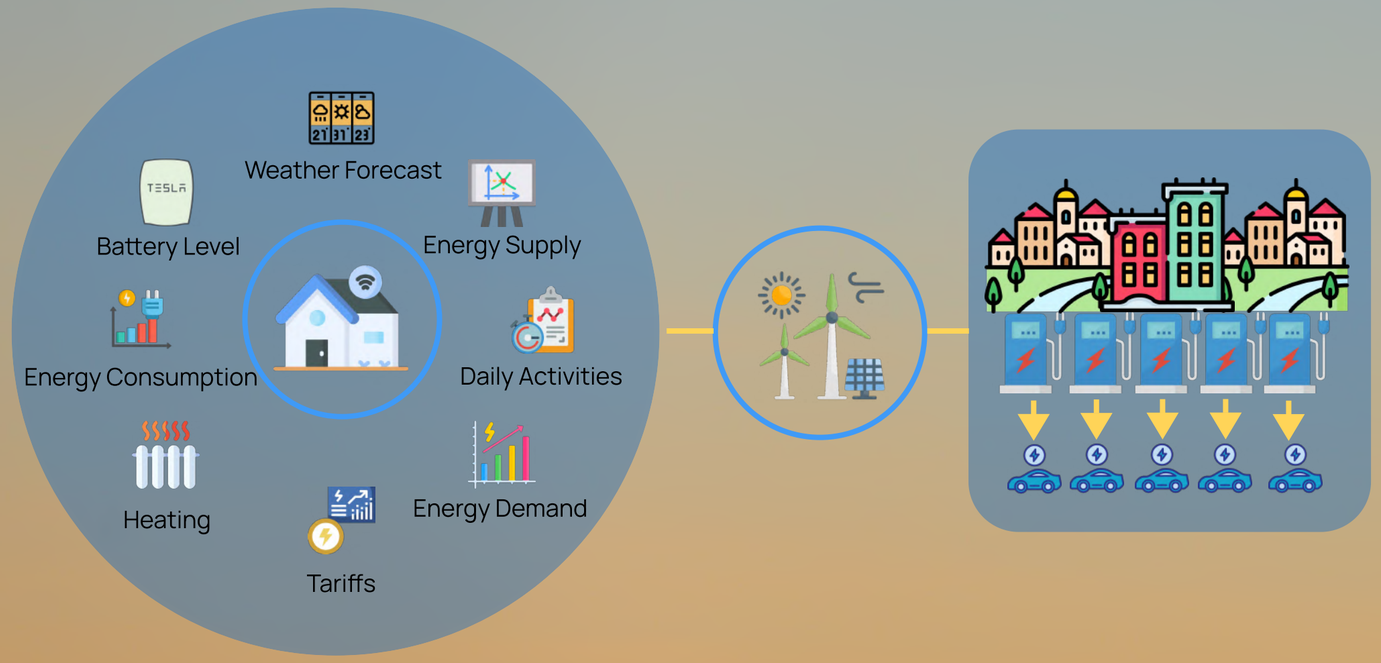

How will grid providers benefit

- Energy prediction analysis and data sharing with grid operators
- Energy generation of solars in buildings and heating predictions based on weather forecasting.
- Peak demand management.

Energy providers are expected to accurately predict electricity usage, but the ongoing electrification, changes in consumer approach to energy use and such things as climate change and extreme weather conditions create a challenge for the supply and distribution side, predominantly thourgh the forecasting. These problems can be managed by the help of our systems, by analyzing the energy performance of the buildings, facilities and sharing such data with the grid operators. Creating a data link between the transmission, distribution and the consumers gives the opportunity to intervene, if necessary, in an automated manner (e.g. using micro level generating and storing facilities/instruments in a cenralised manner).

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Validation: Project (Switzerland)

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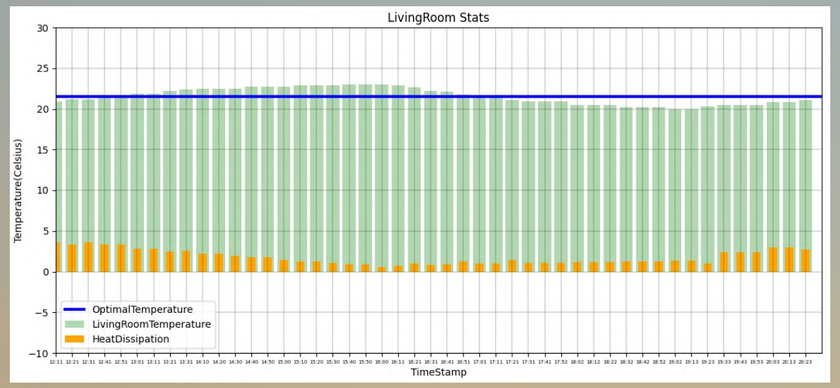

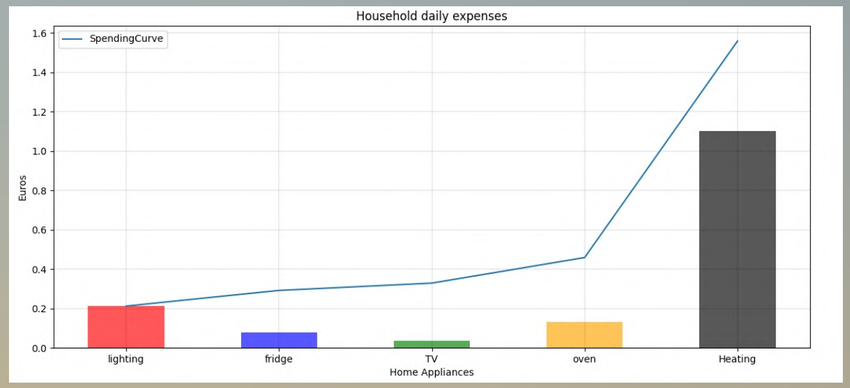

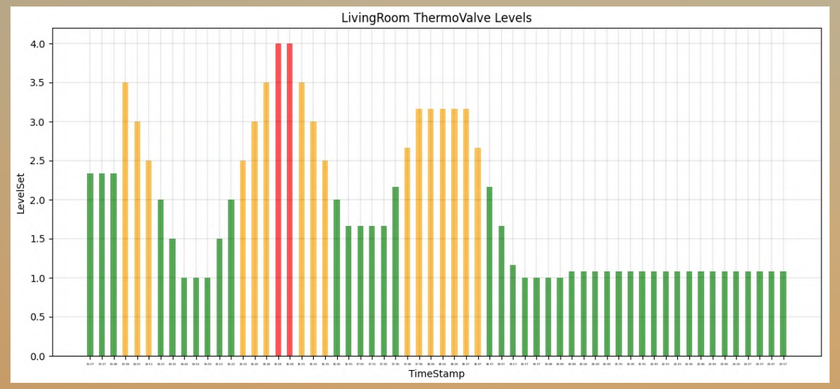

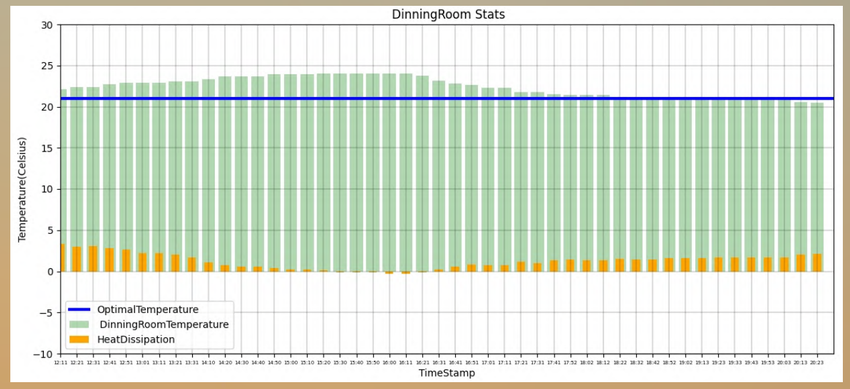

Remote heating control and programmable heating through app

Heating automation based on activity of people inside the apartment.

Heating automation based on weather forecasting

Results:
Up to 30% Savings on heating
Energy consumption predictions

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Meet the team

BAJRAM ILAZI

Energy Industry, Business Operations, Finance, and Strategic Planning,

BRILANTDON NURA

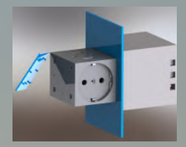
DEVELOPMENT

Developer, IoT Integrator and Data engineering

SAFET RAMA, ADVISER

Company growth, networking, and consultancy.

Experience

2018-2020	POP-OUT OUTLET	
2020-2021	SMART HOME APP	
2021-2022	SMART HOME HARDWARE	
2022-2023	PRODUCT DEVELOPMENT	nectar FOREVER OCEANS nubix
2023	ENCHELE ENERGY	

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Contact

E-MAIL

contact@enchele.com
bajram.ilazi@enchele.com

ADDRESS

Tringe Smajli 43, 10000,
Prishtina, Kosovo

PHONE

XK +383 49 549 386

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