ECOMAI

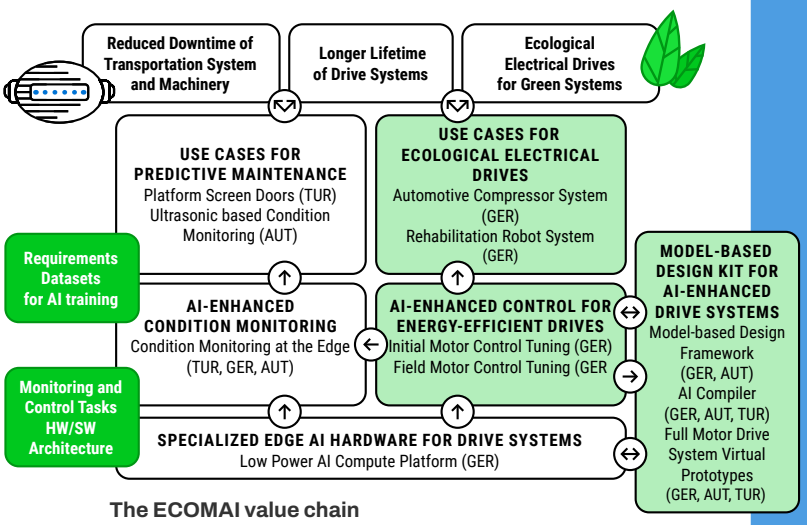
USE CASE ECOLOGICAL ELECTRICAL DRIVES

AI FOR ECOLOGICAL CONTROL OF A AUTOMOTIVE COMPRESSOR

Nowadays up to 40 electrical motors are used in a normal passenger car. With the increasing global mobility this leads to a high potential for energy savings in such applications.
To receive this AI will be used to adapt the control system better to the high dynamics of the load. To tackle these in the segment of low-power microcontrollers we will get used to the TinyML model. This enables us to integrate AI in our drive systems.

MOTEON

Ecological Motor Control and Predictive Maintenance with AI



The ECOMAI value chain

CONSORTIUM PARTNER – INDUSTRY

The technology company based in Ilmenau (Thuringia) offers development services and software for embedded motor control solutions. MOTEON has many years of experience in all areas of mechatronics (control and drive technology, hardware and software development, measurement and testing technology, system engineering and prototype design)

MARKET NEEDS ADRESSED

Higher amount of electrical drive systems leads to higher CO_2 footprint which needs to be tackled by higher energy efficiency
Shortened development cycles at customers lead to decreasing time for problem solving

GOAL: INCREASE ENERGY EFFICIENCY AND PROLONGATION OF MOTOR LIFETIME

AI integration into the control system leads to a more predictive and smoother motor control by which savings up to 5% are targeted. In parallel this decreases the wear of motor parts which increases the motor lifetime.

Penta Eureka Aeneas

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FFG Forschung wirkt

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COMMERCIAL VIEWPONT

An overall approach for using AI in the development environment of motor control algorithm development is not established yet. Therefore, MOTEON will establish a model-based development and test framework incorporating AI elements. This will speed up the development activities and generate the needed qualification artefacts along the way.
As another outcome MOTEON will also strengthen their market position as consulting partner & solution provider of high dynamic compressor or oil-pump for hydraulic drives.

ABOUT PENTA ECOMAI

Electric motors are everywhere from laptop fans to industrial machinery, robots, public transport and more. It has been calculated that electric motors account for 40% of worldwide power consumption and 20% of CO_2 emissions. The mission of PENTA ECOMAI is to address this issue.
The goal is reducing energy consumption and enabling more ecological systems to lead to market opportunities for applications in numerous sectors including automotive, medical and transportation.

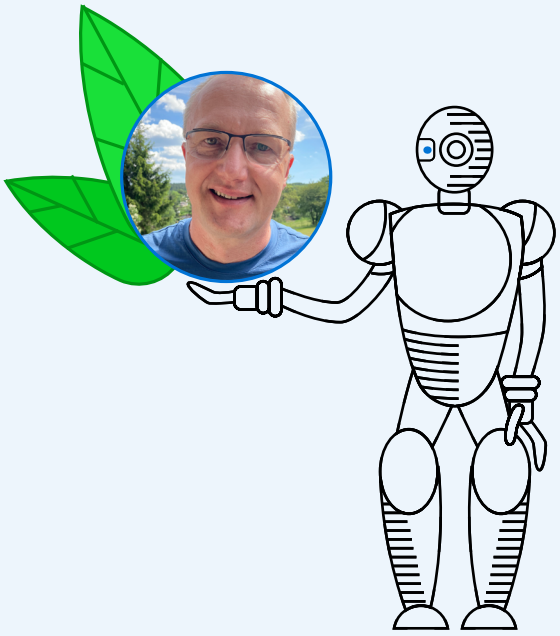
The results from PENTA ECOMAI will:

- enhance electric motor drive systems with an embedded AI system,
- running on a specialised AI hardware platform,
- optimise the efficiency and lifetime of electric motors.

Read more about ECOMAI

ECOMAI

Veit Zöppig, MOTEON chief technology officer about the participation in the ECOMAI project



“Our goal is to develop and use an embedded AI system in order to combine it with our expertise in model-based mechatronics development to improve motor drive systems with dynamic load changes by reducing energy consumption and increasing the lifetime of electric drives in automotive and transportation systems. With the project we support also 2 of our students in their master thesis.”

MOTEON

Read more about MOTEON

www.moteon.com