PREMACOOL

AI FOR PREDICTIVE MAINTENANCE IN COMMERCIAL REFRIGERATION UNIT SYSTEMS

COUNTRY: GREECE

SECTOR: ENERGY

ABOUT

Klimamichaniki was founded in Thessaloniki, Greece in 1984. It is an engineering consultancy and construction company with expertise on all HVAC systems. The company recently pivoted towards research and development via incorporating and applying AI methods within its modus operandi, to develop innovative solutions.

CHALLENGE

The PreMaCOOL pilot focused on leveraging sensor data from a commercial refrigeration system to pioneer AI-based services in a domain lacking such tools. Notably, the development of AI models for energy forecasting and predictive maintenance addressed a gap in the market where monitoring tools exist but lack forecasting or fault prognosis solutions.

HOW THEY USE EOSC SERVICES

The project extensively utilised EOSC services, including OpenAIRE EXPLORE as a starting point, EGI Notebook for code development and visualisation, and the ARGOS was instrumental in crafting a comprehensive Data Management Plan (DMP), which will be a living document guiding data-related aspects throughout the pilot. Additionally, B2SHARE served as a hub for researching relevant datasets, similar applications, and cutting-edge technologies crucial for addressing the project's challenges.

RESULTS

During PreMaCOOL, Klimamichaniki achieved several milestones including the development of accurate anomaly detection models using point-wise and pattern-wise mechanisms. The energy forecasting models with hourly granularity and a 24-hour forecasting depth successfully predicted consumption patterns.

Engagement with the pilot and EOSC DIH led to the conceptualization of two innovative solutions, with one already submitted for funding through EOSC DIH's proposed funding calls. Importantly, HVAC engineers' competence in identifying data-driven solutions for market problems significantly increased, fostering continuous engagement and discussions on the potential implementation of AI solutions to address specific challenges in the domain.

IMPACT

The core idea behind the pilot progressed from conceptualisation and proof of concept to the development of production-ready trained models. The effectiveness of the AI models in addressing the specific problem was successfully validated, and this process solidified Klimamichaniki's vision towards establishing a software service. As a result, TRL increased from TRL3 to TRL5.

TRL 5

1 2 3 4 5 6 7 8 9

BUSINESS PARTNER

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