This project is co-financed by the European Union
and the Republic of Türkiye

UFUK AVRUPA

ICTürkiye2025
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ORGANIZATION: BEKO CORPORATE

WORKSHOP NAME: TWIN GREEN AND DIGITAL TRANSITION OF INDUSTRY

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REPUBLIC OF TÜRKİYE
MINISTRY OF INDUSTRY
AND TECHNOLOGY

#NATIONAL TECHNOLOGY INITIATIVE

COMPETITIVE SECTORS PROGRAMME

TÜBİTAK

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Beko

Beko is an international home appliance company with its subsidiaries in 58 countries and 45 production facilities in 13 countries and 22 brands.

Built-in & Freestanding Major Appliances

- Refrigerators
- Freezers
- Washing Machines
- Dryers
- Dishwashers
- Ovens
- Microwave Ovens
- Hobs
- Hoods
- Warming Drawers
- Water Dispensers
- Water Filtration

Heating Ventilation – A/C

- Air Conditioners
- Combi Boilers
- Water Heaters
- Room Heaters

Consumer Electronics

- TV's
- Smart Phone's
- Notebook's & Tablets
- POS Cash Register
- Hi-Fi Systems
- Portable Audio Systems

Small Domestic Appliances

- Vacuum Cleaners
- Kitchen Appliances
- Personal Care
- Garment Care
- Fans
- Steam Cleaners

Components

- Hermetic Compressors
- Appliances Motor-pumps

45	121	22	55k
Production Plants	Subsidiaries	Brands	Employees

31	+2700	3500	€ 8bn
R&D and Design Centres	Researchers	Patent Application	Revenue in 2023

67 Funded Project (Funded 12 FP7, 25 H2020, 27 Horizon Europe, 2 Digital Europe, 1 Erasmus+

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R&D

Internet of Things
Cybersecurity
Embedded Software
Rapid Prototyping
Optics
Electronic Control Systems
Human Machine Interface
Power Electronics
Computer Aided Engineering
Sensor Technologies
Structural Design & Analysis
Microbiology & Hygiene
ThermodynamicsFluid Mechanics
Cooking Technologies
Cleaning Technologies
Vibration & Acoustics
Metals & Coatings
Polymer Science

Manufacturing

Developing and implementing New Advanced Manufacturing Technologies in Manufacturing Process.

Finite Element software, Data Analytic Software Devolopment Process Design

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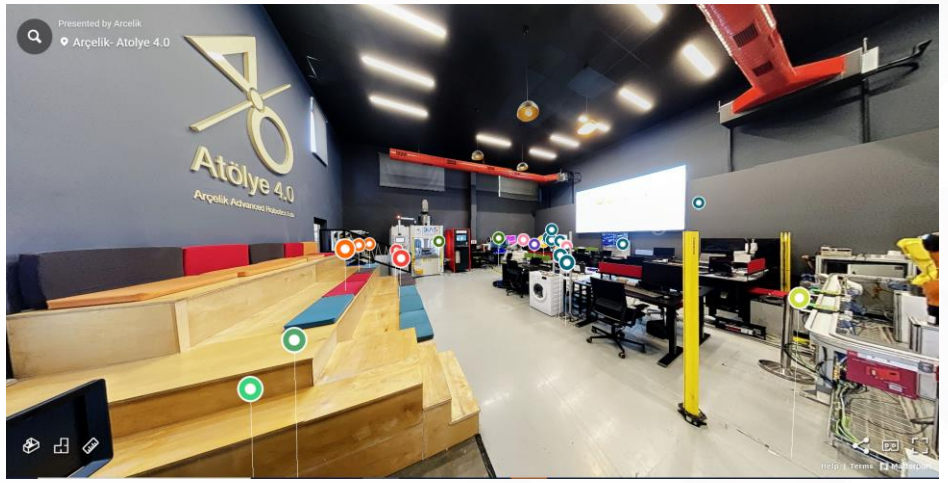
Your Research Fields



Connected and Autonomous Products

- IoT and Home Energy Monitoring, demand response
- AI Powered Autonomous Cooking & Cleaning & cooling with advanced sensors, computer vision
- Predictive maintenance

AI and Robotics use in Production Technologies

- Leveraging Digital Technologies In Manufacturing
- Utilization of AI . Gen- AI and LLM Technologies
- Developing New Advanced Tech. and Product
- AI Agent in Specific Manufacturing Process.

Energy Efficiency in Products

- AI-based Advanced Algorithms and Numerical Optimization
- Inverter Compressors
- Efficient Heat Exchangers
- Detergent and Cleaning Chemistry
- Heat Pump Technologies

Sustainable Technologies

- Water Filtration Systems and membranes
- Solar panel refrigerator
- Biomaterials
- Recycled polymers

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Your On-going Projects

Funded **12** FP7, **25** H2020, **27** Horizon Europe, **2** Digital Europe, **1** Erasmus+

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Your On-going Projects

Funded **12** FP7, **25** H2020, **27** Horizon Europe, **2** Digital Europe, **1** Erasmus+

ZDZW

1 September 2023
31 August 2026

Parameter optimization and zero-waste production with AI-based thermal imaging and sensor integration in the thermoforming production process

213.840 €

DiCiM

1 January 2023
31 December 2026

Automation of remanufacturing centers (disassembly, assembly, and visual inspection [accessory and PCB] processes performed with robotics and AI)

288.750 €

1 January 2023
30 June 2025

Simultaneous product design by designers in different locations with non-public industrial B5G and extended reality tools

222.750 €

CoLLaboratE

1 October 2018
31 March 2022

LCD TV electronic board assembly and screwing process with collaborative robot

387.500 €

rEUman

1 September 2024
31 August 2028

Visual inspection and disassembly with a collaborative robot in the remanufacturing center, application of wearable or collaborative devices to reduce the effect of fatigue

230.000 €

RENÉE

1 January 2024
31 December 2027

Determining the remaining life of critical components of products for remanufacturing centers and optimize quality costs with AI.

200.375 €

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Project Idea

Call Topic:HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-01 , Integrated approaches for remanufacturing

Deadline Dates:

- **Objectives:** Enhancing the utilization of recycled material in the plastic injection molding process presents operational challenges, as higher proportions of recycled content often led to frequent interruptions and require continuous adjustments to process parameters. These disruptions can hinder manufacturing efficiency. This study aims to increase the proportion of recycled material usage from approximately 5% to 15% while maintaining stable production performance. App.annual consumption os +150.000 Ton.

- **Expected Results:** Utilizing sensor technologies embedded within the mold, AI-based algorithms will analyze sensor data to optimize process parameters, ensuring seamless production. The plastic injection molding process involves more than 60 parameters, necessitating real-time feedback control to maintain operational efficiency and product quality. Additionally, an LLM-based chatbot advisor will enhance process management and status visualization, facilitating informed decision-making and operational oversight

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Project Idea

Call Topic:HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-02 Physical and cognitive augmentation in advanced manufacturing

Deadline Dates:

- **Objectives:** Leveraging mobile robot technologies across various operational workstations enables flexible automation and potential human interaction. These robots incorporate self-learning capabilities and quickly adapt to changing conditions. The objective is to deploy mobile robots for multiple tasks across different workstations, replacing fixed robotic automation to reduce investment costs and implementation time.

- **Expected Results:** An AI-based human-robot field management control system facilitates efficient coordination and collaboration between humans and robots. AI-driven mobile robots utilize self-learning capabilities to optimize their performance, achieving over 95% utilization. The system enhances workplace safety, strengthens human-machine collaboration, and employs AI-driven methodologies to support workers, ultimately enabling more efficient and flexible workflows

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Consortium - profile of known partners (if any)

No	Partner Name	Type	Country	Role in the Project
01	Simularge	Start up	Turkiye	Digital Twin, and Data connectivity
02	Rotorbit	Start up	Turkiye	Physic Base Machine Learning
03	Siemens		Turkiye	Technology Provider
04				
05				

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