

VIRTUAL REALITY (VR) AND AUGMENTED REALITY (AR) BASED INDUSTRIAL TRAINING SOLUTIONS

Integrating Virtual and
Augmented Reality for Safer
and Smarter Manufacturing



 **smart**
advanced manufacturing

ORGANISATION PROFILE

Ulus Metal Industry and Trade Inc.

 1991	%100 Turkish Capital Tunalılar Family	 Gebze Kocaeli / TR Zabrze Katowice / PL	 40 M € %45 Export	IATF 16949 ISO 9001 ISO 14001 ISO 45001 TISAX
PLANTS				
 2 Plants 20K m² / 23K m² 1 Plants 27K m² / 7K m²	 2 Plants 345 Employees 1 Plants 64 Employees			
Capabilities				Our Products
Tool/Fixture Desing & Engineering  CATIA AUTOFORM SIEMENS NX HEXAGON		Sheet Metal Forming & Machining  Presses - Transfer (TR10/PL4) - Progressive (8/2) - Hydraulic (4/-) - Manual Tandem (40/9) - Robotic Press Line (1/-) CNC Equip. - Turning (9/-) - M.Center (1/-)		Welding, Assembly & Special Pro.  Welding - Projection (17/7) - MAG (4/1) Assembly - S/A Outer Body - Bracket Assy. - Silicon Application 24Kton material usage, 67M stamping comp. manufacturing, 39M parts sales
Shock Absorber %76 / 1253 Ref 				Brake System %69 / 154 Ref 
Cooling Compressor %67 / 121 Ref 				Other %68 / 129 Ref 



WHAT IS ERKBA

ERKBA is an engineering firm located in the Bilişim Vadisi Technology Development Zone, specializing in the development of software, hardware, machine, AR & VR.



CAPABILITIES



EYLÜL

Physiotherapy and Wellness Center



MEKİPYAZ

Cloud-based industry data tracking platform.



ERKBA

Our facility is equipped with both CNC Routers, 3D printers and mold machines.



VR and multiple device entegration.

OUR SOLUTIONS



PROPOSAL INTRODUCTION (I)

Vision: With this project, we aim to develop an innovative training platform to disseminate occupational health and safety (OHS), machine use training and on-the-job training in industrial facilities by combining virtual reality (VR) and augmented reality (AR) technologies.

Motivation: Traditional training methods in manufacturing are often time-consuming, costly, and limited in realism. Operators face high risks during hands-on learning, and knowledge retention is low. Therefore, implementing immersive VR/AR-based training modules is necessary to minimize production errors, improve worker safety, and accelerate skill development within smart factory transformation.

Content:

1. Occupational Health and Safety Trainings

VR/AR simulations for correct behaviors during disasters (earthquakes, fires, etc.)

Realistic emergency drills in a virtual factory environment

Opportunity to experience risky situations safely in advance

2. Machine Usage Trainings

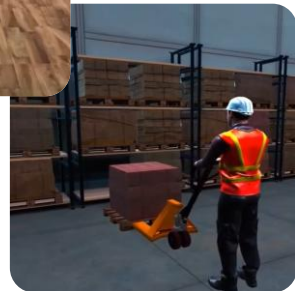
Teaching proper machine usage (press, welding, CNC, etc.) in virtual environments

Advanced scenarios for both beginners and expert operators

3. Digitalization and Dissemination of On-the-Job Training

Developing factory-specific VR/AR modules

Ensuring modules are integrable into other factories



PROPOSAL INTRODUCTION (II)

Expected outcome:

- Save Time and Costs: Faster onboarding and lower training expenses through VR/AR-based simulations; less material and machine resource consumption; shorter production downtime; contributing to sustainability by reducing material waste.
- Improve Safety: Strengthening occupational health and safety culture, reducing operator errors and accidents, and predicting dangerous maneuvers through digital simulations.
- Improve Quality: Virtually verifying the entire process before production begins using VR/AR technology.
- Commercializing the Platform: Developing a modular, scalable training system adaptable across Europe.

Impacts:

- Contribution to safer, more efficient, and digitized manufacturing environments.
- Strengthening workforce skills and reducing training time and cost.
- Potential commercialization of the VR/AR training modules for other industrial companies.

Schedule:

- Start Date: June 2026
- End Date: May 2028
- Duration: 24 months

PARTNERS

Current:

ULUS METAL:

- Real factory environment and production data provider
- Define OHS scenarios (earthquake, fire, flood)
- Define machine operation training (CNC, press, etc.)
- Pilot factory for testing and validation

Partner search:

VR / AR Software Company

- Develop VR/AR training modules
- Design interactive simulations for OHS and machine operations

Occupational Health & Safety (OHS) Specialist / Company

- Provide expertise on industrial safety standards
- Validate safety scenarios (earthquake, fire, flood etc.)
- Help create realistic emergency simulations

ERKBA:

- Develop VR/AR training modules
- Create interactive simulations for defined scenarios
- Ensure scalable platform infrastructure

Industrial Partner / Pilot Factory

- Offer real production data and pilot testing environment
- Provide feedback on VR/AR module usability
- Help validate scalability across factories

Academic / Research Partner

- Provide scientific validation for VR/AR methods
- Contribute to innovative training methodologies and studies
- Support publication and dissemination of project results

CONTACT INFO



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