

ADVANCED MECHATRONICS AND INDUSTRIAL ROBOTICS

This competency combines mechatronic system design with modern industrial robotics to deliver advanced automation solutions. It integrates expertise in mechatronic design, process control, robotic integration, digital twins, and smart manufacturing. The service helps partners design, simulate, and deploy efficient and safe automation systems for industrial and research use.



ACHIEVEMENTS

- Continuous cooperation with industry partners in R&D.
- Participation in regional and EU grants using industrial technologies.
- Scientific R&D approach applied across sectors.
- Contribution to international **ISO TC299 robotics standards**.



INFRASTRUCTURE

- Robot labs with ABB, FANUC, UR, and KUKA systems integrated with PLCs.
- Siemens TIA Portal simulation and programming setups.
- Electropneumatics and drive tech labs for sensor-actuator tests.
- Functional safety and risk assessment stations.
- Digital twin platforms for robotic and intralogistics simulation.
- KUKA LBR iiwa, UR-16e, Fanuc M-430iA/2F, KUKA youBot robots.
- In-house developed serial, parallel, mobile, and humanoid robots.



REFERENCES

- Worked with Air-Con Kft. on a multi-purpose agricultural mobile robot.
- Created AGV simulation for Hydro Extrusion Hungary Kft.
- Developed a robotic cell for REJLEK Metal & Stamping Kft.
- Produced robot-programming training materials with Unix Autó Kft. and Hydro Extrusion Hungary Kft.
- Contributed to ISO TC299 robotics standards with IEEE RAS and euRobotics.