



**INTECRO ROBOTICS**

**26.10.2021**

# About Intecro

- Robotic System Integrator, founded in 2010 in Ankara, 54 employees
- Brings together robotic technologies and innovative manufacturing processes to deliver integrated systems for manufacturers.
- Business Units:
  - General Industry
  - Defence and Aerospace
  - Robotic Equipment
  - After Sales Services
- Intecro delivers
- [Machines That Build Machines](#)



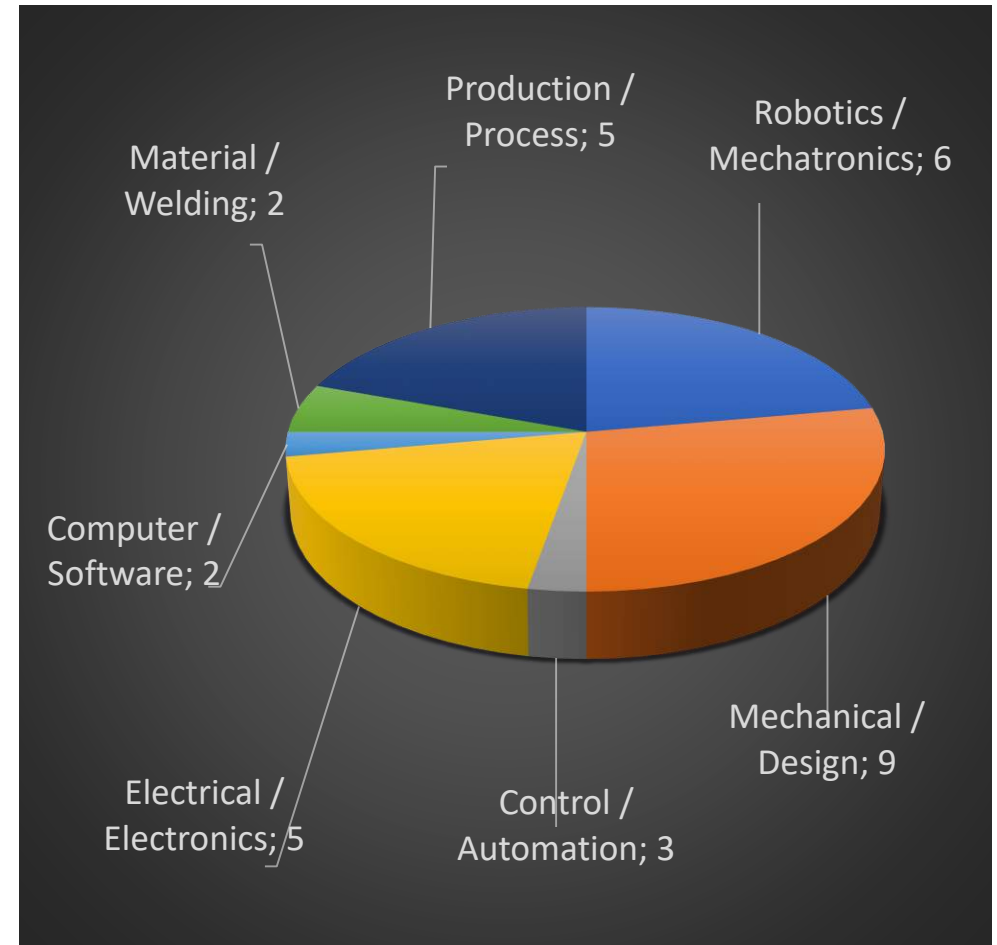
# Employee Distribution

Technical Disciplines: **32** total, **5** MS, **3** PhD

- Robotics / Mechatronics
- Mechanical / Design
- Control / Automation
- Electrical / Electronics
- Computer / Software
- Material / Welding
- Production / Process

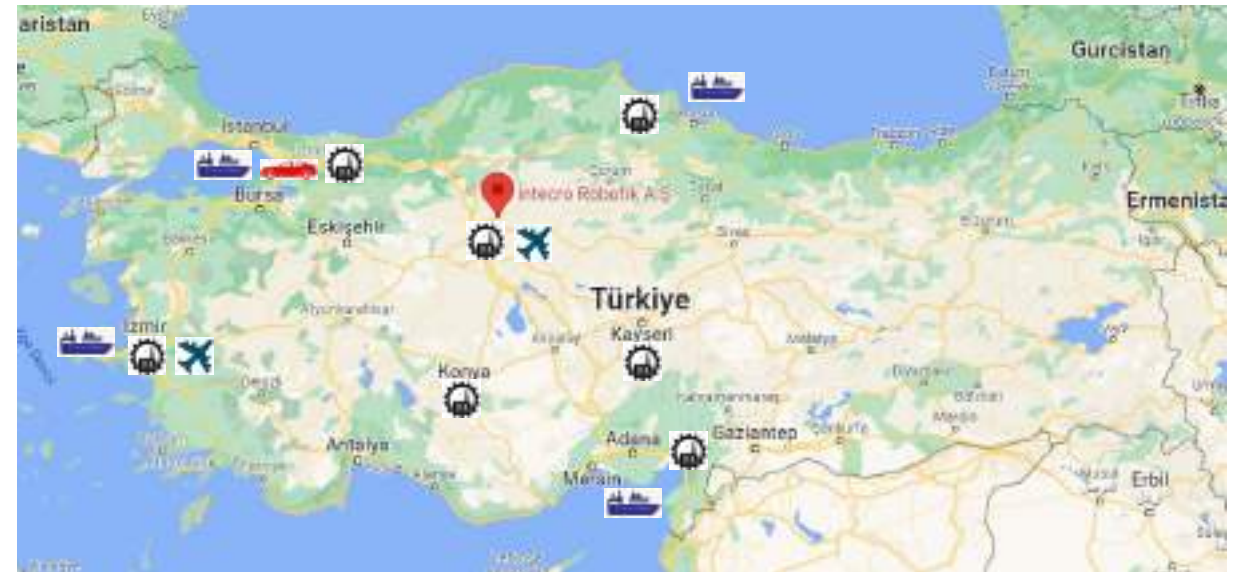
Blue collar workers: **12**

Administrative staff: **10**



# Intecro Headquarters

- Total area: 8.000 m<sup>2</sup>
  - Production: 5.000 m<sup>2</sup>
  - Office space: 1.500 m<sup>2</sup>
- 
- 15 minutes to Ankara ESB airport
  - 5 hrs by car, 1 hr by plane to Istanbul
  - Conveniently located, close proximity to
    - Major ports
    - Industrial zones



# Technical Competencies And Know-how





# Emerging Process Technologies

- Robotic WAAM (Wire Arc Additive Manufacturing) Technologies
- Robotic Composite Technologies
- Robotic Armor Steel Joining Technologies



# Facilities



Administration



Design



Service



Assembly and integration



Robotic welding



CNC plasma cutting



CNC machining



Manual welding

# R&D Center

- In 2017, Intecro Robotics has been granted an «R & D Center» status by the Ministry of Industry and Technology.
- Tax incentives.
- Funding in R&D projects.





# Quality Certifications

- Intecro Robotics has **ISO 9001:2008** Quality Management Certificate.
- All products and systems of Intecro Robotics are **CE Certified**.



ISO 9001:2008



CE Certification

# Software Tools

- Mechanical design (Solidworks)



- Analysis (Ansys)



- 3D CAD/CAM



- Simulation and offline programming



- PLM / PDM

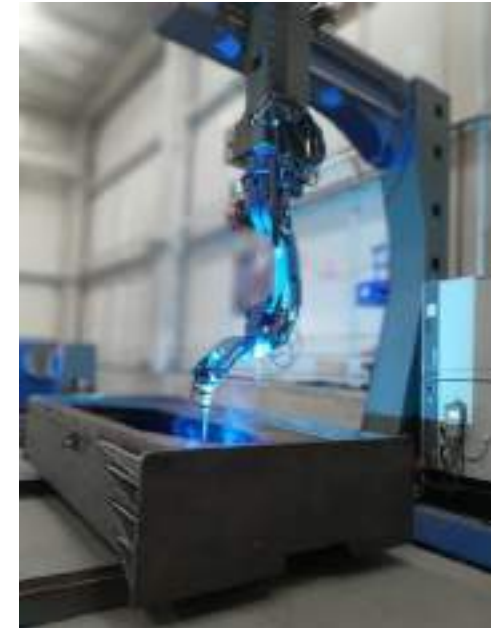


- Embedded software development



# Production

- Plasma cutting
- CNC bending
- Robotic and manual welding
- Heat treatment
- Machining
- Assembly and quality control



# Automation and Programming

- Robot programming
  - Online
  - Offline
- Automation software / hardware
  - PLC
  - HMI
  - Scada
- Cabinet assembly
- Test and calibration
- Instrumentation





# General Industry Business Unit



# Defence & Aerospace Business Unit

- **ARMOUR VEHICLE PRODUCTION LINES**
- **AMMUNITION & ORDNANCE PRODUCTION SOLUTIONS**
- **COMPONENT PRODUCTION LINES**

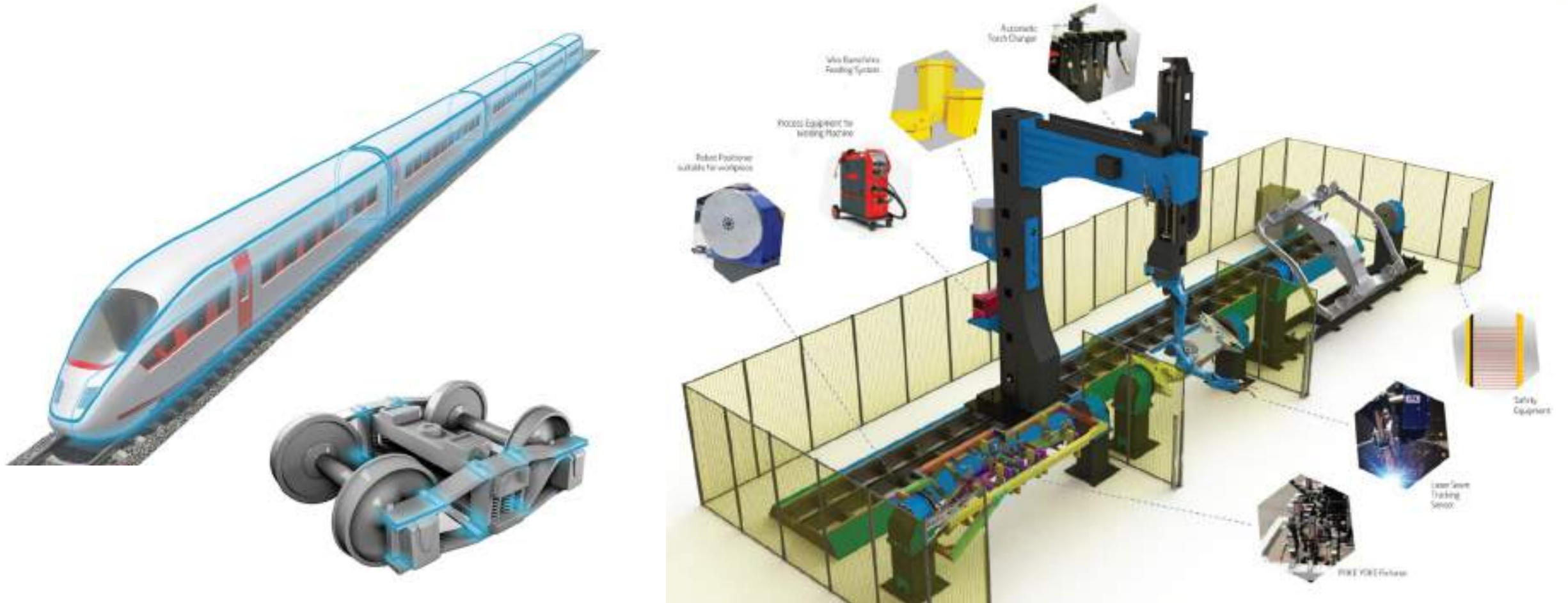




# Robotic Equipment Business Unit



# Custom-made Integrated Systems





# Intecro's Technology Partners



**IPG  
Photonics**  
Made in  
USA



**Kuka  
Robotics**  
Made in  
Germany



**Fanuc  
Robotic**  
Made in  
Japan



**SIFF Spot  
Gun Tech**  
Made in  
Turkey



**Robital robot  
peripherals**  
Made in  
Turkey



**Siemens**  
Made in  
Germany



**Schunk  
Inteck**  
Made in  
Germany



**Fronius  
Electronics**  
Made in  
Austria



**Precitec  
Laser GmbH**  
Made in  
Germany



**Piab  
/Shmalz**  
Made in  
Germany



**FESTO**  
Made in  
Germany

# Robotic Gantry Welding Line

- Turkey's largest «**Gantry Robot Line**»
- Welding of aluminum passenger wagons
- 180 meters total length
- Twin-wire CMT welding
- Camber mechanism
- Laser sensing
- Hydraulic jigs



**TURASAS**



# Aluminum Profile Welding Line





# Vagon Body Final Welding Process





# Full Penetration Armor Steel Welding

- Armor Steel Welding (Cobra-II and Arma Military Vehicles)
- %98 success in full penetration welding during mass production

**Otokar**



# Welding of APCs

- Gantry welding line
- "Kirpi II" and
- Amazon" armoured personnel carriers.

**BMC**



# Robotic 3D Plasma Cutting

- Plasma and oxy-fuel cutting of tank sections and dish heads.
- CAD data based offline programming for 3D cutting.
- Laser sensing.





# CMT Welding of Electrical Enclosures

- Welds tested against leaks using Helium.
- CMT welding system.
- Laser seam tracking





# Robotic Welding of Bus Components

- Synchronized motion in 18 axes.
- Vertically moveable positioners.
- Laser sensing
- 11 fixtures.



# Plasma Cutting and Welding of Bus Chassis

- Robotic x-y-z gantry system
- Plasma cutting
- MAG welding
- Offline programming

**ISUZU**





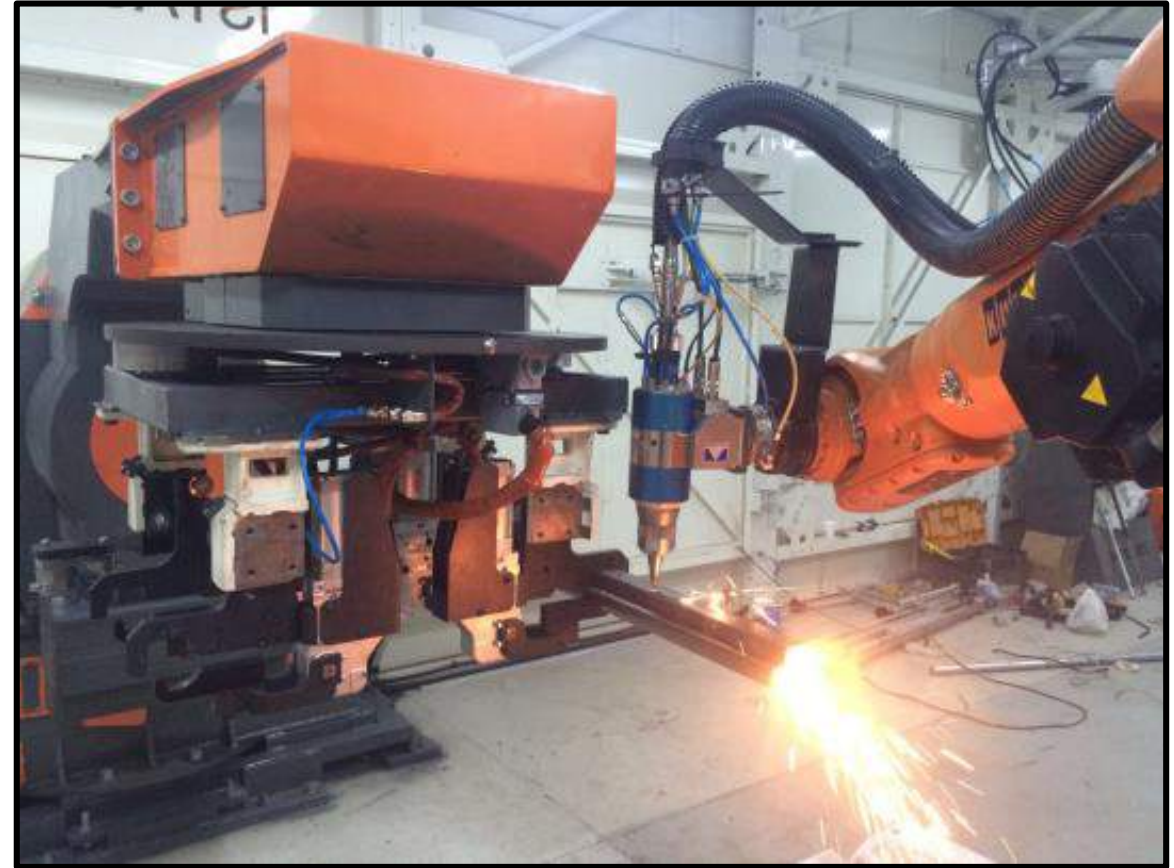
# Robotic Pillar Gantry Welding Line

- Welding of vagon chassis up to 18 m.
- 20 ton payload positioners.
- Rotating pillars with vertical stroke.
- Synchronized motion in 19 axes.



# Robotic Laser Cutting Line

- Laser cutting of a wide range of profiles and pressed sheet metal parts used in tractor cab production.
- Offline programming.





# Robotic Welding Line

- Elevator parts.
- Spot welding and arc welding system.
- Custom positioners design for space savings.



# Robotic Spot Welding Line

- Spot welding
- Seat components
- Safety components





# Engine Assembly Line

- Diesel engine assembly.
- Flexible automation.
- CNC tending.
- Machine vision.
- Bolt screwing.
- Torque control.





# Robotic Laser / Laser Hybrid Welding and Cladding

- Hybrid gantry-positioner concept.
- Synchronous motion in 11 axes.
- Offline programming.
- Production of missile components



# After Sales Services Business Unit

Network of partners and integrators.

Responsibilities:

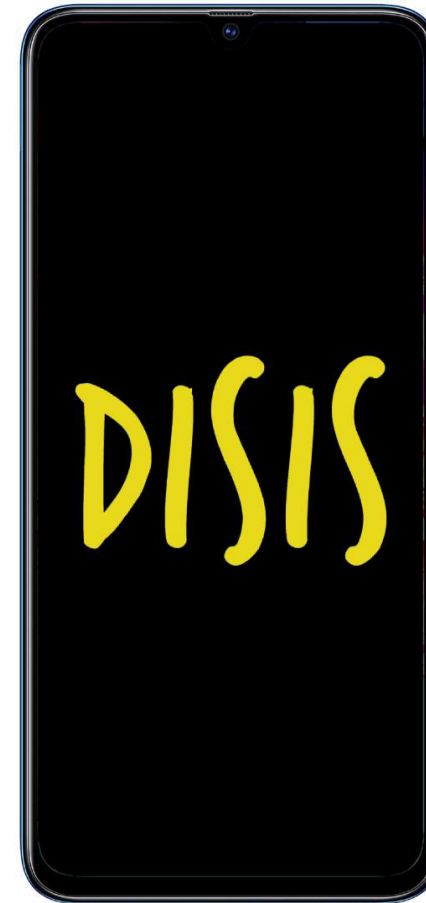
- «DISIS» management
- Remote service utilising AR
- Local service and periodic maintenance
- Supply of spare parts and consumables
- System revisions and retrofits
- Service contracts
- Training
  - In-house, on site, remote
- Qualified personnel services



# DISIS - Digital Transformation for the Smart Factories of the Future

I AM DISIS, Intecro's platform applicable to all the smart #hashtags!

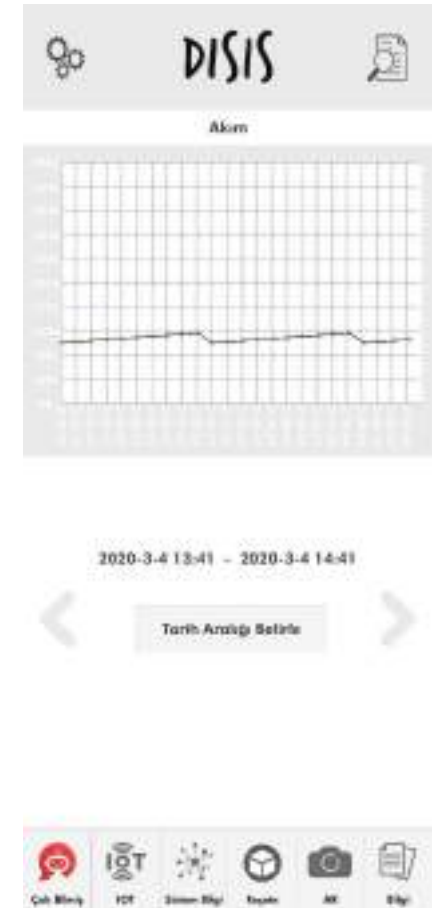
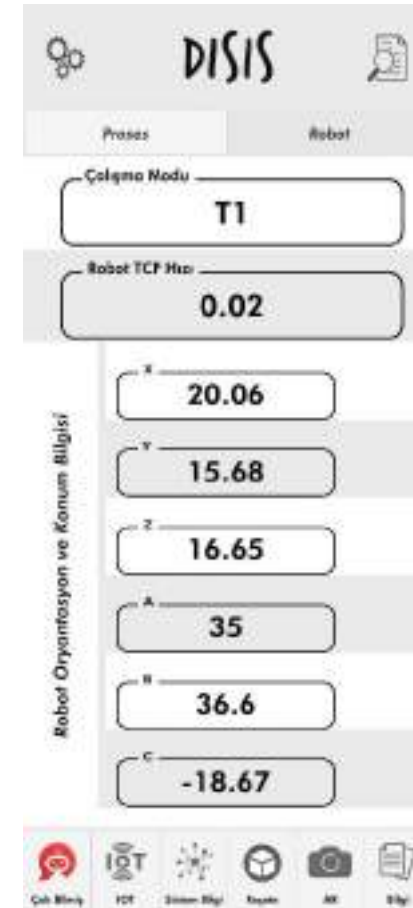
- # Augmented Reality
- # Mobile Technology
- # Remote Service
- # Robotics
- # Automation
- # Data Analysis
- # Smart factory





# DISIS - Traceability

- I am user friendly
- I provide advanced traceability
- I make it possible to track
  - Machine uptime
  - Machine run rate
  - Machine utilisation
  - Consumable components
  - Energy consumption

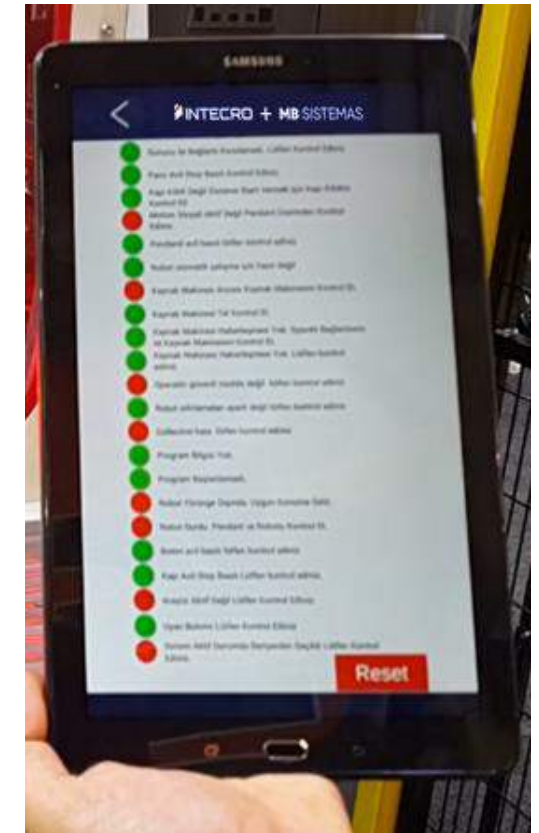


# DISIS – Maximised Uptime and Support

I try my best to maximise uptime, but in case something goes wrong

- Communication with other machines
- Notification of personnel
- Alarm and fault logging

you'll be the first to know.



# References







More Innovation