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# BANA TECHNOLOGY

## ICTurkey 2016

**Gökhan BERKER**

**CEO**

**Bana Teknoloji Geliştirme A.Ş.**

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## BANA TECHNOLOGY

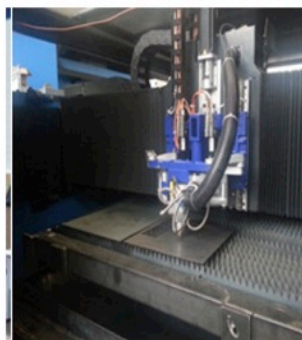
BANA TECHNOLOGY is robot manufacturer and technology developer, located in Turkey/Izmir Technology Development Zone. BANA is the only member of EuROBOTICS from Turkey.

### *Products:*

CNC Feeding Robot  
Simulators  
Plasma/Laser Cutting Robots  
Gasketing Robots

### *R&D Projects:*

Collaborative Robots  
Haptic Systems & Teleoperation  
Ultra High Speed Robots  
Magnetic Actuators



# BANA TECHNOLOGY

## MANAGEMENT TEAM & ADVISORS

## WORKSHOPS



**Gökhan Berker, CEO, MSc**  
Robotics R&D



**Barış Oğuz Gürses, CTO, PhD**  
Mechatronics R&D



**Gökhan Kocabekirler, CMO**  
Mechanical Design



**Armağan Ergün, CINO, MSc**  
Electronics R&D



**Can Dede, PhD**  
Advisor  
Izmir Yuksek Teknoloji Inst.  
IYTE Robotics Lab. Director  
Robot Control



**Erkin Gezgin, PhD**  
Advisor  
Izmir Katip Celebi Üni. IKCU  
Rehab & Surgical Robotics  
Lab Director  
Mechanism Theory

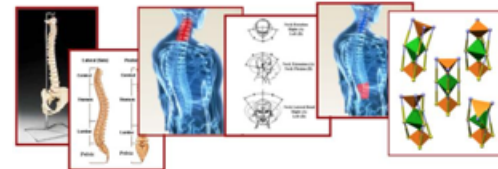
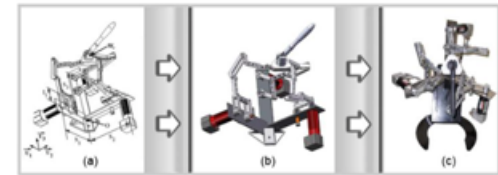


## SUPPORTERS & MEMBERSHIPS



## BANA TECHNOLOGY – SELECTED FUNDED PROJECTS

- “HIPHAD-High precision haptic device design” / **FP7-PEOPLE**
- “Design and Development of a Hand Rehabilitation Robot for Medical Applications”/ **IKCU Surgical Reh. Lab & DGIST (KOREA)**
- “NeuRoboScope: Robot Assisted endoscope Control that can be controlled by the surgical tools ” / **TÜBİTAK**
- “GAMALINK Generic SDR-bAsed Multifunctional spAce LINK” / **FP7-SPACE**
- “CAROFEX Control of Assistive Robot with Facial Expressions” / **KORANET & FP7**
- “CNC Feeding Robot”/ **TÜBİTAK**
- ”SAHİCi - Human-Machine Interface for Enhancing Telepresence in Virtual Reality” / **Turkey Ministry of Industry**

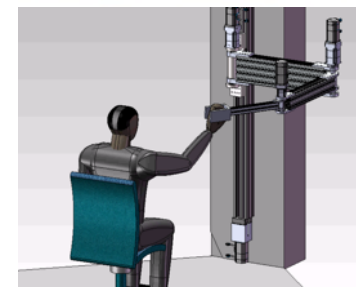


**Selected Publications:** <http://web.iyte.edu.tr/~candede/publications.html>

## BANA TECHNOLOGY SELECTED WORKS

### *REDUNDANT & COLLABORATIVE ROBOT WORKS*

- ✓ Kinematically Redundant Robots and Compliant Control
- ✓ Extended workspace and flexibility
- ✓ Hand Guidance
- ✓ Force and Torque limiting and collision avoidance optimizations in collaborative operation
- ✓ Maximum velocity and acceleration optimisations in autonomous operation



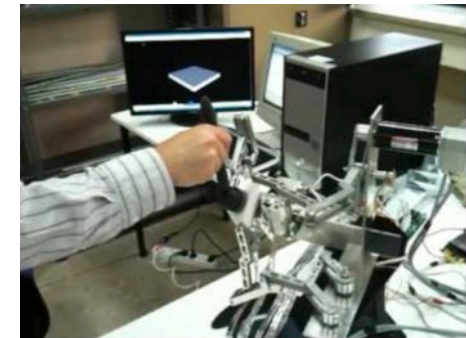


## BANA TECHNOLOGY SELECTED WORKS

### HAPTIC DEVICE AND TELEROBOT SYSTEM

- ✓ Bilateral Force / Position feedback interaction with simulation and/or with real World
- ✓ Unique mechanism design for extending workspace in small footprint and reducing control load
- ✓ Kinematically redundant Slave Tele-Robot developed for interaction with real World

HIPHAD



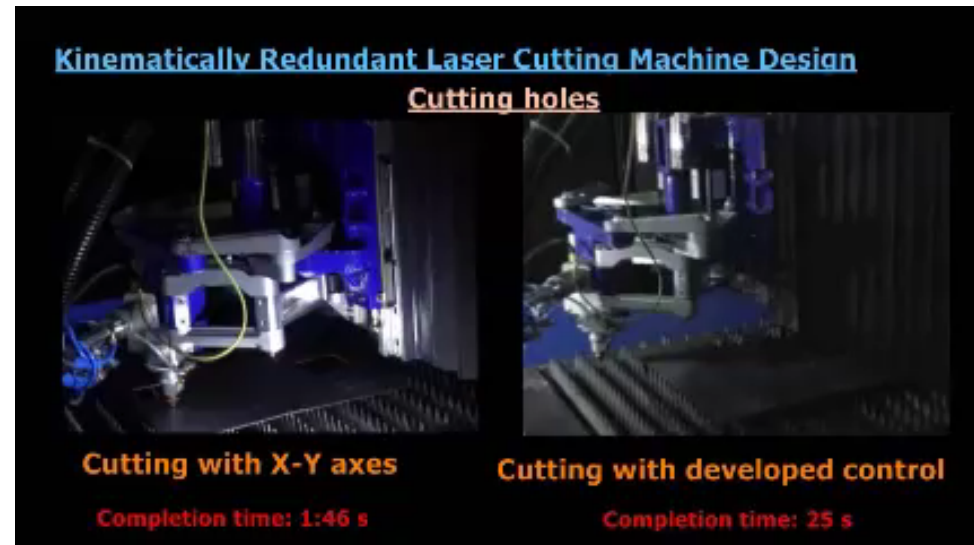
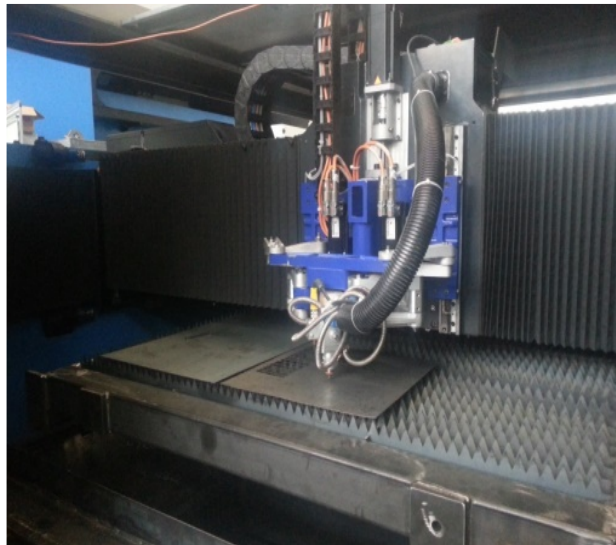
TELEROBOT



## BANA TECHNOLOGY SELECTED WORKS

### ULTRA FAST LASER CUTTER:

- ✓ A custom local robot installed to standard 3 Axis Gantry type CNC cutter and custom controller developed
- ✓ Using redundancy and maximum acceleration optimizations cutting speed accelerated 10 times comparing with standard Laser Cutting systems
- ✓ Custom mechanism is developed to ease control and counter-balancing



# BANA TECHNOLOGY – LOOKING PARTNERSHIP IN CONSORTIUM

## FOCUS AREAS

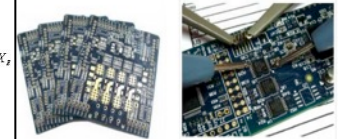
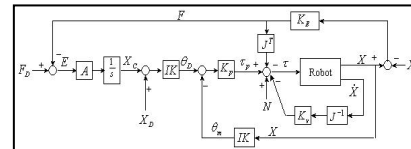
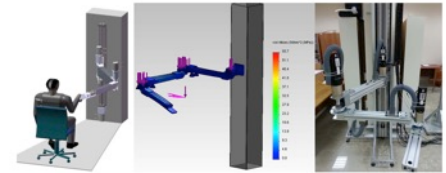
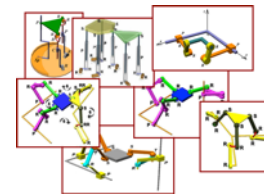
*Collaborative Robots*

*Surgical & Rehabilitation Robots*

*Haptic Systems & Tele-Operations*

## BANA CONTRIBUTION

- *Mechanism Design*
- *Robot Control*
- *Haptics & Tele-Operation*
- *Electronical Design & PCB production*
- *Mechanical Design & Production*



# Hope to Collaborate THANK YOU

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