

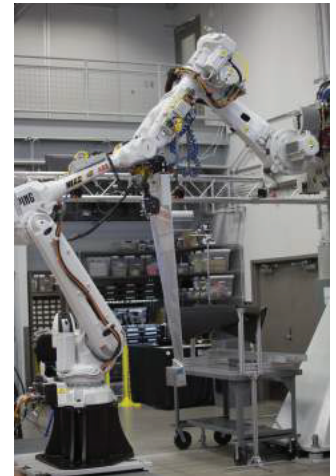


ROBOTICS & AUTOMATION

The robotics and automation laboratory supports the local and national manufacturing industry automation systems and processes. The robotics and automation lab serves supports industry with everything from concept development through full implementation and integration of industrial and collaborative robots and automation products. The robotics and automation lab is supported by robotic OEM's as well as a wide variety of automation hardware suppliers. With over 40 robots of various sizes and over 7 different brands, the robotics and automation lab can cover industry needs from R&D through implementation.

→ CAPABILITIES

- Test and Validate Automation processes
- Develop and validate Industrial robotic systems
- Develop and validate collaborative robotic systems
- Develop and validate automation devices and systems
- Utilize industry proven hardware and software throughout automation projects
- Develop and validate PLC and robotic programs in native robot languages
- Develop and validate custom automation applications and software
- Develop and test cybersecurity for industrial control systems
- Full laboratory and workshop for construction and development of automation components



→ CURRENT INDUSTRY PARTNERS

- BCG
- Spirit
- Airbus
- Hexagon
- Dassault Systems

→ CONTACTS

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- ARM Core University Member
- North Central Regional Robotics Innovation Collaborative (RRIC)



WICHITA STATE UNIVERSITY
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FOR AVIATION RESEARCH



Advanced
Robotics
Manufacturing
Institute



Industrial Robots

- **Eight ABB IRB 120**
 - 3 KG Payload Capacity
 - IRC 5 Compact Controller
 - .58 Meter Reach
- **ABB IRB 1200**
 - 7 KG Payload Capacity
 - .7 Meter Reach
 - IRC 5 Compact Controller
 - ATI Automation Tool Changer
- **Four ABB IRB 4600-40/2.55 Robots on IRBT 4004 Tracks**
 - Ran by two ABB IRC 5 Controllers with Multi-Move
 - Two 4600 robots per track
 - One track has 4.9 Meters Travel, One track has 6.9 Meters Travel
 - 40 KG Payload Capacity
 - 2.55 Meter Reach
 - ATI Automation Tool Changers
- **ABB IRB 4400-60 Robot & Dual Axis Positioner**
 - 60 KG Payload Capacity
 - Laser Configuration for ultra high accuracy
 - Contains an Integrated Vision Interface and Vision camera
 - ABB IRBP 250A Dual axis positioner
 - IRC 5 Controller
 - ATI Automation Tool Changer
- **ABB IRB 6620LX Dual Carriage Gantry with two ABB IRB 6620 robots**
 - Ran by an ABB IRC 5 Controller with Multi-Move
 - 150 Kg Payload Capacity
 - Gantry is 7.4 Meters Long, 3 Meters High
 - 1.9 Meter Reach
 - ATI Automation Tool Changers
- **ABB IRB 6600-175/2.55 Robot with Single Axis Positioner and Track**
 - 175 Kg Payload Capacity
 - 4.9 Meter Track
 - MTD 750 Turntable with 750 Kg Capacity
 - IRC 5 Controller
 - ATI Automation Tool Changer
- **ABB IRB 7600-500/2.55**
 - 500 Kg Payload Capacity
 - 2.55 Meter Reach
 - IRC 5 Controller
 - ATI Automation Tool Changer
- **Two KUKA HA-60**
 - High Accuracy configuration
 - 60 Kg Payload Capacity
 - KRC4 Controller
 - ATI Automation Tool Changers
- **Three KUKA KR6 R700 sixx Robots**
 - 6 Kg Payload Capacity
 - .7 Meter Reach
 - KRC 4 Compact Controller
- **Fanuc M-1iA/0.5A Spider Robot**
 - 0.5 kg Payload Capacity
 - 0.1 Meter Reach
 - R-30iA Controller
 - 2D iRVision Camera
- **Fanuc M-10iA Assembly Robot**
 - 10 kg Payload Capacity
 - 1.632 Meter Reach
 - R-30iA Controller
 - 3D iRVision Camera
- **Fanuc M-10iA Robot**
 - 10 kg Payload Capacity
 - 1.632 Meter Reach
 - R-30iB Controller

- **Fanuc M-20iA Pick-and-Place Robot**
 - 10 kg Payload Capacity
 - 1.811 Meter Reach
 - R-30iA Controller
 - 2D iRVision Camera
- **Fanuc ARC Mate 50iC/5L Welding Cell with Lincoln Electric Welder**
 - 5 kg Payload Capacity
 - 0.892 Meter Reach
 - Fanuc ARC Mate Controller
- **Fanuc LR Mate 200iD Robot**
 - 7 Kg Payload Capacity
 - .717 Meter Reach
 - R-30iB Mate Controller
- **Two Yaskawa Motoman YR-EA1400N-A00 Welding Robots**
 - 3 kg Payload Capacity
 - 1.39 Meter Reach
 - NX100-EA1400 Controller
- **Yaskawa Motoman YR-SSA3-A00 Robot**
 - 3 kg Payload Capacity
 - 1.39 Meter Reach
 - NX100-SSA2000 Controller
- **Yaskawa Motoman YR-MH5F Robot**
 - 5 kg Payload Capacity
 - .7 Meter Reach
 - FS100-MH5F Controller
 - Cognex In-Sight Vision Camera
- **Kawasaki KF192 Painting Robot**
 - 20 kg Payload Capacity
 - 1.9 Meter Reach
 - E-Series Controller
 - Cognex In-Sight Vision Camera
- **Kawasaki ZZX200S Spot Welding Robot**
 - 200 kg Payload Capacity
 - 2.9 Meter Reach
 - E-Series Controller
 - Refill Friction Stir Spot Welding End Effector



COLLABORATIVE ROBOTS

- **ABB YuMi Robot**
 - 500 gram Payload Capacity
 - 500 mm Reach
 - Dual Arm with Vision
 - Dual Flex Feeders with Vision
- **Two UR-10 Universal Robots**
 - 10 kg Payload Capacity
 - 1.3 Meter Reach
 - Robotiq 2 Finger Gripper
 - Robotiq 3 Finger Gripper
 - Robotiq Force Sensor
 - Robotic Vision Camera
- **Two Baxter Robots**
 - One Research Edition, One Manufacturing Edition
 - 7 Degrees of Freedom per Arm
 - 2.2 kg Payload Capacity
 - ROS operating system
- **UR-5 Universal Robot**
 - 5kg payload Capacity
 - 850mm Reach



MOBILE ROBOTS

- **MiR100**
 - 100kg Payload
 - 300kg Tow Capacity
 - Internal Autonomous Navigation
- **Clearpath Ridgeback**
 - 100kg Payload
 - Omni-Directional
 - ROS Based
 - Internal Autonomous Navigation
- **Two Clearpath Husky**
 - 75kg Payload
 - Skid steer
 - External Autonomous Navigation



ADDITIONAL LABORATORY EQUIPMENT

- Allen Bradley Control Logix, Compact Logix, and Micro Logix controllers
- Siemens Controllers
- Unitronics PLC + HMI
- Numatics G3 Fieldbus
- Allen Bradley Guard Logix
- SICK Safety Scanners
- Schunk Grippers
- Robotiq Grippers
- ATI-Automation Force Control Sensors
- ATI-Automation Tool Changers
- 5-15 HP PDS Spindle Motors with Automatic Tool Changers
- Piab Vacuum Components
- Keyence Barcode Scanners
- Keyence Profile and Point Sensors
- SICK Distance Laser Scanners
- Cognex Vision Systems
- ATI-Automation Collision Sensors
- 100 & 20lb per hour Strangpresse Extruders
- Dri-Air Material Delivery System
- ARTTRACK5 Tracking System with 24 Cameras
- Dassault Systems 3D Experience



WORKFORCE TRAINING AND EDUCATION

- Online Robotic Programming
- Offline Robotic Programming
- PLC and Logic Control Systems Programming
- Robot Cell Design
- Robot Maintenance
- Robot and Automation System design



SUPPORT LABORATORIES

- Reverse Engineering
- Additive Manufacturing
- Computation Mechanics
- CAD/CAM Laboratory
- Virtual Reality



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