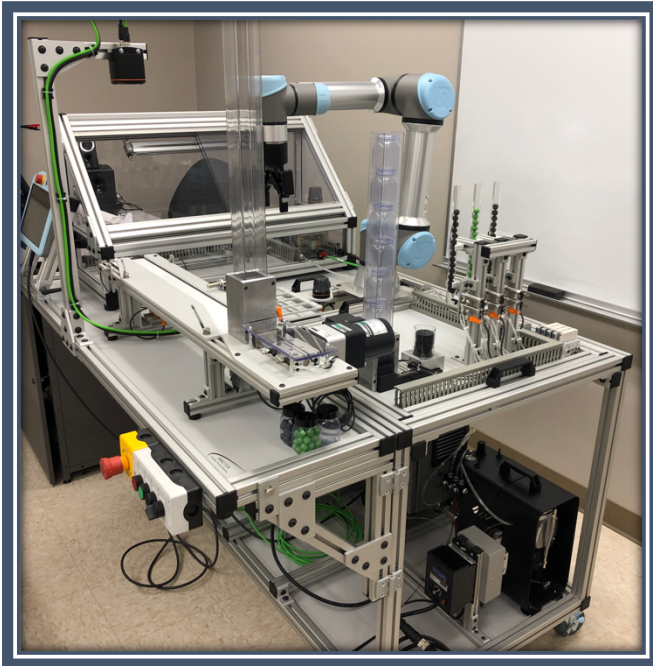


Model RTS-200 Robot Training System

The RTS-200 Training system provides participants with a hardware platform for performing hands-on development for robotic operations. The mobile platform includes various applications which can be quickly installed to provide advanced activities, expanding the learning objectives beyond simple pick and place functions.



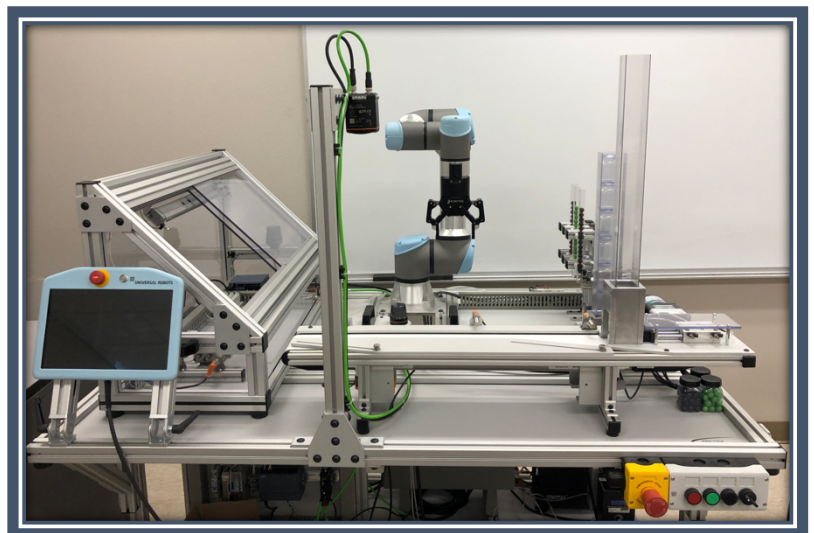
Base System Components

- Mobile Aluminum Frame
- 120Vac Power Entry
- Integrated Robot (Any Brand)
- Robot Controller
- Operator Control Panel
- Integrated Air Compressor
- Multi-Color Indicator Light
- Gripper and
- Base Application Packages
 - Drawing and Writing
 - Pick and Place
 - Basic Palletizing
 - Basic Warehousing and Storage Station

Base System Shown Along with the Production, CNC Machine Tending and Conveyor Applications

Add-On Applications

- Production Application
- Assembly Application
- Variable Speed Conveyor with Sensors
- Warehousing and Storage Application
- CNC Machine Tending Application
- Advanced Palletizing Application
- Quality Control and Measuring Application
- PLC (Any Brand)
- HMI (Any Brand)
- 2D Vision Inspection
- 3D Vision Guidance
- RFID



All add-on applications are designed to quickly be integrated onto the platform. Each application is included on a standard frame or mounting bracket which utilize thumb screws. All wiring connections are made via quick connect cables providing all power and I/O connection points.

Production Application

Includes component to provide the full operation of a robotic controlled ordering process. The user will select a recipe for a product including a container with colored marbles. The user will select the quantity and color of the marbles to be included. The robot will use digital inputs and outputs to control pneumatic actuators to perform the tasks.

Assembly Application

Includes piping of multiple lengths which will connect using push to connect fittings. The final product is an assembly providing a manifold connection which includes (1) ¾" Piping Inlet and (4) ½" Piping Outlets. The manifold is provided with the appropriate fittings by a gravity feeder. The robot will pick the manifold block and utilize sensors to detect the correct orientation. The manifold will then be placed in a clamp to provide support during assembly. The robot will then pick the different lengths of piping and install them into the appropriate fittings. The final assembly will be placed in a bin. The robot will use digital inputs and outputs to control pneumatic actuators to perform the tasks.

Variable Speed Conveyor with Sensors

Includes a 3-Phase conveyor with variable speed drive. The conveyor includes customized guide rails to adjust to different size components. Integrated sensors will detect parts and provide stop/start functionality via digital inputs. The conveyor can be implemented as a stand-alone add-on application or with other applications such as the Production and CNC Tending units. The conveyor is completely controlled by the robot via digital and analog I/O.

Advanced Warehousing and Storage Application

Includes a vertical and horizontal storage warehouse providing a complex application for pick and place. Parts are placed in the warehouse for storage and then retrieved in the desired sequence.

CNC Machine Tending Application

Includes a simulated CNC system using pneumatic actuators and sensors. The operational sequence of the unit is controlled via a stand-alone PLC integrated on the application. This controller communicates to the robot controller via network or digital I/O to provide handshaking between the systems.

Advanced Palletizing Application

Includes a gravity part feeder and sensors which provides parts to a pickup location. The parts are retrieved by the robot and are placed on a series of printed pallets in the desired orientation and height based on the programming provided.

Quality Control and Measuring Application

Includes multiple precision measuring devices and sensors to provide material identification and inspection. Parts of different material and thickness are provided to the robot. The robot arm will move the parts through the devices for testing and will be sort according to measurements.

PLC

Includes the PLC of customer choice integrated to the system and can be connected directly to the robot via network or digital I/O. The allows participants to become familiar with using the PLC along with robots for control of operations.

HMI

The HMI of customer choice is integrated into the system and can be connected via network to the PLC of choice. This will allow external control of operations via the HMI. This can be used to view system status such as warehoused products.

2D Vision Inspection

An artificial vision unit is included and provides for inspection of components for quality control. Parts can be identified and sorted based on pass/fail signal from the vision unit.

3D Vision Guidance

An artificial vision unit is included and provides for inspection of components. The vision unit will provide information to the robot including orientation, height, and width to allow the robot guidance to parts for pick and place. This unit can be implemented with the conveyor to provide advanced conveyor picking operations.

RFID

Parts are supplied with unique RFID tags. The robot will retrieve the parts and move through a reader field. The result of the scan will identify the part and allow the robot to store the part based on the user program. Read and Write capability can be implemented with the Production application to identify products based on recipe.