

Case Study CRUM Manufacturing

FANUC Robot-Mounted Gocator® 3D Smart Sensor Performs Precision Pick-and-Place



www.crummfg.com

Located in Northwest Ohio, CRUM Manufacturing, Inc., has been in business for 35 years, with their industrial automation division now running strong for 5 years. CRUM takes great pride in offering customers products and services of the highest quality complete with short lead times. The company's offers a wide array of services including OEM custom machinery, robotic integration, quality fixtures, formed hose tooling, tube & pipe forming, and CMM dimensional inspection.

The Application

Carts lined with pre-fabricated Tube Cutters must be picked off the shelf and placed into the correct clam shells based on size and shape. A robotic system is chosen to automate this process in order to increase production and reduce labor.

The Challenge

The Fanuc Robot requires a consistent pick point to secure the Tube Cutters from the cart. The carts, however, are hand assembled, making their size and shape variable. As a result, each row in the cart has different height and thickness values, causing the Tube Cutters to sit (or lean) in different positions and making it impossible for the robot to successfully pick each one, 100% of the time.

The Solution

A Gocator® 2150 laser profiler is mounted to a Fanuc M10iA Robot. Engineers use Gocator's built-in hand-eye calibration to determine the sensor coordinate transformation to robot coordinates. This allows the variable position and orientation of the object detected by the sensor to be communicated directly to the robot and for accurate picking of Tuber Cutters 100% of the time.

The Gocator® sensor provides the tools to locate parts and communicates these measurements over strings to the robot controller using Ethernet IP. Critical X-Y-Z and angle information is communicated for robot vision guidance and pick-and-place of the target object. The process of interfacing the sensor to the robot required a PLC. No additional 3rd party software was needed.





The Gocator® Advantage

- Volumetric measurement provides shape and position related parameters
- Immunity to ambient light delivers high performance in variable lighting conditions
- Automatic exposure accurately measures regardless of color
- Compact sensors easily mount on robot end effectors
- Immune to robot movement and vibration

The ability to mount Gocator on the Fanuc robot gave us better feedback than the standard Cognex camera. Gocator does not care about the ambient light of the environment, so no LED was needed. Gocator was able to provide highly accurate feedback on pick points on the Tube Cutter.

– Juan L. Rodriguez, Director of Automation, CRUM Manufacturing, Inc.



The Result

The FANUC-Gocator® system completely automates what was once a slow, error-prone manual task, improving accuracy and efficiency on the factory floor.

AMERICAS

LMI Technologies Inc.
Burnaby, BC, Canada

EMEAR

LMI Technologies GmbH
Teltow/Berlin, Germany

ASIA PACIFIC

LMI (Shanghai) Trading Co., Ltd.
Shanghai, China



LMI Technologies has sales offices and distributors worldwide. All contact information is listed at lmi3d.com/contact