Lakewood Automation	Application Report: Gocator	ARG0109
	Project Name	Analysis of Mold Category 1
Contact Person	Billy Bob	**Company**	Lakewood Automation Sample
Salesperson	Professor X	**Revision Date**	09/25/2020 JDM

Purpose:

To provide an overview of the assumption, constraints and software tools for this Gocator application.

Project Description:

Application is for the inspection of a white injection molded part. A new part must be scanned every two seconds coming down the conveyor. The parts may have slight variation in position on the conveyor. This application will focus on the key features of the part and check for required tolerances.

Application Requirements:

Key Features to be Measured	Tolerance
Z-Dimension	20 microns
X-Dimension	100 microns
Cycle Time	30 parts per minute

Application Constraints:
- Position Compensation will be required due to random part placement
- Ambient lighting conditions
- Ease of use for in-house integration

Application Setup:

The proof of concept was setup using the Gocator 2330 and a servo drive to simulate the movement of the part. The key settings and hardware utilized is referenced in the table below. The Gocator was setup at the far end of the field of view and was positioned using a stationary alignment.

Several tools were applied to the part to determine which would best suit the application and are discussed below.
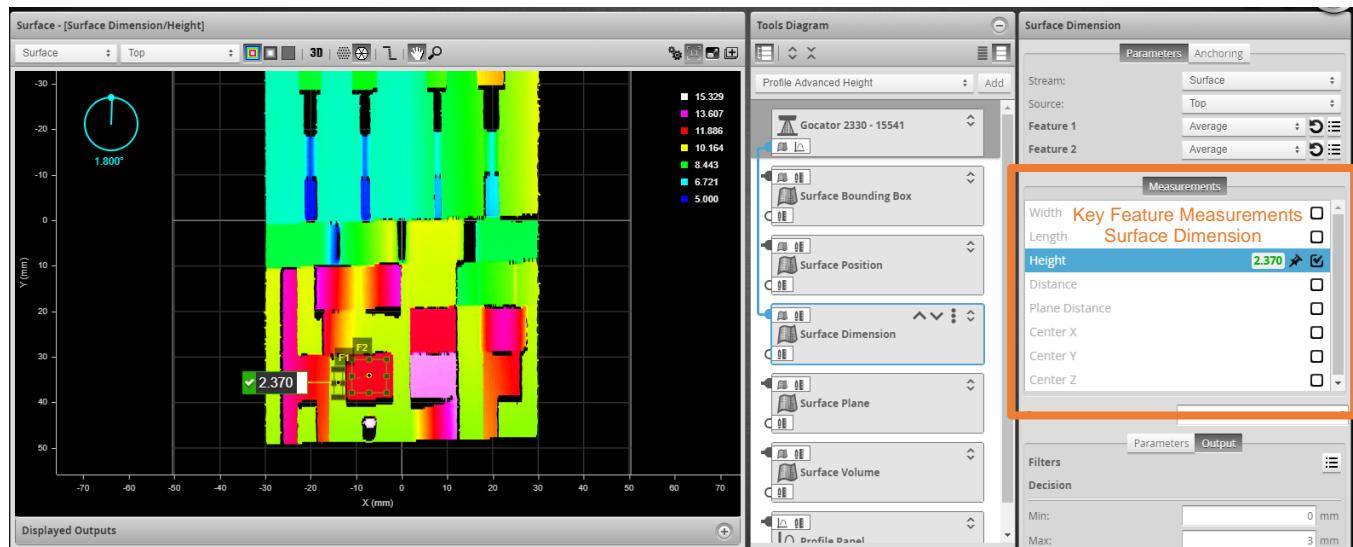- **Bounding box tool** was used to test for the width, and can be seen passing in the first image.
- **Surface dimension tool** is testing the height between the tool key features, this also passes.
- **Gap detection tool** is not passing, and was observed exhibiting a larger than expected gap in the part. This data can be output as a pass/fail result or just through raw data to a PLC/HMI.

The application of the tools in the software can be seen in the supporting images below. These and any additional points of interest for the tested tools can be discussed at a future meeting.
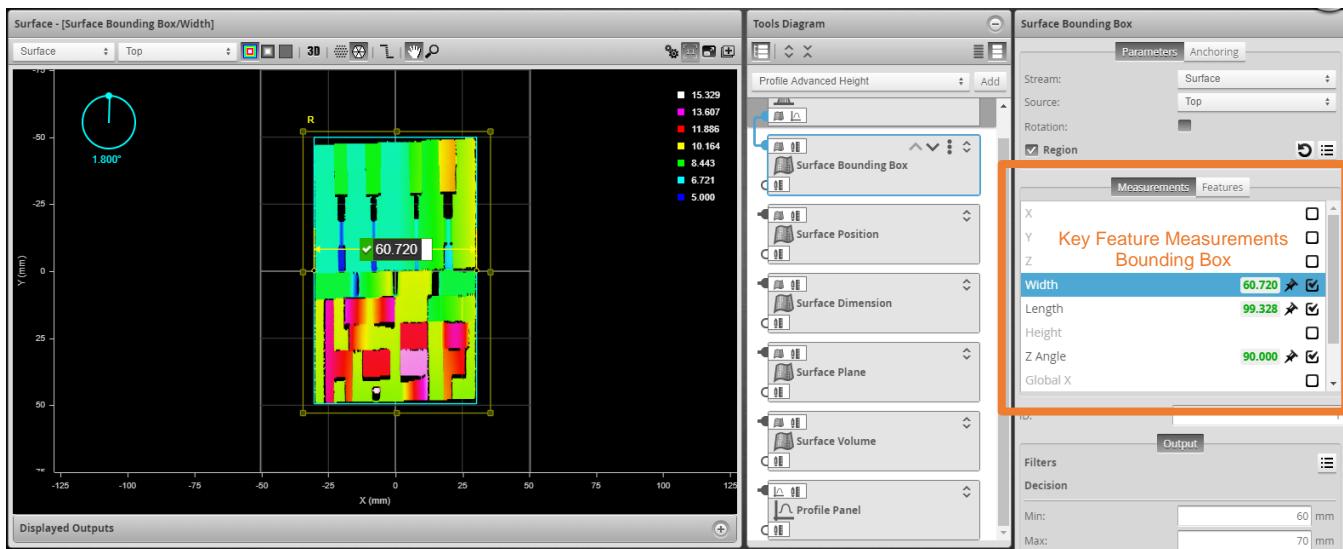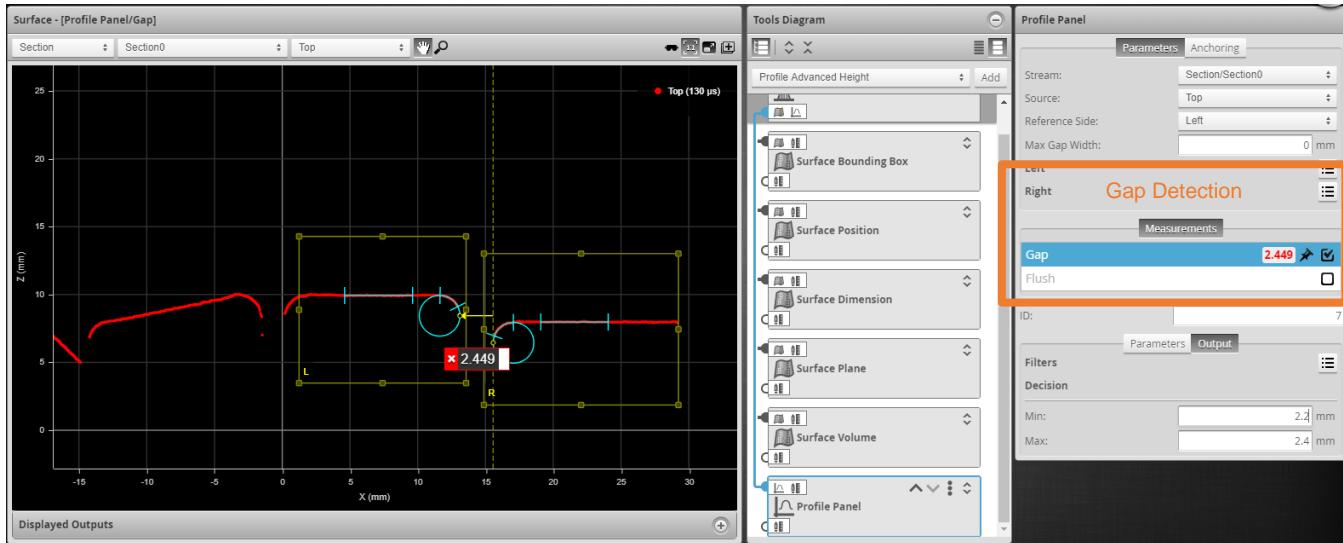
LMI Gocator Solution	
Part Number	**Description**
312330D-3R-R-01-T	Gocator – 2330
301175-2m	Cord set – 2m I/O, open wire end
301176-2m	Cord set – 2m Power & Ethernet, 1x RJ45,1x open end
Gocator Emulator and Programming Software	Free and webbased
Estimated Hardware Cost: $10,000	

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Inspection Settings	Details	
Gocator Firmware	6.0.19.28	
Scan Mode	Surface	
Trigger – Source	Encoder	
Trigger – Encoder Spacing	0.5 mm	
Motion and Alignment – Encoder Resolution	0.032 mm/tick	
Sensor – Exposure (Mode/Setting)	Single	130 µs
Sensor – Spacing (Sub-Sampling)	X: 1	Z: 1
Surface Generation (Type/Length)	Continuous	n/a
Part Detection – Threshold (Height/Direction)	5 mm	above
Filters – Gap Filling	X: n/a	Y: n/a
Filters – Median	X: n/a	Y: n/a
Filters – Smoothing	X: n/a	Y: n/a
Filters – Decimation	X: n/a	Y: n/a

Tool Results:

Summary:

The selection of the Gocator 2330 was based on the assumptions and constraints listed in this document. Results show the Gocator exceeded the measurement tolerances for key features for the X, Y and gap measurement. The position compensation setting was unitized to ensure the measurements could still be taken with the part position variation on the conveyor belt. The number of tools in this project will be manageable for in-house integration. This proof of concept also provides room for future growth and mold analysis on any additional features of the part.

Next Steps:

If there are any questions on the information provided in this report, please contact Lakewood Automation Technical Services or your sales contact directly. To learn how to program your Gocator for this application, training sessions can be scheduled.