



ENGINEERING SPECIALISTS INC.

Providing Technical Engineering Services Worldwide Since 1974



KNOWLEDGE & EXPERIENCE YOU CAN TRUST

Part Vision Inspection and Data Storage

Situation:

An internationally known manufacturer asked Engineering Specialists to develop a new photo acquisition system with vision inspection for its products. The system was to check 6 sides of each part, taking 12 pictures, and perform quality inspections. The equipment was required to handle multiple part sizes and types and recognize blemishes, discoloration, scratches, color and symmetry and then store this data for each part in a database.

The customer requested that the system prompt the operator for part orientation, and guide the operator for part placement. The system was required to look at a database and find an initial comparison picture, and then do a 2nd, 3rd, and 4th inspection based on the results of the 1st inspection to aid in matching parts with similar patterns, colors, and shades etcetera.

The database was required to document the inspector, order number, quality code, and part numbers of each part and read and store the barcode of each part as well.

Solution:

Engineering Specialists developed a system to mount panels to control the lighting and to mount six (6) IDS 13MP Auto Focus Cameras and multiple Maxlite lighting bars. Since the product also needed to have the bottom inspected, there could not be any permanent fixtures holding the part, nor could there be anything permanent to help with positioning.

Engineering Specialist then developed the system to hold and photograph the bottom of the part. For placement, Engineering Specialists' engineers came up with a way to project a cross hairs onto the computer screen while the placement was taking place.

Proper lighting was the biggest obstacle because of all the variations of the product.

Different panels with different reflective values and colors were experimented with until a soft brown fabric was determined to give the best results in color saturation and true representative colors across the product spectrum. Several light bars were used and programmed to be on or off during different parts of the inspection process.

Controls hardware included a Dell Precision Tower 3000, two (2) Dell 23" Touch Monitors, Moog Opto Touches start the inspection, and Zebra Bar Code Scanners. Everything was controlled through a custom program written in LabVIEW.

Objectives and Results:

The objective was to allow for quick cycle time inspections of any of the customer's products. The system was required to accurately inspect and compare product and document inspection data in the customer's database.

There were unique situations with the vision system, and the required lighting that were overcome with unique placement of the cameras, positioning of the lights, materials and finishes on materials. The finished system was fully run-off at Engineering Specialists and resulted in meeting the customer's cycle times and completely meeting their expectations.



Our History

**A REGISTERED PROFESSIONAL
ENGINEERING FIRM**

UL508 Certified (NNNY, NRBX, NITW)



Engineering Specialists, Inc. was founded by Robert Miller, a graduate of Marquette University's Electrical Engineering Program and Robert Phillips, a graduate of MATC.

The two close friends in need of a change had thought about consulting, but instead began building and designing the sophisticated equipment used by many of the most competitive businesses in the market today. Bob Miller recalls filing the very first customer file in his cabinet wondering if he would ever fill it. That was over 40 years, 1400 customers, and 20,000 projects ago!

With the technological challenges that all businesses experience, sometimes on a daily basis, Engineering Specialists has managed to evolve with the times to keep its customers in motion and ahead of their competition.

Contact Engineering Specialists today and find out how our skilled engineers and technicians can provide your unique business with the tools it needs moving forward successfully into the future.



3 Convenient Locations

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