SMART VISION LIGHTS DONATION ILLUMINATES LSSU ENGINEERING CAPSTONE PROJECT

As a four-student engineering team at Lake Superior State University discovered, ambient lighting rarely fits the bill for sophisticated vision applications. Tasked with designing a vision-guided robotic automated validation system for their senior project, the team quickly realized their designs wouldn't perform to specification without powerful, glare-reducing lights.

The project, sponsored by Nexteer Automotive, required the team to develop a vision system to automate the company's steering column validation process. Nexteer produces tilting, telescoping, adjustable columns, which must be tested for variance of movement along their axes and about their pivot points. Given automobile manufacturers' strict standards, Nexteer must take care to avoid too much or too little play in column movement.

Nexteer's original process required operators to adjust columns to specific orientations before manually aligning a robot's end-of-arm-tooling (EOAT). The robot would then test the loads required to move the column to various tilt angles and in/out positions, with excessive or insufficient loads indicating a faulty unit.

To further automate the process, the LSSU team developed a vision system that automatically orients the load-testing robot to the column, regardless of the column's starting orientation. "Our vision system ensures the EOAT is parallel to the steering face, so operators can simply attach columns without worrying about orienting them or the robots correctly," says team leader Roberto Valdez.

The team soon hit a roadblock as they began testing their solution, however. "Initially our vision system couldn't pick up the target, and through several tests, we concluded the problem was inconsistent lighting," says Valdez. The fluorescent lights the school had on hand didn't work either, as the glare they produced made it impossible for the system's sensors to find the column.

Working on a tight deadline, Valdez and his team reached out to multiple lighting vendors, several of which proved to be too costly and too slow to ship. **Smart Vision Lights**, however, offered a cost-effective solution that perfectly suited the team's timeline and needs.

"I explained our project and goals to Matt Pinter, and I let him know we're students here at LSSU," says Valdez. "He was a huge help and led me in the right direction to the L300, and he even said they had a few units they'd be willing to donate." Within two days of Matt's offer, SVL confirmed shipment.

With its glare-reducing diffuser plate, the L300 has proven the ideal addition to the LSSU team's vision application. With SVL's donation, fast turnaround time, and guidance, the team is on target to complete their project on deadline and under budget. "This was a huge contribution," says Valdez. "Smart Vision made me feel comfortable and led me in the right direction, and we're set to have everything finished and validated before graduation."

Smart Vision Lights aims to be the preferred value-added LED lighting provider, known for its high quality advance innovative solutions.

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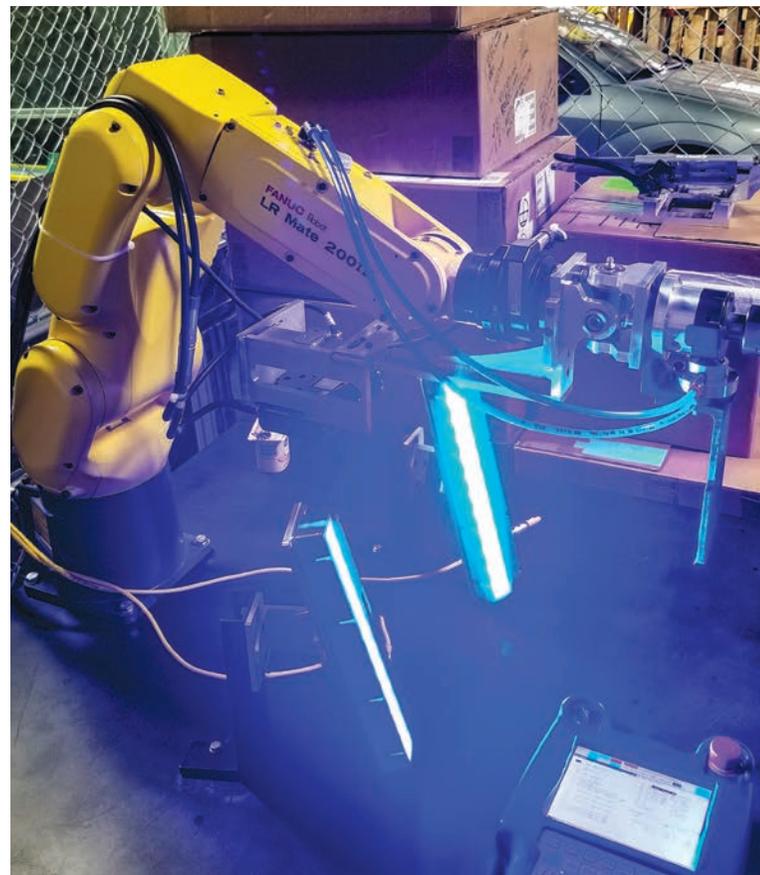
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