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Evolution of a machine shop: Walt Machine

Walt Machine makes precision aluminum parts for optical assemblies—their specialty—and offers other manufacturing services. They initially installed a Robotiq Wrist Camera and 2-Finger 140 Gripper on a UR10 cobot to tend CNC machines around the clock, which doubled daily production. Since then, they've added two more robots and scaled up from making 2,000 parts to 50,000 parts.

You may have heard how Walt Machine doubled daily production with the wrist camera. In this case study, we're picking up where we left off and seeing how the company has grown beyond that first robot.

Getting started with automation

Company president Tommy Caughey was born into the industry. "My dad has been in the machining industry pretty much his entire life," said Caughey. "He went to trade school at 16, so his entire life has been the same thing. So I grew up with it."

Caughey didn't plan on entering the family business, but partway through his degree in mechanical engineering, the shop got its first CNC machine. "I fell in love with it," he explained, "and when I graduated I came home and went to work."

As the company leader, Caughey kept an eye out for new technology, but he hadn't thought of putting robots in the shop until he came across the Universal Robots collaborative robot. "Before that, robots were these yellow industrial components that had to be caged. They really weren't suited for a business like [ours]."

The UR10 cobot, by contrast, was made to work alongside humans—and with a Robotiq Wrist Camera and 2-Finger 140 Gripper attached, it was perfect for picking raw parts and loading them in and out of a CNC machine. Still, Caughey and his team were a little hesitant to buy due to concerns about the cost and complexity of the integration.

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What clinched the decision was the difficulty of hiring skilled labor. Walt Machine is based in Lumberton, Mississippi, a city of just 2,200 people. “Seeing the UR and [the difficulty of] trying to get people to come to work, or find skilled labor… It was a no-brainer,” Caughey said.

In fact, Caughey’s mother “hated the robot at first,” because she thought robots were taking jobs away from people. Now, though, “Her attitude has completely changed. I think now she sees that it’s not as easy to get people to come to work and do these boring mundane jobs.”

“Don’t be afraid to [add a robot]. If you’ve got work to do, it will be able to do it.”

Ultimately, Caughey says, “I think it’s just going to be more common to have these things in factories.

Scaling up production

Caughey wasn’t quite sure what he was getting into at first. “I knew absolutely nothing when we started, other than what we had seen at trade shows—like ‘Hey, you can make the robot pick something up here and put it there.’” Whereas now, he says, he really understands “what the capabilities are as far as controlling things with force.”

That knowledge was hard-won over the course of two integrations. “We just did it piecemeal. We started with one robot in front of one machine, then we had two, and then it was three. So the program grew incrementally.”

The results speak for themselves. Whereas one robot doubled daily production, two robots have let them increase production.

“We went from making about 1,000, 1,500, or 2,000 parts at a time, to about 45,000–50,000 of these parts.”

As for concerns about integration complexity, the hardest part was communications—getting the robot to talk to the CNC machine.

But even that wasn’t so bad, thanks to the piecemeal approach, which allowed the team to succeed with a simple application first before trying more advanced setups with the second and third robots.

New challenges, new solutions

Regarding those more advanced setups: whereas Caughey and his team simply mounted the first robot on a table in front of the CNC machine, it became more complicated once the same robot had to tend two then 3 CNC machines. They needed to be creative for this one.

Caughey doesn't take all the credit for what happened next, though. "It actually started as kind of a joke," he explains. "My mom said 'If this [robot] is always in the way, why don't you just mount it to the ceiling?'" Caughey laughed it off at first, but then he realized there might be something to it.

"When customers come in, you look like you're on the cutting edge of technology."

Now, the UR arm glides smoothly along a ceiling-mounted rail system to perform tasks around the workshop. The ceiling mount is not only useful—allowing the cobot to be moved wherever it's needed—but visually impressive as well.

What's next

Caughey has big plans for Walt Machine's automation strategy. With one robot already overhead (on rails), the next one's going on the ground: they want a "robot on wheels that's going to go service different jobs as we get them in and out."

The new mobile robot will be a multitasker. "We're going to have it feed a machine. When the robot takes the finished part out of the machine, it will put it in a slot and pin it. So it [the new robot] will build these assemblies as well as feed the machine."

There are bound to be challenges with any integration, but after installing two robots, Caughey and his team are confident enough to take them on. As Caughey says, "The biggest thing is now I know what I don't know!"

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