



REBAR-TYING ROBOT ACCELERATES PROJECTS AND BOOSTS PROFITS

[CASE STUDY]

The Howard Frankland Bridge

Case study approved by: Jack Nix, Vice President of Operations, Shelby Erectors, Inc - Jimmy Mears, Rodbuster, Shelby Erectors, Inc. - Jeremy Searock, President, TyBot, LLC - Industry: Robotics, Construction - September, 2020

PROBLEM

Rebar-tying on bridge decks is painful work. The skilled workforce shortage means that hiring labor to do this work and complete projects in a timely way is challenging.

SOLUTION

TyBot, an autonomous rebar-tying robot, does the hard work that hurts humans. It can tie rebar for hours, both day and night, rain or shine, without stopping.

RESULT

Florida bridge rebar contractor, Shelby Erectors, can complete projects faster with the same amount of labor — resulting in increased annual income.

Painful Memories

The Howard Frankland Bridge is six lanes wide and stretches 3 miles across the Old Tampa Bay in Florida. Jack Nix recalls tying rebar on it when he was young:

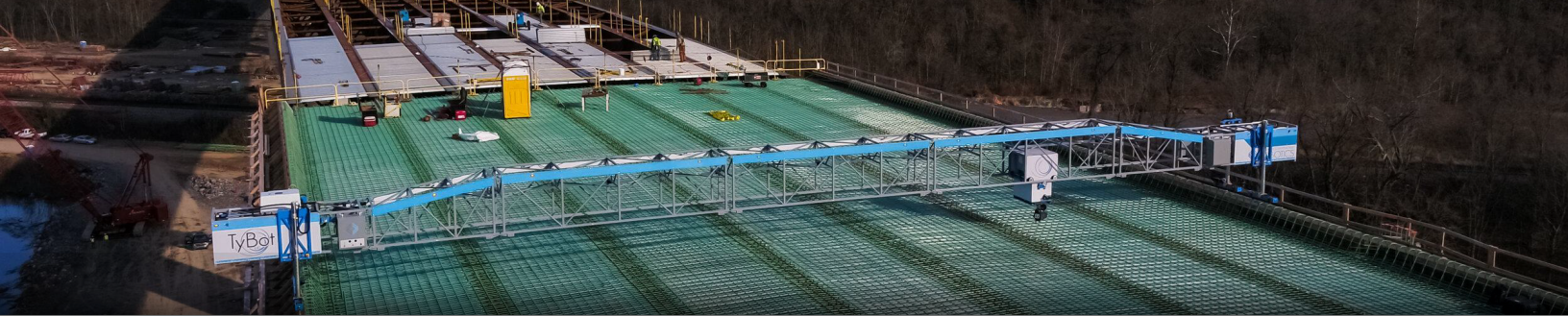
“There must be several million ties on that bridge. When your back hurts and you stand up and you can’t see the end of the bridge, and you’re going to be doing the same thing over and over every day for a year — that’s brutal.”

Nix has tied steel his entire adult life, and says he’s generally enjoyed the work. But tying rebar on bridge decks is different.

“Those were the days I felt like quitting.”

“TyBot helps me push jobs faster. And by completing more jobs in a year, I can generate more income in a year.”

*~ Jack Nix, Vice President of Operations
and Co-Owner of Shelby Erectors*



Today's Challenges

Nix didn't quit, though. Since 1997, he and his wife, Jennifer, have been running their own bridge rebar subcontracting company, Shelby Erectors. The company is typically working on four or five bridge decks at a time. As Vice President of Operations at Shelby, Nix now employs people to tie the rebar. But because of the shortage of skilled labor in the construction industry, positions at Shelby sometimes go unfilled.

So it's important for Nix to retain the employees he has — and to keep them healthy and productive for as long as possible.

Experienced rodbuster, Jimmy Mears, has been tying rebar for about 9 years, the last two and a half with Shelby.

The project Mears is currently working on? As chance would have it, it's a raised expressway that will eventually feed into the Howard Frankland Bridge that Nix remembers working on.

So, Nix has quite literally 'been there.' He understands when Mears says tying rebar on bridge decks is "hard, physical work. It's hard on your back and on your hands."

If there's a way Nix can retain healthy and productive employees, he wants to know about it.

A Solution to Reduce Pain and Increase Productivity

When Nix saw a demo of TyBot, he recognized that it would prevent his employees being injured by tying bridge rebar, help his crews be more productive, and speed up jobs. And faster jobs means increased revenue.

"TyBot ties something like 1000 ties per hour," Nix says. "To tie 1000 ties in an hour, you might need ten iron workers. And they'd probably be able to do it — for the first hour. But they couldn't keep it up for 8 or 10 hours in a row without breaks, like TyBot does."

Testing TyBot

When rodbuster Mears saw TyBot in action, his first thought was, "It's going to put me out of a job!" But Nix invited Mears to learn how to use the robot, and Mears took him up on the offer.

"I like to see and experience new things. I'm a hands-on person, and I learn by trying things out," says Mears.

As an experienced rodbuster, Mears had a critical eye. He wasn't going to let TyBot off lightly. "When I first tried it out, it wasn't working as well as I thought it should," Mears recalls. "But it turned

out to be a minor issue and after a quick phone call to the TyBot service department, I had it running great."

Once they had a couple of trained employees on the team, it was then a matter of fine-tuning. Nix says they had to learn how to time things so the crew could lay out enough steel in front of the robot. "If it has to stop and wait for us, then it's not earning its keep; it's not making money," says Nix. "It's a balancing act, and it took us only a month or two to perfect."

Time is Money

Nix says that completing a bridge project with TyBot and fewer humans costs about the same as using only human labor to get it done. But the robot makes the jobsite more efficient.

"TyBot helps me push jobs faster. And by completing more jobs in a year, I can generate more income in a year."

Finishing each job faster also saves contractors and owners money.

"If I can shave seven days off a contractor's schedule in the next month," says Nix, "then they save seven days of overheads — the costs for staff, trailers, cranes, and so on."

If construction companies' costs are reduced, they can put in lower bids and win more projects.

"Once contractors and owners fully understand the savings on the schedule, the TyBot will be an even bigger profit center for us."

Keeping Employees Happy, Healthy, and Productive

"I'm not laying people off. The robot enhances our workforce, so we can do more with the same number of people," says Nix. "We're removing some of that hard, painful work and replacing it with a robot, so my crews can achieve more."

Mears appreciates TyBot taking on some of the back-breaking parts of his work. "It helps people not get hurt. It helps with people not killing themselves all day in the brutal heat. When I come home after using TyBot, I don't have cuts or blisters on my hands, my back's not killing me, and I'm not completely exhausted."

Being a more productive worker is something Mears values.

"TyBot helps me work longer hours so I can get the job done," Mears says. "And then I can go home with enough energy to focus on my kids."

By: Zena Ryder at www.zenafreelancewriter.com



TyBot is an award-winning autonomous rebar-tying robot developed by Advanced Construction Robotics. Co-Founders, Stephen Muck and Jeremy Searock established TyBot, LLC in 2017. Their vision was for robots to work alongside construction crews to complete the riskier, undesirable tasks, and to increase overall productivity. That vision is now a reality! To learn more about TyBot, please visit www.tybotllc.com or call (412) 756-3360.



Founded in 1997, Shelby Erectors is Florida's premier bridge rebar-tying subcontractor. They build the infrastructure that connects communities and they pride themselves on taking care of their team and their families. To learn more about Shelby Erectors, please visit www.shelbyerectors.com or call (954) 256-7499.