

50 years of technology innovation



SHALABH "SHALLI" KUMAR,
founder and chairman,
EZAutomation

IN 2025, AVG Automation, parent company of EZAutomation, a midwestern U.S. manufacturer and factory-direct purveyor of industrial automation systems and components, will celebrate 50 years since its founding in 1975. The automation technology landscape has changed dramatically since that time, but many of the underlying industry needs remain unchanged.

Q: Innovation has always been a strong suit with EZAutomation and AVG Advanced Technologies.

As founder and chairman, how have you been able to maintain a continued run of technology and products that transform the industrial automation space over the course of decades?

A: Innovation is in my blood, in my DNA. It is food for my soul. I don't think I can live without it. I deal with it every day.

In 1984, General Motors had decided to buy 100 press lines for the stamping plant. In early 1985, I thought of a resolver with built-in electronics using a flexible potting compound. There was nothing like that on the market. I called the chief engineer of General Motors and told him about my idea. Within the next three days, he gave me an order for \$10 million worth of resolvers with no physical sample and no prototype ever built. Sometimes innovation at the right time has great rewards. Sometimes necessity is the mother of invention.

In summer of 2004, we got a notice from our marketing partner with mutual exclusivity that they were going to terminate our contract for stocking and selling our EZTouch product line. We designed and put in stock 10 new product lines including the EZPLC, the EZTouchPLC and EZMarquee. Our survival was at stake.

Q: You're calling the EZTouch Series 5 HMI your "China killer." How has the touchscreen interface been redesigned to make it less expen-

sive than those sourced from China, while still delivering the functionality and support that your customers have come to expect?

A: We went to work to reduce our cost of manufacturing further by more efficient design, investing in more automated manufacturing lines and are proud to introduce EZ5. EZ5 has a newer microprocessor. Its memory is a bit smaller. The number of screens are limited to 64. For most customers, 64 is sufficient, but it retains all the other exceptionally innovative features of HMI—online edit, visibility tags, remote monitoring and control over smartphones, real-time data-logging, email and text alerts, on-screen recipe edit, C Level scripting to save PLC code, and screen life of 50,000 hours at 40 °C.

Q: The EZTouch miniPLC combines HMI and PLC functions and features in a small form factor. Given the punch it packs, the term "mini" might even be misleading. Can you talk about the amount of innovative technology per cubic inch that OEMs will find in this component?

A: Perhaps it should be called "mega in a mini size." The reason we called it mini is because this product has its 4-inch screen size with 27 I/O points and it's only 5 inch by 4 inch, and it is only 1.5 inch deep. That's the reason we thought of calling it a mini. The website also has a very nice 360° rotational view of the product to view what it looks like overall. Using EZTouch-PLC is a prime example of made-in-America innovation costing less than made-in-China.

Inspiration for this product, as usual, came from talking to our customers. They needed a very compact and thin HMI with PLC integrated in it, 27 I/O, that is 12 dc inputs, eight dc outputs, 4 of 5-A one form C relays, two analog in, one analog out, 250 kHz encoder input. All I/O is wired through plug-in terminal blocks with LED indicators.

These dc outputs are shortcircuit-proof. We even put in numbers on all relay contact outputs, so the customers do not have to put external numbers costing at least \$20 plus labor for each number across the contact. Our customers save at least \$200 for each PLC. Besides a very low cost of EZTouch miniPLC at \$399 for a 4-inch 27 I/O model. Coming back to the PLC, it's a high-end PLC with lots of function blocks with a unique drag-and-drop feature in its PLC programming.

Q: What benefits come with products that are made in America, and how will those benefits carry on into the decades ahead, in light of the changing technological, financial and political climates?

A: If China attacks Taiwan, there will be complete embargo on Chinese goods. There are significant advantages of design in made-in-America products. When you are closer to your customers and are in the field in their facilities, you design better products such as EZTouch with patented HMI online edit, saving thousands of dollars in changing screen design on the fly with zero downtime. No other HMI can do it. This is American innovation on full display; both EZ5 and miniTouch PLC have it.

Another innovative feature we have is the visibility tag. That is, we lay objects on top of each other and make them visible only when needed. This is a great space saver on the panels. Another is C Level scripting that cuts down PLC logic; real time data logging came out of a personal customer visit at an OEM's facility. This customer makes compressors, and some customers of theirs do not maintain the compressor properly and claim warranty.

So this OEM wanted to have real-time data-logging, so that, sitting in New Jersey, the OEM can show a customer that their maintenance did not pay attention to a number of alarms resulting in the motor burning up.

Another feature that came from a customer visit was OEM utility. Many OEMs want to protect their intellectual property in the

HMI design, so they do not want the user to have access to the screen designs using our programming software. Yet they still want to be able to upgrade their HMI screen design from time to time.

With the OEM utility, all the OEM has to do is to email an executable file to the user and without any software just connect the programming port to the laptop with the email in it that the executable file is sent over email. EZ5 on any TouchPLC will do the rest.

There's another feature that came out of a close customer contact. This is mini 5's mini Wi-Fi capability, both EZ5 and mini have the option of inserting a tiny Wi-Fi module to the RS-232 port.

You can program, monitor, edit your EZ file or mini from 50 feet away and sitting on a proper workbench instead of climbing on obstacles like conveyors or suiting up to go near the HMI in an environmentally controlled area.

I'll close by telling you another story. You all know about 24 Vdc fans and solenoid. You know their wattage and dc nominal current. Let's say it's a 6-Watt fan with 250 mA nominal current. It should be no sweat for dc outputs rated at 500 mA, right?

You build your machine but constantly see your PLC dc outputs burning out.

You tried to contact your automation supplier's tech support, but no luck. Frustrated, you just decide to add external 5-A solid-state relays, costing \$30 in just relay cost, plus labor.

You have four outputs that are giving you trouble, so spend another \$200 in cost plus lose precious panel space. On top of all this, you want the PLC outputs to be shortcircuit-proof. You do not want to have to install fuses and increase the downtime of the machine if something burns out. But the 5-A SSR unfortunately is not shortcircuit-proof. The problem here is a locked rotor current of the fan motor, which is 600 mA, and the inrush current of the fan motor is almost 1 A. This is a real-life story. EZautomation came up with a current module with eight outputs, each one capable of handling 1-A locked rotor current and 4-Amp inrush current, fully shortcircuit-proof in a 2-by-2-by-1-inch EZ PLC I/O module. This was done from notice to production in three months.

For more information, visit osi.ezautomation.net.



The EZ5 "China killer" has maximum horsepower per cubic inch.