

The role Artificial Intelligence is playing in fluid dispensing



Artificial Intelligence

These days with all the talk about Artificial Intelligence (AI), one might think it's a recent phenomenon. That's far from the case. The study of AI by mathematicians and philosophers can be traced back to ancient times. The subject gained considerable momentum in the 1940s and 1950s with the advent of computers. Today, AI is a subject spoken about in countless quarters. Little wonder since it gives machines the ability to perform tasks that are typically associated with human intelligence. It's fair to say that the potential and benefits of AI are, in a word, limitless.

Fishman® Corporation has been adopting various principals of AI for over a decade. The technology plays such a key role in the innovative solutions from Fishman® that the company named its fluid dispense system the SmartDispenser®. It's the only solution that offers manufacturers a degree of intelligence they can't get from any other fluid dispenser on the market. This document will elaborate on the various AI-driven features of the SmartDispenser® and how they can greatly assist in the assembly of many types of products being manufactured today.



AlgorithmicControl™

AirFree® Technology

AlgorithmicControl™

Algorithms are what make the SmartDispenser® smart. Fishman® recognized the potential of algorithms long ago. And its vision is paying off for manufacturers. What Fishman® has done is develop a system of applying algorithms to a mechanical drive system through a unique technology called AlgorithmicControl™, which permits the SmartDispenser® to dispense fluids with vastly more precision and control. There are no other fluid dispensers that even come close to what the SmartDispenser® can do. The reason for this is all other fluid dispensers are still reliant on the use of compressed air. This not only makes them expensive to operate, but the electricity needed to run them does great harm to the environment. An even larger problem resulting from the dependence on and use of erratic air systems is that they prevent manufacturers from achieving process control and production standardization, two factors vital for success. Without the ability to apply algorithms it's impossible to have intelligent controllers for fluid dispensing.



AirFree® Technology

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The capabilities gained from AlgorithmicControl™ are taken to an even higher level thanks to the many smart features built into patented AirFree® Technology—another notable innovation from Fishman®. Its features help manufacturers eliminate human error and increase productivity by giving the SmartDispenser® the brains to make decisions, report production data, reduce PLC programming, and establish machine to machine cross communication between workstations and with MES systems. Another major benefit of having the SmartDispenser® is that it has a SQL database that can be populated with the customer's manufacturing data which can be used in a variety of ways, including creating reports for management to review and take action on. With the intelligence that AirFree® Technology unleashes, manufacturers are able to achieve far greater control of the assembly process, which results in increased productivity, yields and profits.

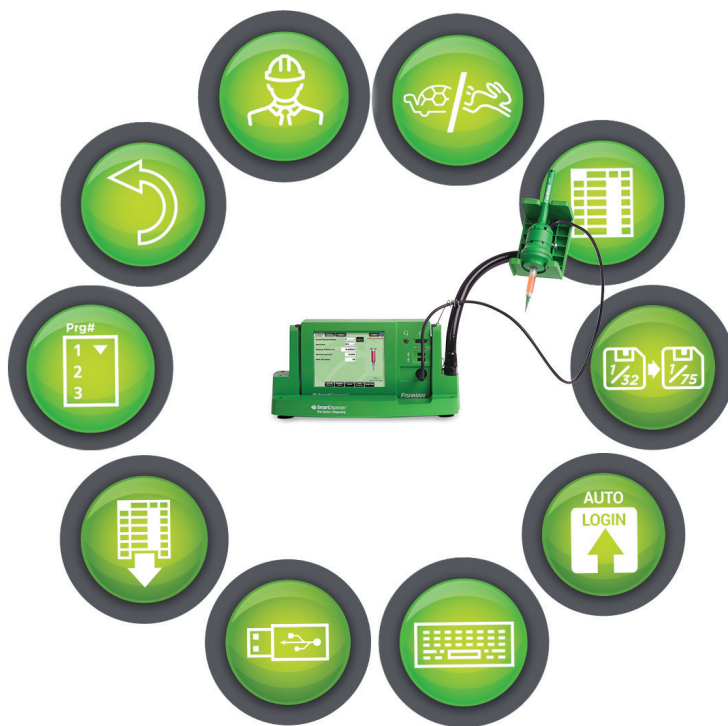


SmartApp™

So much of the added intelligence of the SmartDispenser® is made possible with a suite of applications aptly called SmartApp™s. Each consists of sets of algorithms designed to act on the data that populates the SmartDispenser®'s SQL database which, in turn, enables some of the SmartApp™s to make decisions and perform actions. SmartApp™s also allow manufacturers to customize the SmartDispenser® to the particular applications they're running by giving it new capabilities. As customers become more familiar with how the SmartDispenser® operates on their own production lines, it's not uncommon for them to uncover areas in which specific SmartApp™s can help reduce human errors, boost productivity and enhance security.

SmartApp™s that enable manufacturers to customize their SmartDispenser®s include:

- » [Fluid Level Alarm SmartApp™](#)
- » [Pre-Mixed Timer SmartApp™](#)
- » [Two Component Cartridge Timer SmartApp™](#)
- » [Fluid Level Alarm PLC SmartApp™](#)
- » [Rename Program – Auto Retract SmartApp™](#)
- » [Contractor SmartApp™](#)
- » [Device History Report Update SmartApp™](#)
- » [Keyboard SmartApp™](#)
- » [Reverse Speed SmartApp™](#)
- » [User Program Select SmartApp™](#)
- » [Import-Export Step Count SmartApp™](#)
- » [Auto Export Device History Report SmartApp™](#)
- » [Expand Save Locations SmartApp™](#)
- » [Dispense Speed SmartApp™](#)
- » [Auto Login SmartApp™](#)
- » [Operator Name Login SmartApp™](#)
- » [Password Automatic Expiration SmartApp™](#)



Two critical ways in which SmartApps™ can help manufacturers are described in greater detail here:



SmartReporting™

The SmartReporting™ feature available on the SmartDispenser® lets manufacturers track, collect and report production data without human intervention, and makes the information readily accessible to everyone who needs access to it. SmartReporting™ automatically tracks production data such as operator activity, dispensing program used, and throughput by the hour, day, or month. The two SmartApp™s that make this possible are the Work Order Tracker SmartApp,™ which gives manufacturers the means to generate customized reports and the Device History SmartApp,™ which permits production data reporting to be done in real time or to the specific product metrics of a given application. Moreover, production data reports generated by SmartReporting™ can be stored on the SmartDispenser®'s internal solid state drive or saved to a USB storage device for uploading to a local tablet or PC for analysis. The SmartDispenser® can also be securely networked to one or more local servers, enabling automated daily delivery of production data in real time to a secure shared directory for management review at one or multiple facilities.



SmartRecycling™

Most companies look at technological product advancement as an opportunity to make an existing product obsolete and, by doing so, force manufacturers to purchase and replace existing equipment with brand new systems. The SmartDispenser® is designed to last decades, saving manufacturers hundreds of thousands of dollars in equipment costs, while enabling them to benefit from always having the latest technology. SmartRecycling,™ which is based on free firmware and software upgrades, makes all of this achievable. When improvements to existing software are made, or when entirely new software is released, the SmartDispenser® can be upgraded to a like-new state with no cost to the manufacturer. Even when customers begin using a new application they don't have to change their current system because the SmartDispenser® is designed as a universal controller, meaning every dispense gun available today, and all those developed tomorrow, will work with the existing controller after a simple software change.

Thanks to its many capabilities, AirFree® Technology now has a middle name



AirFree® AI Technology

With the aforementioned innovations that build on the SmartDispenser®'s inherent intelligence, manufacturers have an ideal infrastructure on which to add new AI functions as they become available from Fishman® Corporation. Some that are already delivering the power of AI to the assembly process include:



SmartScanning™

The SmartDispenser® is not only intelligent enough to make decisions on its own, but it comes with the ability to help eliminate human error and mitigate risk, both real and potential, from the assembly process. This is important because PLCs may be able to automate certain processes, but they're not intelligent and can't verify that the remaining tasks that do require human participation are being performed correctly. To respond to this, Fishman® has developed PLC-like control functions, as well as others for data reporting and process verification, and packaged them into numerous SmartApp™s to create SmartScanning.™ This allows the operator's barcode scan to become the trigger for the SmartDispenser® to execute various given commands and operations such as the automatic loading of a program, verifying that the correct raw materials and assembly fluids are selected, and confirming that the operator has the proper training clearance—all accomplished without human intervention. If, by chance, an incorrect barcode is scanned, the SmartDispenser® recognizes it and locks the system until a supervisor enters their password and corrects it. Moreover, every operation executed, including correct and incorrect scans, are recorded in the device history record and available for management to review at any time.

SmartApps™ designed to deliver SmartScanning™ capabilities include:

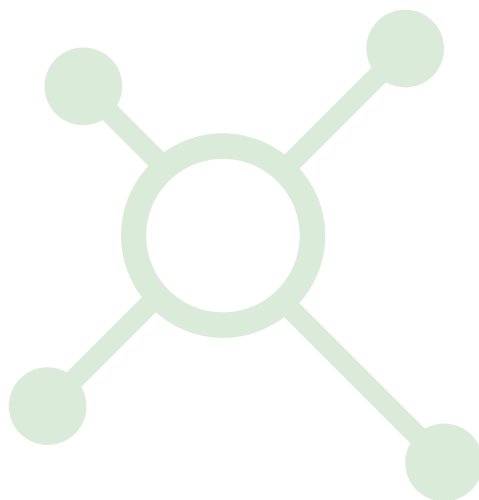
- » [Auto Program Load SmartApp™](#)
- » [Raw Material Verification SmartApp™](#)
- » [Assembly Fluid Verification SmartApp™](#)
- » [Operator Training Verification SmartApp™](#)
- » [LC, MT and SC Fiber Optic Connector SmartApp™](#)
- » [Dispense to Work Order Tracker SmartApp™](#)
- » [Work Order Tracker SmartApp™](#)





SmartNetworking™

In addition to storing data, making decisions and executing commands, the SmartDispenser® is also capable of communicating with, and being controlled by a company's MES system. In this scenario, the MES system acts as an oracle overseeing multiple installed SmartDispenser®s, thus ensuring that all the workstations are programmed exactly the same. Once set up, all the operator needs to do is power up the SmartDispenser®, and the MES system immediately recognizes the connection, which allows it to send commands to the SmartDispenser®s based on programming of databases via algorithms and triggers from various attached devices. This level of communication command programming can be established when writing the install package between the SmartDispenser®s and the MES system, and can be customized to each individual customer. Much of this is accomplished through a suite of MES SmartApp™s that when installed complete the connection between the SmartDispenser® and MES system. Better still, the communication between the SmartDispenser®s and the MES system is done without human intervention through simple, fool-proof barcode scanning, making it 100% error free. This not only eliminates human error, but it also provides the MES system with all the information needed to execute the commands; information in the form of valuable manufacturing data that becomes available in real time for management to review.



Fishman® works to expand the role of AI in fluid dispensing



AirFree® Ai Technology

Fishman® Corporation remains committed to working on new advancements to ensure manufacturers have solutions that are keeping up with the benefits of AI. The capacity of the SmartDispenser® is rooted in its algorithmic- and database-driven operating system design which provides it with a clear path forward to becoming a learning platform. For example, adding vision systems, sensors or other peripheral devices that record and report could very well be realistic next steps in completing this learning platform. By integrating devices such as these manufacturers would be able to see and learn how a specific fluid reacts when dispensed, and how to make adjustments based on the fluid dynamics/performance/temperature conditions. It's not unusual for enhancements of these types to be part of discussions that Fishman® routinely has when collaborating with its customers. Other ways in which Fishman® is working to expand the potential of AI has it exploring new strategies to create even greater interactions between the SmartDispenser® and MES Systems and databases. Fishman® is well aware that reaching these heightened levels of intelligence will help to further increase the productivity that many of its customers are already benefiting from with their SmartDispenser®s.

With so much in the offing, it's important to stay informed about future breakthroughs—AI related and otherwise—from Fishman® Corporation. In the meantime, if you'd like to learn more about what the SmartDispenser® and its many innovative features can do for your assembly needs right now, please visit fishmancorp.com or call us at 888-425-1671.