

The 3 Transformative Technologies in Food Services Automation

From the Blackberry's release in 1998, to the iPhone in 2007, to the vast array of connected and powerful home and personal devices we have today, the past two decades have seen an incredible leap in our ability to communicate, control, and interact with our world as consumers. Indeed, it is these transformative technologies of innovation – communications, control, and human machine interface (HMI) – that drove this consumer revolution, motivating many of us to stand in line for hours every two years just to get our hands on the new iPhone. Unfortunately, despite intense pressure from the new consumer-driven baseline expectations of operators and business owners, the non-consumer, or “embedded systems” world has struggled to leverage and deploy these same capabilities.

Let's examine how these technologies are moving to transform the embedded systems you design.

Transformative Technology #1 - Human Machine Interfaces (HMI)

Human machine interfaces in embedded systems have traditionally been very basic. Many industrial kitchen products and similar applications today still use a simple 2x16 character displays, LEDs, and a few buttons for human interaction. In the age of connected devices and the prevalence of smart phones with high resolution images and videos, many users expect improved human machine interfaces to more efficiently interact with devices. As soon as a system has a graphic/touch display on it, it can dramatically transform what can be done with the product. For example, add a graphic/touch display to a commercial oven and suddenly you don't just have a way to control the oven but also the ability to interact with the user and provide them with important information such as training videos and interactive manuals right on the machine. The HMI suddenly takes on a life of its own and can dramatically increase product value.

Transformative Technology #2 - Controls

A critical component in every embedded system is how it controls and interacts with its environment. When I hear the word controls, I often imagine old-school, big, failure-prone mechanical/mechatronic input sensors and output controls/actuators. But digital sensors, digital controls, solid state relays, optical switches (and much more) are revolutionizing the way electronics are interacting with the outside world. They're smaller, cost reduced, and increasingly “instrumented”, meaning they don't just perform their assigned input/output function but have data and statistics (blown LED, stuck switch, overcurrent relay, etc.) built-in for preventative maintenance and systems operational efficiency. Control applications can now use these inexpensive and instrumented sensors and leverage their connections through communications and HMI's to provide ways to interactive with the environment that were never before available.

Transformative Technology #3 - Communication

Adding communication interfaces to a food services product can radically transformed how and what can be done with the product. Imagine adding Wi-Fi to an oven, fryer or ordering kiosk. Suddenly that connectivity adds a plethora of capabilities and ways that the product can be used and innovated such as:

- Collecting run-time and performance data

- Performing predictive maintenance analytics
- Adapting to user consumption and interactions to minimize waste
- Managing device wear and tear to maximize life-time
- Over-the-air/wire firmware upgrades for maintenance, security, and features

These are just a few examples and there is a nearly endless possibility on how a company can use communication interfaces to not just provide new capabilities to their clients but also to revolutionize the way that their business model works!

Conclusions

As we have seen in this post, the same three transformative technologies of consumer product innovation: HMI, control, and communications, can bring incredible value the food services industry and helping businesses to improve operator and operational efficiency as well as operational visibility, leading to more automated and effective food services delivery. Engineering teams will have to rethink their development and technology strategies to overcome or avoid the inherent problems in adopting consumer technologies into their products if they want to bring this value to fruition.

To learn more about how to leverage HMI's, controls and communication to automate your food services products, join us on February 20th for the free one hour webinar "[Transformative Technologies in food services automation](#)".