Heavy-duty touch-sensing solution designed for advanced vending machines

Zytronic has, through its Japanese distribution partner Minato, secured another major contract for its ruggedized touch sensor products in Asia. The company's ZYBRID sensors [1], based on its innovative proprietary Projected Capacitive Technology (PCT), have been specified by the beverage dispensing division of the JR East Group, for inclusion in acure - a next generation digital vending machine being deployed through its expansive network of railway stations.

Payment can be made using traditional cash/card methods or via smartphone (using NFC technology). Acure also has the capacity to employ targeted marketing techniques. An integrated sensor located above its display/touchscreen allows the age and gender of each customer to be determined. This allows the machine to recommend the drink options most likely to fit with that specific demographic. It can also collect valuable data based on customers' actual choices (though no identifiable images or information are stored), which is then transferred to the company's central management server via WiMAX connectivity. Already deployed in the cities of Tokyo and Shinagawa, JR East Water Business plans to roll out 500 of these machines into transportation hubs throughout Japan within the coming months.

This project builds on Zytronic's broad experience in bringing durable touchscreen functionality to displays for public use, self-service and digital signage applications. The complete solution delivered to JR East Water Business consists of a customised toughened glass 47-inch ZYBRID sensor, with an optional anti-reflective coating applied to the rear face to enhance display brightness, plus sophisticated ZXY touch controller electronics. As a further demonstration of the technology's flexibility, Zytronic worked with the customer to create bespoke controller firmware incorporating special noise filters to maintain consistent performance of the touchscreen's electronics, even when in close proximity to the high levels of electromagnetic interference (EMI) generated by passing trains.

The large touchscreen on each smart vending machine allows customers to select from a wide range of different bottled drinks. These networked machines have the advantage that they can update in real time, so that items which are out of stock are quickly reordered and not shown on the screen in the intervening period.

The sensor mechanism employed in PCT-based touch sensors is unique to the industry. It consists of a micro-fine copper capacitor matrix embedded into a laminated substrate. The substrate can be situated behind a protective glass overlay which can be more than 10 mm thick, depending on the application. The upshot of this arrangement is that the touch sensor is not exposed to the external environment. This means that the various sources of damage that can affect touchscreen operation are guarded against, whereas most conventional touch sensing technologies are left vulnerable to them – shortening their period of

effectiveness. In the case of self-service applications, such as the JR East Water Business digital vending machine, this maximises the amount of equipment uptime, increasing customer satisfaction, revenue and the eventual return on investment (ROI).

“The setting for these vending machine units is in extremely busy train stations. With a very large number of users every day, as well as potential exposure to the harsh weather conditions and extremes of temperature experienced on train platforms, plus other sources of damage, the robustness of the selected touch solution was mandatory,” says Hitoshi Aida of JR East Water Business. “Zytronic was chosen because of the strong durability its offering demonstrates, as well as water and dust resistant operation.”

“By specifying our PCT touchscreen technology in the acure vending system, JR East Water Business [2] has been able to deploy state-of-the art technology in a demanding public setting and to provide a compelling, convenient and reliable channel for putting its products at its customers’ fingertips,” states Ian Crosby, Sales & Marketing Director for Zytronic. “The customised solution we have been able to deliver maintains consistently high level touch performance in even the most challenging of settings.”

For more company information, visit Zytronic’s web site at www.zytronic.co.uk [3]

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