CAN *Newsletter Online*

People counter enables social distancing

RS Components (RS) and Barth Elektronik unveil People Counter maker project to help social distancing efforts during Covid-19 pandemic. The used display and PLC (programmable logic controller) are CAN-based, while the PLC is also CANopen-capable.

People-counting project uses non-contact sensors to help staff monitor areas and maintain a safe density of people in shops and other commercial areas (Source: RS Components)

The complete article is published in the December issue of the CAN Newsletter magazine 2021. This is just an excerpt.

RS, the trading brand of Electrocomponents, a global multichannel provider of industrial and electronic products and solutions, has joined forces with miniature PLC manufacturer Barth Elektronik to develop a maker project that aids social distancing in the effort to prevent the spread of Covid-19. Barth Elektronik provided the idea and the necessary parts, which can be ordered from RS. The project, called People Counter, can be assembled in less than an hour and records the number of people entering and exiting a room, indicating when it is safe to allow more people to enter while still maintaining the recommended distance from others. This is particularly effective in retail environments where safe social distancing can be difficult to control.

Two photoelectric proximity sensors, or light barriers, detect the direction of movement, while a miniature PLC calculates the number of people in and out of the store in real time. A password-protected CAN touchscreen dis- play is used to pre-set the maximum people limit and also serves as a traffic light system, illuminating green when access is granted and red when access is denied. There is also an audio alert. The miniature PLC processes the data and controls the display.

CAN touch display

The DMA-15 is designed as HMI (human machine inter- face) for universal measuring, controlling, and regulating applications. The IP65-rated 2,4-inch CAN display allows connection to any Lococube mini-PLC via CAN interface. It's bright 240 pixels x 320 pixels TFT display integrates resistive touch technology. Supply voltage is 7 V_{DC} to 32 V_{DC} and dimensions 69 mm x 50 mm x 69 mm. Both, display design and menu can be selected out of a variety of templates with one single CAN frame.

A password-protected CAN touchscreen is used to preset the maximum person limit (Source: RS Components)

This feature ensures that no display programming is necessary. The DMA-15 can be fully integrated within the graphical Micon-L Software Suite supporting any Barth mini-PLC with CAN interface. With the open-source programming option the DMA-15 can be user-customized within the powerful Keil µVision software suite. Several open source "C"-programming templates are available for free download. The DMA-15 is also available as customer-tailored OEM (original equipment manufacturer) version within eight weeks. The communication between the mini-PLC and the DMA-15 is ensured via CAN, setting a fixed bit rate of 250 kbit/s.

The miniature PLC processes the data and controls the display (Source: RS Components)

CANopen mini-PLC

As already mentioned, the CAN display can be directly connected to any Barth mini-PLC providing a CAN interface. In case of the People Counter project, it is connected to the STG-800 PLC. The controller comes with a 32-bit ARM Cortex core and features a rugged CAN/CANopen/ J1939/NMEA 2000 interface with intuitive graphical programming capability. The Cortex core provides two high speed event, pulse and frequency counter inputs and one 16-bit PWM output combined with an internal voltage reference for the 12-bit analog inputs. The CAN/CANopen/ J1939/NMEA 2000 interface is able to operate in noisy environment and allows the user to connect a variety of network components to the PLC, explained the manufacturer. The CAN interface communicates with data rates at 50 kbit/s, 100 kbit/s, 125 kbit/s, 500 kbit/s as well as 1 Mbit/s.

The STG-800 does not need any peripheral components to operate. Both, inputs and outputs feature integrated and rugged protection circuits to operate the PLC in harsh environment. Application fields include industrial, automotive, and 12-V/24-V battery-powered applications.

The IP20-rated PLC with dimensions of 60 mm x 45 mm x 11 mm can be programmed using graphical function blocks. This block design meets graphical standards of the latest graphical programming languages. The Micon-L software suite features programming, simulation, and test in one software design tool. The CAN programming option offers a variety of possibilities in industrial, automotive, and maritime applications. The STG-800 can also, just like the CAN display, be programmed as open-source PLC using the Keil µVision software suite.

If you would like to read the full article, you can download it free of charge or you download the entire magazine.