Remote Monitoring of Fingerprint Sensors in a Climate Chamber

Abstract

This application note describes how a remote monitoring function was implemented in just two hours, using WireQueue – the secure IoT platform for LabVIEW.

Problem

How to make it possible for the engineers at Fingerprint Cards to monitor their long term high temperature operating life (HTOL) tests of fingerprint sensors 24/7? They want to continuously monitor sensor performance as well as system status of a climate chamber test system. In this case the climate chamber is located at a sub-contractor a few kilometres away. They also want to receive immediate notifications on their smartphones in the event of a fault.

Solution

The test system is controlled using an NI USB-8452 I2C and SPI Interface unit from National Instruments and a laptop executing a test sequence developed in LabVIEW. By connecting the laptop to Wi-Fi and dropping a few VIs from the WireQueue toolkit into the LabVIEW application, the system will start to send encrypted status information to the WireQueue cloud server.

The Fingerprint Cards engineers download the WireQueue app to their smartphones. Now they can monitor the performance of the fingerprint sensors and see the system status in real time from anywhere. In case there is a fault in any of the sensors or in the test system, the smartphone will receive a notification.
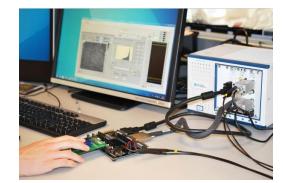
Summary

Using WireQueue, Fingerprint Cards was able to very easily add the climate chamber test setup to the Internet of Things (IoT). The total implementation time did not exceed two hours. This investment paid off in a couple of days when a WireQueue notification alerted the engineers about a problem with condensation that caused inaccurate measurements. The problem was quickly corrected, and the testing was resumed.