Remote Monitoring of a Floating Wind Turbine

Abstract

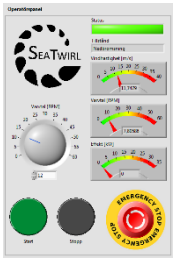
This application note demonstrates the implementation of a remote monitoring function using the IoT platform for LabVIEW - WireQueue.

Problem

How to make it possible for the technicians at SeaTwirl to monitor their wind turbines 24/7? They want to continuously monitor wind speed, rotor speed and power generation. They must also receive an immediate notification on their mobile phones in the event of a fault.

Solution

The turbine is controlled by an NI 9074 cRIO from National Instruments executing a control program developed in LabVIEW. By adding a mobile broadband modem and dropping a few VI:s from the WireQueue toolkit into the LabVIEW application, the system will start to send encrypted status information to the WireQueue cloud server.



The SeaTwirl technicians download the WireQueue app to their mobile phones and connect it to the WireQueue cloud server. Now they can monitor the wind speed and system status in real time from anywhere. In case there is a fault in the turbine, the mobile phone will make a buzz and inform about the fault in the phones notification field.

By using WireQueue SeaTwirl could very easily add the wind turbine to be a part of the Internet of Things, IoT. Since all communication is encrypted SeaTwirl can feel confident that their data is protected. SeaTwirl is now thinking about creating a customized layout for the app and also looking into the possibility to do remote control of the turbine from the SeaTwirl central control room.

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