Automating a previously manual process in the dairy industry

DIGITALDAIRYCHAIN

The CENSIS milk round Technology Accelerator

Torr Organic Dairy is a mixed but mostly dairy farm in Southwest Scotland and has been organic for over 23 years. Today, Torr's dairy herd is 200 large and produces 1.5m L of milk annually. The farm sets some of this milk aside to supply local vending machines with daily fresh unhomogenised organic milk.

The challenge

Torr's organic milk is hugely popular in the local community, and there is an opportunity to scale, including making other milk products. However, the on-farm pasteurising process eats into not only valuable farm management time, but the ability to keep up with delivery demands and other activities.
The pasteuriser operation is totally manual, so our challenge was to help the farm win back valuable time spent on pasteurising that could instead be used on scaling up and trying out other income streams.

Working with CENSIS

We looked for a solution that could enhance the existing equipment with an IoT-enabled system and let the farmers remotely run and keep an eye on the pasteuriser at any time. The pasteuriser needed an automated heating and cooling method, and a way to open and close pipes carrying water and milk at different times.
The Milk Round team at CENSIS worked out the best way to retrofit appropriate food grade sensors and control systems into the existing equipment.

"The CENSIS backup support has been exemplary and we count ourselves fortunate to have had access to this expertise. This makes expansion of our operation much easier."

Ross Paton

The solution

CENSIS created and retrofitted an IoT enabled Pasteuriser Controller System. The system works in parallel with existing controls that can turn the heating element and stirrers on and off, manage the chill pump, and read the milk temperature every 5 seconds. It also checks for errors to ensure that the value returned is an accurate temperature.

Temperature readings are sent to the app every 15 minutes and at the appropriate pasteurisation stage, a push notification is sent via a mobile app to alert the farmer that the sequence has been completed.

The app enables the controller to be operated from a mobile phone or tablet with internet connection. Temperature history can be stored and read on the app and also sent on to be used in compliance reporting, which is an added time-saving bonus.

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The Milk Round accelerator is hosted by CENSIS to assist individuals and SMEs to fast track innovative technologies from proof of concept to demonstration and testing. Accelerator winners receive a tailored support package to deliver products, processes or services to build digital capability and meet net zero targets. The programme is part of the UK Research and Innovation Strength in Places 'Digital Dairy Chain' project that aims to establish Cumbria and South West Scotland as a leader in advanced, sustainable and high-value dairy manufacturing.