REMOTE EQUIPMENT MONITORING AND DIAGNOSTIC FOR THE AGRICULTURE INDUSTRY
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More and more farms around the world are automated. The agriculture industry, powered by the work of machines, increases the need for IoT-based smart solutions. These enhance productivity and optimise resource efficiency.

As part of our services, Strypes offers an IoT Application Development that can perform remote monitoring, remote diagnostics, and remote update. These are custom smart solutions as our clients are typically machine manufacturers whose products have thousands or even hundreds of thousands of components. We help them maximise machine uptime and reduce the need to send service engineers on site.

Manufacturers can find and purchase a ready-made software solution. However, such solutions can be difficult and costly to customise and often can’t meet the complex requirements of the client. Strypes builds custom smart IoT solutions addressing both specific functional as well as UI/UX requirements of our clients.

SERVICES

Remote monitoring
In this step, we collect data about the devices that we then use for remote diagnostics. Remote monitoring means that we don’t analyse the information just yet. The application we’ve built monitors different parameters and detects if something is broken, we then need to perform diagnostics based on all the data.

Remote diagnostics
After we have the data from the monitoring process, we can apply AI and machine learning to draw insights. Even if the machine is working well, these insights can help us increase its performance. Many companies that perform data monitoring don’t analyse it and so they might miss opportunities. When diagnostics is remote, this allows technicians to provide support from a distance and avoid unnecessary trips.

Remote update
The remote update allows technicians to troubleshoot problems and perform reconfigurations without being present at the farm.
THE STRYPES TEAM

Our teams consist of experts in building remote monitoring and diagnostics software applications. The technologies that the Strypes engineers typically use are Azure, .NET, Javascript with React or Vue.

The business impact

The business impact of Remote Equipment Monitoring and Diagnostics Applications for smart farms is:
- Maximize machine uptime
- Monitor machine health remotely
- Reduce sending filed engineers on site to fix a problem.
- Speeding the troubleshooting process and helping farmers focus on their work
- Collect users usage and behavior statistics and suggest further product development

CASE STUDY

Lely's milking robots

Lely, one of our clients, is a company that helps farmers automate feeding, milking and cleaning. The Dutch-founded company produces robots that make agrarian life easier, as it changes the way farms work. Lely came to Strypes as they needed a trusted partner to develop a diagnostic and configuration application that can remotely monitor and manage different types of milking robots data.

Making an impact for farmers

Lely's solution is unique as it allows cows to get milked by letting themselves inside the robot. Each robot can service up to 80 cows per day, milking them 2-3 times a day. This is an effort that would otherwise require a lot of manual labour that cannot be handled by one person. The robots can be monitored by the farmer, but in the unlikely event that they stop working, they can hardly be replaced by manual labour. For this reason, it is critical to ensure that the work of the milking robots is uninterrupted.

What's interesting about these robots is that they are working with the knowledge of the behaviour of the cow, incentivising them to get milked voluntarily and be free to choose when they want to be milked which has a positive impact on both cows health and productivity. As the robots make the milking process enjoyable for the cows, they sometimes “cheat” and try to get milked more than 2-3 times and receive more treats as a reward. When this happens, the robot opens the doors and lets the cow go out.
The software also knows the health and the condition of the cow. When the milk is unfit for consumption because a cow is undergoing treatment, or is in nursing period, the robot still has to milk the cow but then disposes of the milk, or collects it for feeding of the calf.

All these robot software-specific settings, events, alarms and software logs are sent to the Event Hub in the Lely Azure Data Lake. It then gets consumed by the application developed by Strypes which reads the details, transforms them and saves it in different types of storages in the cloud. With the latest version release, we enabled the application to read and manage the different types of data—both in real-time and historical, using various approaches for representation to the users.

One of our objectives with this project was to minimise the unnecessary movement of technicians who provide support for the robots, optimise their work process, and react as early as possible in case of technical difficulties.

Strypes’ solution saves all the data like robot location, alarms, events, robot logs, settings, and so on. This data is then shown in the application in a way that makes it possible to drill down to a specific farm and robot and search or filter, using different parameters like a specific moment of time, settings, and so on. This contributes to the quick orientation of the technician with the robot state or the specific issue that he troubleshoots.

The impact of the application can be seen immediately as it extracts real-time data about the components of the canbus domain of the robot. Farmers can see when a robot is milking a cow, how many litres of milk are collected during the current milking, what are the latest parameters of the different components and if all are operational. If a farmer is next to the robot, remote technicians can instantly view the data in the application and instruct farmers to turn different components on and off. This way, the service technician can help the farmer remotely, instead of travelling back and forth for many miles at a time. Through interactive communication between the person who is next to the robot, the technician can diagnose the robot remotely.

Software engineers can troubleshoot both the robot and the robot software issues, researching in logs or jumping between the diagnostic application and other integrated applications for a specific moment of time when an event or an alarm occurred.
REQUEST A CONSULTATION

The examples that we reviewed showcase a small fraction of how to apply Nearsurance as an outsourcing model that guarantees a solution.

The best way to show what we can do for your company is to offer a free consultation so that we can discuss your needs and show you what solutions we can build.

To request a demo, reach out to us at business@strypes.eu or call us to discuss your project needs.

Visit our website
Visit https://strypes.eu to read more about our services.

Miroslav Grozev
Group Manager
Has been with Strypes since 2009

Desi Kostova
Senior Software Project Manager
Has been with Strypes since 2019

NETHERLANDS
Kopenhagen 9
2993 LL Barendrecht
E: business@strypes.eu
M: +31 6 156 883 17

NETHERLANDS
Prof. Dr. Dorgelolaan 30
5613 AM Eindhoven (4th fl)
E: business@strypes.eu
M: +31 6 156 883 17

GERMANY
Fraunhoferstr. 9
85737 Ismaning
E: business@strypes.eu
M: +49 89 995 29570

BULGARIA
10 A, Maystor Aleksi Rilets
Sofia 1618, Bulgaria
E: business@strypes.eu
M: +359 893516833