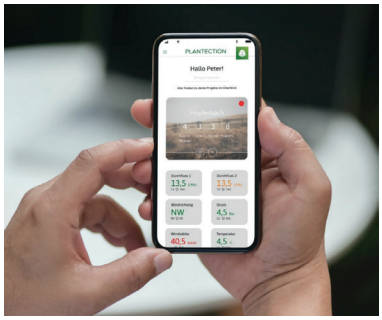
KNESTEL TECHNOLOGIE & ELEKTRONIK

we invent solutions

SMART CLOUD SOLUTION FOR FIELD WATERING

in agriculture



Technology field

MCR-Technology, IoT, Communication & Connectivity, Software

Project requirements

The **aim of the project** was to develop and produce an efficient and cloud-based irrigation control system. On the hardware side, an energy-saving field module (FM) was developed that controls actuators and enables the connection of local sensors. Thanks to energy-saving electronics, the FM can be operated completely self-sufficiently with a battery and a solar module. Using LoRa technology, any number of FMs can communicate wirelessly with an edge controller (EC). Equipped with an LTE module, the cloud-based backend is reached via the central module by internet. For system security, upcoming sequences are stored in the central module, so that the watering works even without a connection to the backend. The backend is the heart of the project, where algorithms work that enable cost-saving watering. Redundant server systems guarantee an availability close to 100%.
The frontend is realised via a progressive WebApp. The automated irrigation can be planned, controlled and managed via this app. If an error occurs, such as a defective valve or a sensor exceeding a limit value, users can be informed by a push notification. Different user levels allow access to many users and protect against

Facts/Highlights

- Energy-saving autonomous field module (FM) - I/Os for sensors and actuators with repeater function: energy supply via solar panel, data transmission to EC via LoRa
- Edge controller, interface between cloud and FM, local control unit
- Backend in a redundant cloud system
- Frontend as progressive WebApp, responsive layout for desktop, tablet and smartphone

Services by KNESTEL

Analysis of potential, target price estimation, project management, specifications, project planning, development of software and hardware, electrical and mechanical design, EMC testing, prototyping, series production

Mögliche Applikationen

- MCR
- Plant engineering
- Industry 4.0

About KNESTEL: Knestel has been developing and producing customized electronic and mechatronic special solutions in the fields of motor and machine control, frequency converters, image processing, MCR technology, software development, radio, bus systems and gas analysis for 40 years.
We support our customers from the idea to the finished implementation. Individual solutions and concepts - technically up to date. Our production - electronics manufacturing, device and switch cabinet construction, Production of subassemblies, assembly and mechanical processing - is equipped with the latest technology.

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