ioCLAFIS IoT Gateway and its Applications for Precision Agriculture and Beyond

September 23, 2016, 9:30
Kaunas university of technology
Studentų 50-332, Kaunas, Lithuania

Representatives from IT sector companies developing agriculture management (FMIS) systems (ART21 Ltd. AgroSmart farm management system, ITPC Ltd. AgroCount farm management system) and the company providing various solutions for truck fleet management (Baltic Car Equipment) have participated in the seminar.

At the beginning KTU team members presented goals and results of CLAFIS project in general. Then the focus of the seminar was shifted to WP2 results, mainly ioCLAFIS gateway. ioCLAFIS gateway hardware and software architectures, interfaces, possibilities of functionality expansion as well OPC UA protocol were introduced. Afterwards, the common discussion took place.

Main comments and findings collected in the discussion were:

1. A fast growing Lithuanian agriculture sector is open for innovations. A demand to increase its effectiveness stimulate adoption of precision agriculture techniques. Farmers acquire more and more modern machinery and agriculture implements, but also continue to operate older equipment. The demand to establish connection of machinery to FMIS for data collection, fleet management and task planning is growing. The implementation of solutions for this demand is often prevented by proprietary interfaces and protocols of machinery manufacturers. ART21 Ltd and ITPC Ltd are engaged in development of Cloud based farm management systems, some parameters monitoring, agriculture production accounting. BCE Ltd is active in the market in transport machines monitoring and tracking. Various small local companies are involved in providing specific solutions to particular groups of customers/farmers. When these companies identify a significant demand and market for a particular solution in precision or traditional agriculture, they start implementing these solutions. Applications are very diverse. To mention just a few they are in greenhouses monitoring, grain storages monitoring, monitoring of private fuel tanks, handling of manure in livestock (some regulations apply), etc.
2. Reading information from machinery bus (CAN) is of key interest to many customers. Technical difficulties arise from proprietary data in CAN and lack of willingness from manufacturers to publish their formats. This prevents OEMs to develop solutions easily. ISOBUS standard is known for the companies, but they have not designed any solution using this protocol yet. Conditional access to data according to device manufacturer is a very important feature.

3. Agriculture applications demanding images collection from the field seem to be a hot topic. Therefore, ioGateway functionality to acquire and deliver still photos or video records is on demand.
4. Some people were asking if ioGateway supports NFC, perhaps keeping in mind some specific applications or comparing ioGateway functionality over other similar products in the market.
5. Neither to IT oriented developers nor to the company involved in machinery fleet management solutions development were familiar with OPC UA protocol. They expressed the intentions to familiarize themselves about the protocol.
6. Participants were interested in the data overhead required by OPC UA and VPN. They pay initial attention to the GSM data cost per month.
7. It was agreed that a product like ioGateway should be of interest to system integrators or OEMs.

Invited seminar participants promised to keep in touch with KTU team and to think about possible applications, where ioGateway could be integrated to provide solutions for the end customers.