

Seamless interoperability between farm machines and software is a step closer

365FarmNet, Aarhus University, AGCO, AgroIntelli, CNH Industrial, GRIMME, Kverneland, and Wageningen University and Research are proud to announce important steps forward towards real interoperability between farm machines, sensors and software. Interoperability is a key issue in the advancement of digital farming.

The Internet of Things (IoT) has great potential to increase the efficiency of agriculture. Currently, products from different manufacturers do not speak the same language and therefore cannot exchange information, thereby limiting their value. If, for example, the data collected by a combine harvester cannot be read by the farm's computer system, it is of no value in terms of supporting their management decisions. The companies and organizations listed above have teamed up to work together on the Internet of Food and Farm 2020 Project to overcome this problem and design the future of connectivity in agriculture.

Using the ADAPT framework, the partners have demonstrated how data can be exchanged between agricultural equipment and software platforms from different brands in a standardized format. This is an important enabler for the flow of data required to make "digital farming" or "Agriculture 4.0" a success. With a simple software plug-in, software companies and equipment manufacturers will be able to read data from different sources, drastically reducing development time, while at the same time increasing available data streams. Easier data exchange will ultimately lead to improved decision making and more productive farming.

ADAPT is an open source software toolkit from AgGateway, based on a universal data model that enables translation between different proprietary data formats. The proof of concept has been demonstrated today, March 1st, at the IoF2020 stakeholder event in Almeria, Spain.

With this demonstration, the partners confirm their commitment to an open and interoperable system, where data can flow seamlessly between different value chain participants. For farmers, it will be possible to use different types and brands of equipment with a wide variety of software or services, regardless of manufacturer.

The next step in the process of increased interoperability includes real time and bi-directional vehicle-cloud communication. For this, the team will build on existing standards and work together with the AEF, the Agricultural Industry Electronics Foundation.

The AEF is an independent organization with more than 200 member companies. The main goal is to improve cross-manufacturer compatibility of electronic and electric components in agricultural equipment, and to establish transparency about compatibility issues.

CNH Industrial N.V. (NYSE: CNHI /MI: CNHI) is a global leader in the capital goods sector with established industrial experience, a wide range of products and a worldwide presence. Each of the individual brands belonging to the Company is a major international force in its specific industrial sector: Case IH, New Holland Agriculture and Steyr for tractors and agricultural machinery; Case and New Holland Construction for earth moving equipment; Iveco for commercial vehicles; Iveco Bus and Heuliez Bus for buses and coaches; Iveco Astra for quarry and construction vehicles; Magirus for firefighting vehicles; Iveco Defence Vehicles for defence and civil protection; and FPT Industrial for engines and transmissions. More information can be found on the corporate website: www.cnhindustrial.com

365FarmNet is Europe's largest, multi award-winning cloud-based software for the entire farm management, independent of farm size and type of operation. The 365FarmNet platform is manufacturer-independent and cross-segmental and includes partner Apps to cover all functions required for operational farm management. From crop rotation planning to nutrient planning, from sowing to harvesting, from field to farm, from documentation to operational analysis. The basic version of 365FarmNet is free of charge. Using the free 365FarmNet Apps for iOS and Android, farmers can document their activities outside in the field or barn, via their mobile devices meeting cross compliance regulations. 365FarmNet together with 35 European partners develops innovative applications for users from more than 20 countries. At present, the platform is available in five languages: German, English, French, Polish and Bulgarian.

Aarhus University (AU) is a globally-oriented university with a commitment to excellence in research and education. AU cover the entire research spectrum, and specifically, the Department of Engineering/Operations Management Unit carries out research and teaching in the fields of Biosystems Engineering as well as innovative technologies to be applied in industrial production and bio-production system.. Specifically, the researching and application of advanced ICT systems (standards, interoperability, web-services, etc.), user-centric design and requirement analyses, information modelling, logistics optimisation, route planning and optimisation, sensor fusion, machine vision, stereo vision, signal processing, GNSS, autonomous navigation, motion planning and scheduling, manipulator mechanics, spatial statistics, spatial data infrastructure, telematics, communication networks, IoT and wireless IP networks, and smart grid communication) are at the forefront.

AGCO (NYSE: AGCO) is a global leader in the design, manufacture and distribution of agriculture equipment and solutions and supports more productive farming through its full line of equipment and related services. AGCO products are sold through five core brands, Challenger®, Fendt®, GSI®, Massey Ferguson® and Valtra®, supported by Fuse® precision technologies and farm optimization services. Founded in 1990, AGCO is headquartered in Duluth, GA, USA. In 2017, AGCO had net sales of \$8.3 billion. For more information, visit <http://www.AGCOcorp.com>. For company news, information and events, please follow us on Twitter: @AGCOCorp. For financial news on Twitter, please follow the hashtag #AGCOIR.

AGROINTELLI is a Danish development company with focus on navigation, automation and vision for arable farming. AGROINTELLI creates revolutionary and radical innovation, in terms of products and services for B2B partners with a high focus on reliability, sustainability and profit. By using the latest technologies in machine vision, machine learning, automation, robotics, sensor technologies and decision support systems, AGROINTELLI develops new solutions for the professional farmer. More information can be found on the company's website: www.agrointelli.com

GRIMME - The world leader in potato technology - The name GRIMME stands since decades for innovative potato technology. No matter if separating, planting, cultivation, harvest or storing of potatoes for more than 70 years are the red machines well-known for high quality and output in the potato section. And since 2003 belongs also the innovative sugar beet technology to the product range in our traditional company in Damme, Germany. Over 150 years ago GRIMME has developed from a small forge, to a leader in potato and sugar beet technology. GRIMME works for decades' close together with the local dealers and partner in over 120 countries around the world, with own service and sale subsidiaries in more than 20 countries. Over 2,200 employees work for GRIMME around the

world, 1,600 of those working in Damme. Our aim is to offer all root crop farmers around the world, the best solution for their operation.

Kverneland Group is a leading international company developing, producing and distributing agricultural machinery and services. With a strong focus on innovation, the Group provides a unique and broad product range with high quality. Kverneland Group offers an extensive package aimed at the professional farming community, covering the areas of soil and seeding equipment, forage and bale equipment, spreading, spraying and electronic solutions for agricultural tractors and machinery. The Group was founded in 1879. Kverneland Group's factories are located in Norway, Denmark, Germany, France, The Netherlands, Italy, Russia and China. The Group has own sales companies in 17 countries and exports to another 60 countries. At the end of 2016, Kverneland Group had 2 260 employees, of which 74.2% worked outside Norway. In 2012 Kverneland Group was acquired by the Japanese company Kubota Corporation. Kverneland Group offers the following brands of equipment: Vicon and Kverneland. More information can be found on the corporate website: www.kvernelandgroup.com

Stichting Wageningen Research (WR) consists of a number of specialised institutes for applied research in the domain of healthy food and living environment. WR collaborates with Wageningen University under the external brand name Wageningen University & Research. The research institute involved in this proposal is Wageningen Environmental Research (WENR), a research institute within the legal entity Stichting Wageningen Research.

Wageningen Environmental Research (formerly known as ALTERRA WUR) is a leading research institute on 'our green living environment'. We offer a combination of practical, innovative and interdisciplinary scientific research across many disciplines related to the green world around us and the sustainable use of our living environment. WENR focuses on aspects such as land cover and land use, the use of geo-information and remote sensing in agriculture, landscape and spatial planning, forestry, flora and fauna, soil, water, climate, vegetation, recreation and its governance. WENR engages in integrated research to support design processes, policy-making and management at the local, national and international levels. WENR has about 400 staff members and combines a wide range of expertise for integrated agri-environmental assessments, climate change impact assessment and for studies related to rural areas and their sustainable use.

Contact

Rachel Shwartsman
AGCO Corporation
+17708136167
rachel.shwartsman@agcocorp.com