IMPLEMENTING AGRICULTURAL MACHINE CONTROL & MONITORING

WITH ISOBUS, SMARTPHONES/TABLETS & AUTONOMOUS TECHNOLOGIES

Enabling Innovators
Over the years, the agriculture sector has seen a variety of technologies designed into the control of implements.

The technology applied to agricultural equipment has evolved from manual hydraulic controls and hydraulic-over-electric direct wired systems, to the addition of electronic controls with controllers and in-cab monitors, ISOBUS-based implement control, GPS utilization, wireless control using mobile devices (remotes, tablets and smartphones) and connection to the Internet/Cloud to access its resources. Autonomous control is the next evolutionary step.

JCA offers Machine-to-Machine (M2M) communications that blend physical and digital system to tie machine controls to total farm management.
When discussing today’s technology in the agriculture sector, new applications are taking advantage of M2M communications and wireless controls. To define the right solution for controlling an implement it is necessary to understand the type of implement, the market, and the application that it serves. The decision is highly dependent on this analysis and the best solution is, often, a mixture of different types of technologies in the control system.
When all pieces of the agricultural implement control system are integrated, mechanical/electronic devices and software communicate with each other and evolve through the endless range of possibilities that OEMs have today in the agriculture sector.

Designers of agriculture equipment should consider how M2M communication and these new technologies can add value to their systems and applications. Some control applications may have been difficult or costly in the past; today, with the addition of mobile smart devices, innovations can be straightforward and economical. The following are some examples:

**TELEMATICS AND REMOTE DIAGNOSTICS**

A Wi-Fi or Bluetooth-enabled implement controller can connect to a Cloud-based service through the cellular network of a mobile device. This allows service and support people to see live machine diagnostics or historical data logs from a remote location, to diagnose/track issues in the field.

**INTEGRATION OF GUIDANCE AND MAPPING SYSTEMS**

Guidance and mapping systems can be integrated with many implement control applications beyond traditional precision agriculture applications. This may include integration of maps into a tablet application with satellite imagery, interfacing with RTK GPS/GNSS systems, or using the JCA FlightPath precision agriculture engine for performing complex location-based functions. The variability of options availability can facilitate any application from low cost geofencing or location awareness to high precision autonomous guidance systems.
HIGHLY AUTOMATED AND AUTONOMOUS CONTROLS

Autonomous implement control is the future of farming, however it is an evolution, not an immediate change. The evolution towards autonomous functions starts with increasing levels of autonomy in specific functions that today require skilled operators. This improves the performance of machines for all operators, and makes steps towards fully autonomous solutions. This evolution requires the integration of guidance systems, data management, perception systems, and HMI advances. These technologies can offer value to the current machine, while building a comfort and capability towards fully autonomous systems.

WIRELESS CONTROL

Few things are more frustrating than losing a remote control that is needed to run a piece of equipment. Using a smartphone/tablet as a remote means that the operator is more likely to know where the remote is at all times. Smartphones/tablets allow for much more flexibility in monitoring and control as they are not limited to only a few buttons, and entirely different screens can be shown for different operating modes.
Let’s discuss your electronic system needs. Our experts can help you arrive at a detailed solution that fits your particular application.

Contact us today for your immediate system assessment.

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