

The Internet of Things: implications for agriculture

BY PETER GREDIG

Internet of Things (IoT) refers to an emerging reality where more and more devices are connected to users and other devices via the Internet. The ramifications of IoT will touch us all in the very near future.

Almost any device or product with electronic on-off controls can now be equipped to connect to the Internet. The most obvious benefit is that a user can control the operation of the product online. The smartphone is often the most convenient way to do this and the phone becomes a remote control. But the implications go much further.

IoT enables so-called “smart” device networks. For example, a smart house may have Internet-connected door locks, smoke and CO₂ detectors, furnace and air conditioning thermostat, security cameras, TV and more. The smart part refers to how these devices can network to function together or independently. It may soon be possible to set your GPS-enabled smartphone to activate the furnace or air conditioning when you are within 15 kilometres of home. The appropriate lights would turn on when you are within one kilometre, and the coffee machine could commence brewing the moment the garage door opener kicks on.

On the farm

What could a smart farm look like? Connected field-specific weather stations and soil moisture sensors could alert you when conditions warrant a fungicide application. Controlled tile drainage valves could open or close automatically according to conditions detected by sensors.

Performance and yield data can already be transferred wirelessly from many forms of farm equipment. Where this real time data goes and what it will connect to is open-ended. Drones? Robotic tractors? We'll see.

Bio-monitoring devices that track temperature, heart rate, respiration and movement on sentinel animals in livestock herds will provide an early warning for animal health issues or stressors. Appropriate climate



and feed adjustments could be initiated automatically or remotely. A bio-monitoring and messaging prototype product for horses called SeeHorse already exists.

Farmers and employees may also benefit from bio-monitors that help detect fatigue and stress.

Connected sensors will automatically monitor inventories of all descriptions – fuel, feed, crop protection products. When levels drop below a prescribed level, an order could be generated automatically.

Did I mention data? Every connected device can generate data in real time and retain it via the Cloud. An avalanche of data from the billions of connected devices will come on line in the next few years. The bottom line is, if it can be connected, it will be connected.

Watch for more about the deeper implications of IoT for agriculture, privacy concerns, and strategies for moving into the IoT age in future articles. ■

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