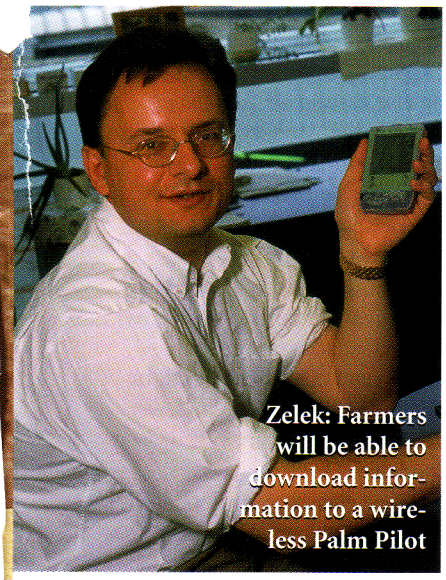
Track your pigs' health on video

New monitoring technology can instantly warn you about irregularities in your herd

by MURRAY TONG

Pigs could face an Orwellian future with a new monitor that simplifies the task of tracking their health and well-being.

Prof. John Zelek of the University of Guelph's School of Engineering has created a non-invasive automated pig monitor, a real-time software application that observes the range and frequency of movement of individual pigs. "A lack of motion generally indicates a lack of welfare," says Zelek.



Zelek: Farmers will be able to download information to a wireless Palm Pilot

With that in mind, Zelek created a computer software program that can instantly warn producers about behavioral or health-related irregularities in the herd. Other tracking systems simplify the environment by placing artificial markers on the subjects, making them easier to track, but he is a pioneer in applying non-invasive monitoring technology to pig production.

Zelek had originally planned to develop an interactive robot waiter. However, he put the project on hold when interest was expressed in the design of an inexpensive, stationary tracking device.

He found the simplest solution to be the most effective. By mounting an inexpensive video camera over a pigpen and plugging the image into a Pentium 2 processor, he created a computer program to monitor movement of individual animals.

To track the pigs individually, Zelek employed what's called "simple segmentation" – also known as "blob tracking." This technique uses a tracking window to define an area around an object's centre of mass, such as a pig's body. By setting up multiple windows, the computer can follow the movements of several pigs at the same time.

Zelek says it's the easiest and fastest way to grab the position of a moving pig, but there are still some bugs to work out. For example, the monitor tends to lose track of its target if the pig's body twists too much, or if pigs squeeze next to each other. In addition, while the monitor can track an animal once it has been identified, it cannot do the identification itself. To fix that, Zelek will be working on adding a pig recognition module to his program.

A selling point of his pig monitor is that it works in real-time, which can analyze the data as they are recorded. Other monitoring systems can only record their subjects and must be tediously played back later to extract information.

Zelek still wants to return to work on his robot waiter, but his eventual goal is to apply this technology to a wheelchair guidance system. This would involve a robot that could synthesize information from a collection of cameras on a wheelchair and navigate the occupant.

To Zelek, it's a natural fit. "We can replace humans who have to work in remote, hazardous or tedious jobs with technology," he says. Indeed, his tracker can be modified and developed to observe other animals on a farm setting, and data can even be transmitted around the world for animal studies. BF

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And the winner is ...

Ray Howling of New Dundee, right, is presented with a cheque for $500 by *Better Farming*'s Senior Staff Editor, Don Stoneman. Howling was the winner of *Better Farming*'s subscription/reader survey draw at the Outdoor Farm Show in Oxford County last month. Howling, chairman of the board of the Ontario Farm Safety Association, runs a 100-sow farrow-to-finish operation and cash crops corn, soybeans and wheat.