Prototype camera system mounts on top of cab.

Computer Video System Maps Weeds In Fields

A U.S.-based computer scientist is helping build a weed control system that ID's and maps weeds in fields. Bob Pilgrim, Murray State University, is working with British researchers to develop the mapping system. They have received a 4-year grant for more than $1.3 million to refine it. Not only can the system tell you what weeds are in your field and where, it will be able to estimate crop yields as well.

"We are using cameras with such high resolution that we can measure the length of the grain kernel and count the kernels on the grain head," says Pilgrim. "Other systems have been developed that can pick out weeds or green plants against brown dirt. Ours can pick out green grassy weeds against green cereal plants and identify them."

The GPS-linked, digital camera system is not designed to work in real time. That is, if mounted on a sprayer boom as planned, it won't activate the sprayer to treat the weed. Currently only mature grass weeds can be identified, too late for control to be economically effective.

"The damage to yield is already done," says Pilgrim, adding that identification and mapping of the weeds is still important.

As the equipment is driven through a field, cameras record and georeference (tag the image with location data) passing vegetation. The controller identifies the weeds for later placement on a field map.

"Growth of weed patches are predictable," he says. "The map can be used the following year to place a buffer zone around the area for treatment before the weeds emerge."

Such planned treatment can reduce herbicide costs, allow targeted spray for particular weed species and differential spraying across the field. Pilgrim says such a system has immediate application in Great Britain and Europe where environmental rules on herbicide applications are much more stringent.

"As herbicide resistant weeds become even more of a problem in the U.S., it may have more application," says Pilgrim. "You could change rates or even change the herbicide being sprayed, depending on the weeds likely to emerge in a given area of the field."

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Donald Brungardt built this easy-off cab for his Cub Cadet garden tractor. "I hate drilling holes in equipment, so I designed it to use existing holes," he says.

Easy-Off Cab Keeps Snow Away

When Donald Brungardt blows snow, his cab keeps him warm and dry. The rest of the year, the collapsible cab for his Cub Cadet folds up against the garage wall. The 5 panels are designed to snap in place easily, yet leave no mark when removed.

"I hate drilling holes in equipment, so I designed it to use existing holes," says Brungardt. "I made two brackets to mount the front panel to holes in the frame just ahead of foot rests. The panel slides over the top of the hood and into the brackets. I used mounting bolts for the roll bar to mount the rear panel."

The plywood panels have cutouts covered with Plexiglas for visibility. They are framed on their interior sides with 1-in. sq. steel tubing. The tubing adds strength to the panels and serves as mounting points when attaching the panels to each other. Brungardt recycled old rubber gaskets from the bottom of his garage door to fashion gasket material where the sides butt up to the tractor.

The 5 panels are held together and to the tractor with 25 self-drill screws and 6 bolts. The driver's left side door is secured in place with hinges made from short lengths of pipe and bolts. Side panels mount after the front and rear panels and the top panel drop in place.

The roof features a raised section at the rear to make room for the roll bar. Should Brungardt need to store the cab-enclosed tractor under a low roof, the roll bar can be removed and the raised portion replaced with a flat plate.

"To get heat in the cab, I remove the cover over the fuse box," says Brungardt. "It extends through the firewall, which allows engine heat to flow into the cab, though it does make it more noisy."

The collapsible cab folds up for storage against his garage wall.

"It doesn't rattle, is very solid and easy to take on and off," he says. "It cost about $350 to build with the Plexiglas the most expensive part."

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The 16-in. bar on Marc Olander's Stihl 027 chainsaw fits into a slot that he cut into one end of cooler.

Modified Cooler Makes Great Chainsaw Carrier

"I made a handy chainsaw case out of an old cooler. It's big enough to hold my chainsaw and other tools that I need to do logging work," says Marc Olander, Tolland, Conn.

He used a reciprocating saw to cut a slot into one end of the cooler that's a little bigger than the 16-in. bar on his Stihl 027 chainsaw. The slot is about 6 in. high and 1/2 in. wide. The saw simply nests at the bottom of the cooler.

He attached brackets to the bottom of the cooler's lid to store other tools, including an Oregon chainsaw chain sharpener and a screwdriver.

"It keeps my saw and tools dry and in one place so I don't have to spend time looking for them," says Olander. "The factory-provided case that I had been using didn't have enough room to store items like a funnel and chain oil."

Brackets attached to bottom of cooler's lid are used to store other tools.

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Homemade Soundmaker Scares Off Birds

Martyn Prince and his father are two farmers from the Midlands Region of England who have problems with birds scavenging feed from their livestock. They've tried different devices and tools to scare the winged invaders off, with limited success. Finally they designed their own multi-directional birdscarer that blasts a loud noise when birds are detected nearby.

The Prince's invention is a collaboration of metal fins, an electronic detection sensor, a battery-powered solar panel and a directional blasting tube. This sound making apparatus is mounted on a 12-ft. metal stand so noise is blasted out in the atmosphere closer to the birds rather than near the ground. After a sound blast is fired from the gas-charged canister the device changes position by pivoting on a central bearing.

The stand is made of a sturdy metal shaft anchored into a metal I-beam with angled side supports. The base is welded to metal brackets positioned the width of a pallet fork. That design allows the Prince's to easily move their backyard ballistics invention from place to place with a forklift.

Multi-directional bird scarer blasts a loud noise when birds are detected nearby.

So far the Princes' invention has worked well. They haven't needed to alter their own design or try other bird scaring devices. Martyn says their savvy soundmaker is especially effective because it's multi-directional and it projects sound further than other devices they've tried that mount closer to the ground

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