Robotic Lawn Mower

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Mowing grass, raking leaves and even walking the dog might seem to be dull and repetitious chores, but the drudgery soon might be relieved with a robot lawnmower designed by MSU agricultural engineers. The possibility was demonstrated last fall in East Lansing. It involves attaching computer equipment, known as a microprocessor, to a large riding lawnmower. The microprocessor enables the unit to operate independently of human guidance.

When the microprocessor is switched to the "learn" mode, its sensors are programmed as the user drives it once over the prescribed course - the perimeter of a lawn, for instance. Then, placed in the automatic mode, the mower completes the job while the human rests. Because the guidance system does not respond to outside interference - from a CB radio or an electronic timer in the kitchen, for example - it won't pick up a stray signal and malfunction.

Because the microprocessor learns to perform tasks via magnetic tape, the unit to which it is attached can perform a number of chores. Theoretically, it's possible to have cassette tapes for an equal number of household jobs, such as walking the dog three miles while the human relaxes.

We primarily are interested in adapting this concept to agricultural field operations and other repetitious chores, such as row crop cultivation, harvesting, pesticide spraying and ladling out exact rations for animals.

There are a lot of jobs on the farm which tend to be boring, and because of this, accidents or mistakes can happen. Each of these must be done with a high degree of precision and each is largely based on memory. Yet done for hours on end, all are tedious.

So why not replace the thinking human with a semi-thinking machine? Our concept will do that.

The principle involved in the robot lawnmower is not new. Previous attempts at automatically guided agricultural machinery have depended on single-sensed inputs - row followers, furrow-followers, ultrasonic devices or buried wires - none of which has worked. Our unit operates on a series of magnetic impulses recorded as the machine is guided through its task or the route to be traveled during the learn mode. From then on, the action of the robot is merely the result of the magnetic impulses played into its reactors.

This means there is little to prevent the robot from giving the farmer's cows a precise, individual feed ration while the farmer does something else.

The machine is quiet because it's battery-powered and it moves evenly through its tasks, which means temperamental animals wouldn't be disturbed. It could also apply pesticides, and the farmer wouldn't be in danger of being contaminated by the substance being sprayed.

Right now, the limitation is funding. Unless additional monies are forthcoming, the progress will be slow.

If we could secure the support, we'd immediately start working with the application of this concept to farm chores.

We are on the verge of making our concept a reality on farms. The system is not expensive and can have broad application. Farming with robots could be feasible within a few years.

The Robotic Lawn Mower developed by M. S. U. Agricultural Engineers