Automated mushroom harvester can change the industry

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*The Robotics and Automation team at Vineland Research and Innovation Centre (Vineland) in Ontario, has been working on developing a robot that has the potential to significantly change Canada’s fresh mushroom industry.*

Commercial mushroom production is labour-intensive. Not only does a mushroom crop require many harvesting cycles, but the picking itself is a manual task, that can cause physical strain. Researchers and the industry have been investigating for a number of years the possibility of developing automated harvesting systems, but as mushrooms are susceptible to handling damage, a real solution has yet to be found. During our visit at Vineland, we were surprised to get a glimpse of one of the first successful automated mushroom harvesters.

The challenge of developing a reliable mushroom robot lies in the search of a machine that can harvest mushrooms with the same intelligence and dexterity as a human being. "It is more complex than we first anticipated," said Lana Culley, Vineland’s Business Development Director. "It is not simple to develop an intelligent system that is able to find a mushroom meeting the proper size requirements, as mushrooms grow continuously. We needed to build a “smart” harvesting system that ensures maximum yield and quality."
After taking a picture of the cultivation bed, the robot runs an analysis and decides which mushrooms to harvest.

For this reason, the Vineland team developed and has filed patent applications on its advanced algorithm and gripping systems.

After years of working on the robot, the team has developed an autonomous machine that is able to choose which mushroom to pick, process and move it gently to the desired packaging.

The robot’s software algorithm can decide when to pick a mushroom by analysing a number of factors.
The cycle to analyse the bed, crop and pick one mushroom takes six seconds. Using a proprietary gripper to pick the mushroom, the robot then cuts the stem and places the mushroom in a box.

The automated mushroom harvester, now moving to a second phase of development, has the potential to change traditional mushroom cultivation. "The cost of labour continues to drive the need to automate in horticulture and mushroom harvesting is a great target for our team," said Culley. "We believe our unique technologies could revolutionize the mushroom industry globally, not just in Canada."

With a domestic mushroom production of more than 100 million kilos, Canada is one of the largest mushroom producers in North America.

For more information:

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