PRECISION AGRICULTURE

ROBOTIC STRAWBERRY PICKER

DIRTY ENVIRONMENT | HIGH SPEED | CONTINUOUS AUTOMATION | CUSTOMIZABLE

Linear Actuators + Automation = Revolution in the Agricultural Industry

Harvest CROO Robotics was established in 2013 as a technology company focused on revolutionizing the agriculture industry with automation.

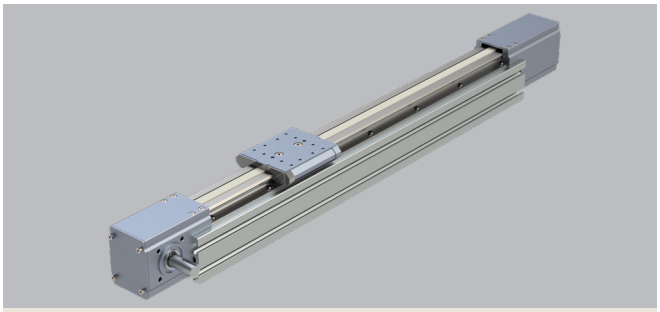
In 2017, they announced their first fully automated strawberry picker prototype that helps farmers save money, increase their yields, reduce energy usage, and put the fun back in farming.

With rising labor costs and a dwindling labor pool, Harvest CROO's automated solution can pick one strawberry plant every eight seconds and do the work of 30 pickers, requiring minimal production changes from the farmers.

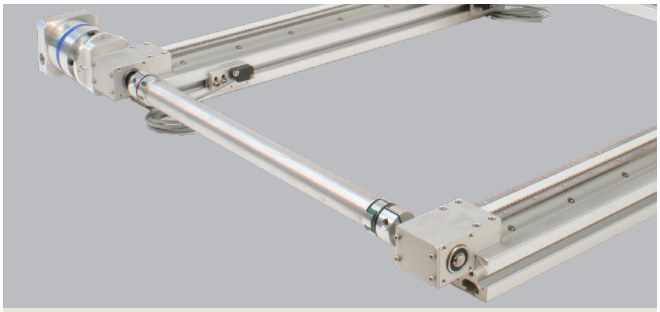
CHALLENGE

The concept of the automated strawberry picking robot revolves around utilizing conservation of motion principles. A series of these robots are arrayed on a carrier that needs 250 pounds capacity per actuator and travel up to 60 inches in a 1.5 second time frame.

The biggest challenge was combining speeds and load parameters to accomplish goals in difficult environmental conditions. The machine will work consecutive 20 hour days, in all weather conditions, and with heavy dirt and debris environments.



Belt-driven LoPro® linear actuator with aluminum beam.



Coupled LoPro® actuators on a multi-axis assembly.

SOLUTION

CORROSION-RESISTANT, BELT-DRIVEN LOPRO® ACTUATORS

Four Bishop-Wisecarver LoPro® 10' actuators (two carriages per assembly) were developed in a unique daisy chain formation. LoPros are used to position the robot carriers of the automated machine and were selected because of their ability to withstand difficult environments and manage heavy loads at high speeds.

CHALLENGE SOLVED

"Our automated strawberry picker is going to revolutionize the agriculture world because we've perfected a way to pick more fruit, in a shorter amount of time, without damaging any berries or requiring farmers to change their processes. To achieve this, our picker utilized linear actuators from Bishop-Wisecarver that can withstand the high speed, loads and endurance demands we require.

The products worked so well in our beta testing, we strategized with the Bishop-Wisecarver engineers in developing an even more advanced machine that is currently in production. The automated berry picker will be in the field in 2018."

- GARY WISHNATZKI, CO-FOUNDER OF HARVEST CROO ROBOTICS

Strawberry picker undercarriage with daisy-chained actuators for carrying the individual robotic elements.