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EIC INNOVATION PROCUREMENT PROGRAMME

GH Veggie Weeder
case study

SMART FARM ROBOTIX

with the support of

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PILOT: Smart Farm Robotix & Bio Contact Ltd.

GH Veggie Weeder | Sustainable Agriculture, Robotics, and Organic Farming

100% AUTONOMOUS	0 CHEMICALS	0% DAMAGE	100% CROP
ROBOTIC NAVIGATION	**ZERO HERBICIDES USED**	**SAFE CROP PROTECTION**	**ROW ACCURACY**
Navigates narrow greenhouse crop rows without human driver control	100% mechanical weed destruction complying with strict organic farming rules	Precision AI vision eliminates weeds without harming delicate vegetable plants	Maintains accurate row tracking in tight greenhouse environments

PILOT PROFILE

EIC Awardee: Smart Farm Robotix
Solution: GH Veggie Weeder
Partner: Bio Contact Ltd. (Bulgaria)
Testing Ground: Commercial organic vegetable greenhouse operating active crop rows
Sector & Challenge Focus: Sustainable Agriculture, Robotics, and Organic Farming

The Challenge

Organic greenhouse vegetable farming requires removing weeds continuously so crops receive light, water, and soil nutrients. Because organic certification strictly forbids chemical weed-killing sprays (herbicides), farm owners must rely on manual hand-weeding. Hand-weeding is extremely back-breaking, expensive, and increasingly difficult due to severe agricultural worker shortages.

The Solution

GH Veggie Weeder is an autonomous electric farming robot. Guided by Artificial Intelligence computer vision cameras, the robot travels down narrow greenhouse crop rows automatically, distinguishes weeds from vegetable plants, and uses targeted mechanical tools to remove weeds safely without chemicals.

Objectives

The trial aimed to test autonomous robotic navigation, weed detection accuracy, and mechanical weeding performance in a real commercial greenhouse. The farm owner wanted to evaluate whether the robot can reduce manual hand-weeding labor costs while maintaining crop safety.

Constrains

The engineering team had to ensure the robot can turn smoothly in tight greenhouse aisle corners, handle changing sunlight reflections on camera lenses, and operate reliably in humid greenhouse climates.

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Performance

The robot successfully navigated commercial greenhouse crop rows autonomously. Its camera vision accurately identified weeds and destroyed them mechanically with zero damage to crop plants. The trial confirmed that the autonomous weeding robot can effectively replace manual hand-weeding labor.

Partner Operational Improvements

Reduced seasonal farm labor dependency, lower weeding costs, and guaranteed organic certification compliance.

> *"We had good demonstration of weeding robot. It can help us reduce need to manual workers for weeding, which are very difficult to find as this is very monotonous work"*
>
> **— Bio Contact Ltd.**

SUCCESSFUL PILOT VALIDATION

The farm management agreed to a step-by-step commercial purchasing transition. Smart Farm Robotix is introducing the robot to the Bulgarian Organic Producers Association and expanding sales across European greenhouse growers.

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