



## Automation for the Forestry of the Future

SweTree is a Swedish biotechnology company focused on developing sustainable plants for forestry. In a comprehensive collaboration with Prevas, the company is developing an automated process for selecting and propagating the most viable trees already at the embryo stage.

For this project, Prevas has developed an advanced vision system where AI-based image analysis and robotics work together with extremely high precision.

“Our goal is to plant trees that deliver higher growth and better quality,” says Magnus Hertzberg, CTO at SweTree. “For society, this is about creating healthy, productive forests that can provide biomass while also contributing valuable ecological benefits.”

The method SweTree uses is called somatic embryogenesis, where new plants are created from plant cells in a laboratory environment. Traditionally, forest seedlings are produced from selected trees in seed orchards. It is an established method that works on a large scale, but with limited opportunities to fully benefit from breeding improvements.

“With somatic embryogenesis, we can select the strongest trees already at the embryo stage and reproduce them,” says Magnus Hertzberg. “This can result in trees that grow up to 30 percent better and are also more resistant to disease, insects, and drought.”

## Identification, Picking, and Planting – in Under Three Seconds

SweTree’s automation process consists of several stages, with Prevas contributing to one of the most critical: using a robot to pick embryos and place them into a cultivation medium. The process begins with a camera inspecting a large number of embryos. They are extremely small, typically between 1 and 5 millimeters long depending on the species.

“Using AI-based image analysis, we identify a suitable embryo and calculate a number of parameters, including position and angle,” says Johan Sandberg, Vision Engineer at Prevas. “This enables the robot to pick up the embryo correctly, both to avoid damaging it and to ensure accurate placement later in the process.”

The embryo is then planted in a cultivation unit within a tray containing a total of 160 units. The openings in the cultivation units are also identified using AI, and the entire process is completed in under three seconds.

## Delivering a Complex End-to-End System

“It is not efficient for us to build cutting-edge expertise in AI and robotics internally, so we collaborate with specialists,” says Magnus Hertzberg. “Together with Prevas, we can offer a complete robot- and AI-based system to customers around the world.”

To realize the project, Prevas has contributed expertise across several areas, including machine vision, AI, robotics, PLC systems, and UX.

“This is an extremely complex project where we truly leverage our capabilities as a full-service provider,” says Milad Abdhagh, Account Manager at Prevas. “The collaboration with SweTree is a great example of what we can achieve in the more advanced part of the spectrum, even though we also work with simpler solutions.”

Read more about the [project with SweTree on the Prevas website](#).

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### About Prevas

Prevas is an innovative development hub focused on product and production development, with ingenuity at its core. With strong technical expertise, business understanding, and advanced capabilities in data and AI, we help customers from a wide variety of industries to benefit through continuous technological innovation. Good for people, planet, and profit. Prevas was established in 1985 and currently employs 1,100 people in Sweden, Finland, Denmark and Norway. Prevas is listed on NASDAQ Stockholm since 1998. For more information about Prevas, visit [www.prevas.com](http://www.prevas.com).