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An ABB brain for Big Hanna

2016-05-25 - Safe composting on an industrial scale thanks to ABB's ingenuity

Big Hanna is a large composting machine manufactured by Susteco AB that converts food waste into nutrient-filled soil supplements for plant growers. ABB products ensure that the machine operates safely, shutting down when the hatches are open.

When compost systems manufacturer Susteco AB wanted to integrate an effective safety system into Big Hanna, there were many to choose from, but they opted for ABB's Pluto Programmable Logic Controller (PLC), which can accommodate communications from multiple safety sensors.



ABB safety products ensure machine safety. It is absolutely impossible to start the machine unless the safety sensor has confirmed that all doors are closed. The temperature can reach 63°C inside the machine, as microorganisms help break down old bread, potatoes and egg shell.

Big Hanna composters are available in a range of sizes, for residential and commercial use, but all work on the principle of waste being deposited into a large rotating drum and held, under carefully monitored conditions, until the composting process is complete. The drum is rotated for one minute every hour and progress is measured by checking the temperature in the machine (the biological processes generate heat, which builds up during the composting process).

The Pluto PCL is Big Hanna's "brain," able to manage data from the various safety sensors installed in the machine. In Big Hanna, the sensor is ABB's "Eden" unit, a non-contact safety sensor that makes sure that the drum stops rotating when any of Hanna's doors or hatches are opened.

"It is absolutely impossible to start the machine until [the doors are closed and] Eden has sent the all clear signal," says Harald Estving at ABB's partner, Elektro Part AB, who was responsible for Big Hanna's programming. It's an essential feature for the machine, which is accessed by non-specialist users many times a day.

"When you work with Big Hanna you can focus entirely on what's going on inside the machine without having to think about safety," says Cecilia Ek, sales director at Susteco AB.



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Tin-Tin Jersild, head of operations at Rosendals Trädgård, with a container of food waste about to be emptied into Big Hanna. "The machine helps us to avoid consuming more resources than our operations produce," she says.

ABB and Elektro Part AB worked together to find an optimal solution for Big Hanna. Elektro Part AB did the programming and ABB produced the designs, incorporating modular units to allow additional hatches to be incorporated as needed.

Big Hanna is now at the center of a recycling system at Rosendals Trädgård, a public garden in Stockholm, Sweden. It converts food waste and farmyard manure into compost, which is great for the environment and, most importantly, because Big Hanna is safe to work with, great for her operators.

By ensuring safe operating conditions, these installations not only safeguard machine operators, they also reduce wear and tear, and extend the life span of the equipment. ABB is the world leader in machine safety and our integrated safety sensors are increasingly popular.



Niklas Karlsson, head of the kitchen garden at Rosendals Trädgård, is passionate about recycling, composting and ecology.

Fact box:

Big Hanna in the world

Big Hanna was invented by sociologist Torsten Hultin in 1991 to "make us aware of how modern society misuses the earth's resources." According to Hultin, on site composting would ensure we better understand the grow-eat-grow cycle. There are now Big Hannas all round the world: on the Kerguelen Islands in the Pacific Ocean, on Kebnekaise, Sweden's highest mountain, at a large military base in New Zealand, in many UK and US prisons.

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