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Case Study
Precise Positioning

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> **Precision is crucial for SolarCleano in many aspects, including that if our robots are not moving precisely, they may fall off the panel. It is critical that our robots drive very near to the edge in order to clean the beneath of the panel, which is only feasible with Precise Positioning."**
>
> Christophe Timmermans, CEO SolarCleano

Autonomous Solar Panel Cleaning Robots

SolarCleano is a Luxembourg-based robotics company aiming at providing innovative autonomous and semi-autonomous solutions to solar panel cleaning. They produce modular, fast, efficient, remote-controlled or autonomous robots to help users regain full productivity in solar cells. They have a wide range of robots of different sizes, with various brush types, which are suitable for all kinds of environments.

The Challenge

Products used

Starling®

Skylark™

PGM

With the current energy consumption, solar plants are becoming more extensive, and the need for projects above 50 MWp is growing. Such large projects are mostly installed in remote desertic areas, where cleaning is crucial since dirt and dust on the panels directly impacts solar energy production and can decrease the output by up to 35%. Yet, manual cleaning is highly inefficient with potential safety issues. Therefore, the industry needed a fully autonomous solar panel cleaning solution.

The Solution

SolarCleano is innovating for a sustainable world: they developed SolarCleano F1A, a fully autonomous robot dedicated to large solar installations. SolarCleano needs accurate localization of their autonomous solar panel cleaning robot for safe navigation with edge detection. They also developed a transporter robot to carry the cleaning robot from one solar panel to another. They need Precise Positioning for both transporter and cleaner robot.

SolarCleano integrated Precise Positioning GNSS Module (PGM) Evaluation Kit with Skylark cloud-based corrections to their robotic setup and tested its performance on a solar panel.

Figure 1: PGM Receiver, 50.95 x 30 mm Mini PCIe

The Result and Next Steps

The test results showed that even under the heavy rain conditions, the robot could be located precisely and fully perform edge detection. Similarly, their transportation robot also managed to carry the cleaning robot from one panel to another.

Figure 2: PGM Evaluation Hardware
115 x 82 x 34 mm

Edge Detection with Precise Positioning

SolarCleano Robotic Setup with Skylark

swift NAVIGATION

Contact
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