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Case Study
Precise Positioning

> **At Angsa Robotics, we're developing the world's first autonomous trash picking robot. By using positioning technologies and computer vision, the robot recognizes its defined area. This data is used to determine the most efficient path and to avoid obstacles with confidence."**

Lukas Wiesmeier, Co-founder Angsa Robotics

Autonomous Trash Picking Robots

Angsa Robotics is a privately held company with its headquarters in Munich, Germany. They specialize in the development and deployment of autonomous trash picking robots. Their goal is to build safe and reliable robotic cleaners that keep the environments—such as parks, green spaces and open-air festivals—in which they operate clean and trash-free.

Products used
Starling®
Skylark™
PGM

The Challenge

Removing small trash from expansive grass or gravel surfaces is arduous labor. Large machine sweepers cannot navigate these terrains with ease. The use of human labor is time and cost-intensive. Smaller cleaning robots equipped to navigate autonomously provide a better long-term solution. However, these robots require a range of autonomous navigation technology to operate regularly and efficiently.

The Solution Tested with PGM and Skylark Precise Positioning Services
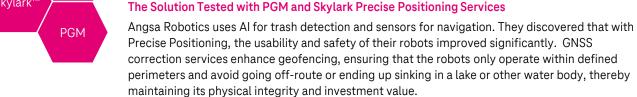
Angsa Robotics uses AI for trash detection and sensors for navigation. They discovered that with Precise Positioning, the usability and safety of their robots improved significantly. GNSS correction services enhance geofencing, ensuring that the robots only operate within defined perimeters and avoid going off-route or ending up sinking in a lake or other water body, thereby maintaining its physical integrity and investment value.

The Result and Next Steps

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

The results showed that with the Skylark correction service, an increase in performance of to up to 240% compared to standard GNSS was achieved. This higher-level precision improves the robot's velocity and can be used for data analysis purposes to pinpoint trash hotspots.

Angsa Robotics continues to evaluate Precise Positioning both for autonomous navigation and data analysis purposes.

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

Angsa Robotics' setup with PGM Evaluation Platform

Map result of a robot driving in a park, with clear edge detection

T **swift** NAVIGATION

Watch Angsa Robotics' view on Precise Positioning here