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Agritech



> TRL 3
> Proof of concept

Problem

Farmers and land managers need accurate, high-resolution soil data to support precision agriculture and sustainable resource management. Traditional soil sampling and laboratory analysis are labour-intensive, slow and costly, often taking weeks to deliver results.

Existing methods also provide only isolated measurements, limiting understanding of spatial variability across large areas.

While some autonomous sampling approaches exist, they still rely on complex sample handling and off-site testing, creating bottlenecks in data collection, analysis and decision-making.

Solution

This technology combines autonomous soil sampling and in-field analysis within a single robotic platform.

The system navigates a field, acquires soil samples, automatically prepares them for testing and analyses them on board without requiring laboratory processing.

Adaptive reagent dosing is determined from the collected sample amount and used to calibrate the test probe, helping maintain measurement reliability across varying sample sizes.

The platform also incorporates automated sample handling and cleaning functions to support continuous operation while reducing manual intervention and contamination risks.

Intellectual Property Status

PCT filing in Australia.

Potential Commercial Applications

Potential applications include precision agriculture, soil health monitoring, fertiliser optimisation, environmental monitoring and land management.

The platform could support agricultural service providers, research organisations and government agencies requiring rapid, high-density soil data.

Opportunities may also exist in mining rehabilitation, carbon farming, ecological monitoring and other sectors where autonomous collection and analysis of field samples can improve operational efficiency and accelerate decision-making.

The technology may be offered as an autonomous robotic system, a data acquisition service or an integrated precision agriculture platform.

Inventors

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