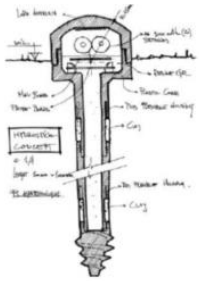

101074452 - LIFE21-CCA-ES-HYDROSTICK

Revolutionizing Precision Agriculture with LIFE HYDROSTICK

Introduction: Agriculture in the Face of Climate Change

Agriculture, a critical cornerstone of global food security, is increasingly vulnerable to the impacts of climate change. Extreme weather events, including prolonged droughts and irregular precipitation, are reshaping farming landscapes worldwide. Water scarcity and soil degradation are growing threats, forcing the agricultural sector to rethink traditional practices. In this context, precision agriculture emerges as a viable solution, leveraging technology to optimize resource use, improve yields, and minimize environmental impact. The LIFE HYDROSTICK project represents a bold step forward in this field, offering an innovative, IoT-based system designed to monitor soil conditions with unparalleled accuracy.

The LIFE HYDROSTICK Solution

At its core, LIFE HYDROSTICK is a modular, wireless IoT device developed to revolutionize soil monitoring. This plug-and-play system provides real-time data on critical soil parameters, including:

- Water content and water potential, essential for irrigation management.
- Temperature, a key variable in crop health and soil dynamics.
- Electrical conductivity, which indicates the type and concentration of dissolved salts.
- Nutrient levels (N, P, K) and pH, offering insights into soil fertility and chemical balance.

The system integrates seamlessly into existing farming practices, enabling farmers to transition to data-driven decision-making. Its flexibility and

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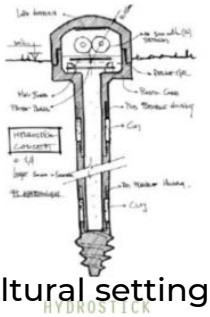

modularity make it suitable for a variety of crops and agricultural settings, from small-scale farms to large commercial operations.

Validation and Real-World Application

To ensure its efficacy, the LIFE HYDROSTICK technology undergoes rigorous testing and validation:

1. Greenhouse Validation: Initial tests in controlled environments assess the device's accuracy and reliability.
2. Field Trials: Large-scale demonstrations in Navarra and Extremadura, Spain, evaluate its performance across four different crops under real-world conditions.

The project's methodology is structured around six work packages, focusing on technology scaling, real-scale testing, dissemination, and replication strategies. These efforts aim to ensure that the technology is not only effective but also scalable and transferable to other regions and contexts.

Environmental and Economic Benefits

LIFE HYDROSTICK is designed to address both environmental and economic challenges in agriculture:

- Water Conservation: By providing precise data on soil moisture, the system optimizes irrigation schedules, reducing water use significantly.
- Efficient Fertilizer Use: Detailed nutrient monitoring minimizes overapplication, cutting costs and reducing runoff into water bodies.
- Improved Crop Yields: Data-driven management practices enhance productivity, ensuring a robust return on investment for farmers.

A Vision for Sustainable Agriculture

Beyond its immediate applications, LIFE HYDROSTICK embodies a broader vision for sustainable agriculture. It aligns with the European Union's goals for climate change adaptation, supporting the transition to environmentally responsible farming practices. By empowering farmers with actionable data, the project contributes to building resilience against climate-induced challenges.

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