Agri Bot:

Transforming Farming in Uganda

Precision AI, GPS, and automation
Spraying for a Sustainable Future

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Paper Title & Case Study

Paper Title: *Development of Prototype Automated Variable Rate Sprayer for Real-Time Spot-Application of Agrochemicals in Wild Blueberry Fields* **Authors:** Zaman, Q.U., Esau, T.J., and Schumann, A.W.**Published in:** *Computers and Electronics in Agriculture* (2011)

Case Study: Teso Fruit Processing Farm, Soroti, Uganda

How Automated Sprayers Can Help Farmers in Uganda

Agri Bot is a smart, sensor-driven spraying system that uses **AI, GPS, and automation** to detect the exact areas where crops need treatment. Unlike conventional sprayers that blanket entire fields, Agri Bot **targets only affected areas**, reducing waste, saving costs, and protecting the environment.

Why Was the Prototype Implemented?

- To improve efficiency in applying fertilizers and pesticides.
- To Utilize sensors in detecting specific areas that need treatment.
- To Reduce waste, save costs, and protect the environment.

What was learnt from the construction?

- Sustainability and durability are crucial in agricultural technology.
- The importance of integrating sustainable energy sources and recyclable materials.
- The need for weather-resistant and long-lasting materials to minimize maintenance costs.

How is the prototype described?

- The paper employs technical descriptions, automation mechanisms, and sensor integration.
- Uses diagrams and data collection on pesticide usage, crop health, and cost savings.
- Discusses field tests conducted in controlled environments.

What Was omitted?

- The prototype was only tested in controlled environments, not yet deployed on full-scale farms.
- It is still in development and not widely available for farmers.
- No long-term performance data has been collected.

How Is the Prototype implemented?

- **Field Testing:** Tested on selected farms to assess performance.
- **Automation Setup:** Programmed to spray only required areas, reducing waste.
- **Data Collection:** Recorded pesticide usage, crop health, and cost savings for further analysis.

Does it fit in our context?

Yes, but with challenges.

- **Pros:** Helps reduce pesticide costs, boosts efficiency, and reduces labor demand.
- **Challenges:** High cost, limited technology access in rural areas, need for training, and farm size compatibility.
- **Solutions:** Government/NGO support, affordable models, farmer cooperatives, and industry partnerships.

THANKS

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