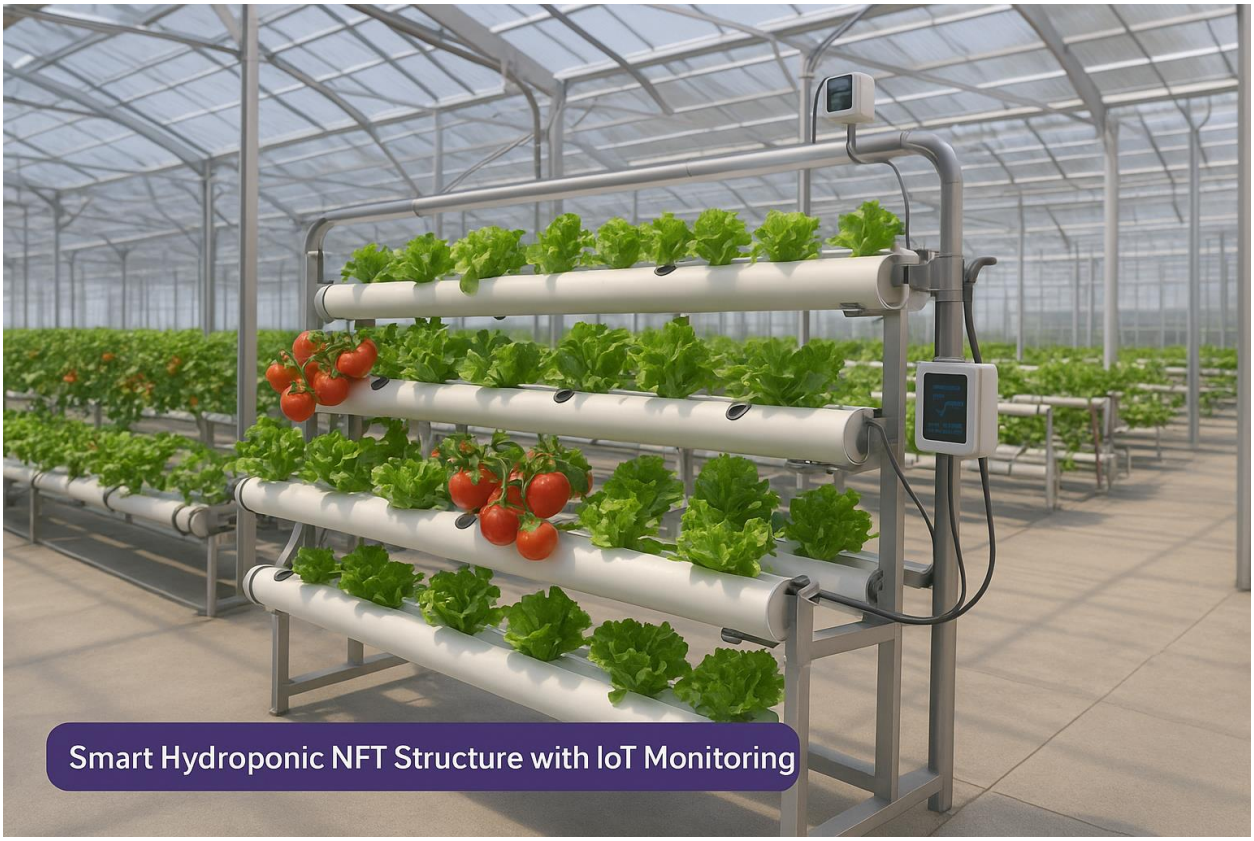
Federal Polytechnic Ilaro Smart Farm Initiative

ENHANCING AGRIBUSINESS WITH SMART HYDROPONICS: A TECHNOLOGICAL APPROACH TO TOMATO & VEGETABLE FARMING

Dr. OLUWAGBAYIDE Samuel Dare
Project Coordinator
samuel.oluwagbayide@federalpolyillaro.edu.ng
+234 703 736 0435



A TECHNOLOGICAL APPROACH TO TOMATO AND VEGETABLE FARMING

Prepared by: Smart Hydroponics Group, FPI Date: October 2025

PROJECT TEAM

Name	Role	Expertise
ENGR. DR. S. D. OLUWAGBAYIDE	Principal Investigator	Machine Design & Fabrication
ENGR. M. A. OKUSANYA	Co-Investigator	Renewable Energy & Automation
ENGR. C.B. OGUNLADE	Technical Coordinator	Waste Recycling & Environmental Engineering
ENGR. F.E. AGBONGIABAN	Fabrication Engineer	Welding & Machining

This business pitch outlines a sustainable, technology-driven hydroponic farming model designed to increase productivity, reduce resource use, and empower local Agri-preneurs.

EXECUTIVE SUMMARY

This project establishes a smart hydroponic farm for tomatoes and vegetables using IoT-based environmental and nutrient monitoring. It ensures sustainable, year-round production with minimal water use while creating jobs and empowering youth. The venture expects breakeven within 12–18 months and ROI of 25 - 40% per annum.

OBJECTIVES

1. Build and operate a smart hydroponic farm for tomatoes and greens.
2. Achieve high yields and quality with reduced resources.
3. Train youth and agri-preneurs in modern hydroponics.
4. Supply market-demanded produce, reducing imports.
5. Attain financial sustainability within 2 years.

PROBLEM & SOLUTION

Conventional farming faces water scarcity, climate instability, and soil degradation. Smart hydroponics offers a controlled-environment solution using automated pH/EC control, climate monitoring, and 90% less water use, ensuring consistent quality yields.

MARKET & ADVANTAGE

Target markets include urban consumers, hotels, supermarkets, and exporters. Advantages include precision farming via IoT, sustainability, consistent quality, and skill development.

FINANCIAL HIGHLIGHTS

Estimated startup cost: ₦50,000,000 Revenue from produce, training, and consultancy. Breakeven: 12 – 18 months | ROI: 25–40% per annum | Gross margin: 50–60%.

IMPACT & SUSTAINABILITY

- Environmental: 90% less water, zero soil use.
- Economic: Job creation, import substitution. Social: Youth empowerment, innovation in agribusiness.

TIMELINE

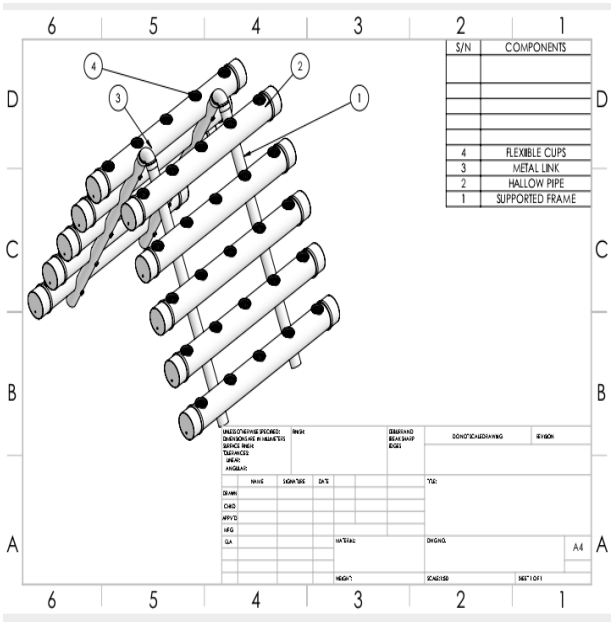
- Phase 1: Feasibility & design (Months 1–3)
- Phase 2: Construction & setup (Months 4–6)
- Phase 3: Pilot cycle (Months 7–9)
- Phase 4: Training & scaling (Months 10–12)
- Phase 5: Expansion & export (Year 2+)

Contact Information: Prepared by: Dr. OLUWAGBAYIDE Samuel Dare
Email: samuel.oluwagbayide@federalpolyilaro.edu.ng Phone: +2347037360435

Funding Request: ₦50 Million

APPENDIX

Interior of a smart hydroponic system showing tomato and lettuce crops, drip lines, and IoT sensors.



Other Hydroponic Structure Design to Empower Local Agri-preneurs.