Maxima Street, Arca Subdivision, Project 8, Quezon City

Growtopia Smart Watering System: Business Plan

I. Executive Summary

We are Growtopia and we provide affordable smart gardening solutions through the Internet of Things (IoT) for the agricultural sector. Our flagship product is the Growtopia Smart Watering System, which is an automated device that takes the guesswork out of caring for plants. The Growtopia Smart Watering System uses a user-friendly web dashboard that provides real-time soil moisture and delivers water to the right place at the right time, automatically.

The Issue: People often fail to care for their plants because of overwatering, underwatering, or neglect. This is especially true for people who lead busy lives, as well as travelers and novice gardeners. Consequently, there is a high likelihood of losing their plants, wasting their money and experiencing frustration as a result.

Our Solution: Growtopia automates the most important part of plant care. By keeping soil moisture at optimal levels, Growtopia helps keep plants healthy, gives consumers peace of mind regarding remote monitoring/control of their plants, and provides an affordable price point.

Market Opportunity: Our target market consists of the growing population of urban gardeners, smart home enthusiasts/plant hobbyists within the Philippine market and, ultimately, throughout Southeast Asia. The global smart gardening market is expanding rapidly and we intend to target a cost-conscious segment of that market.

Business Model: We operate on a direct-to-consumer (D2C) model through an e-commerce platform as well as through partnerships with local gardening stores and plant nurseries. Revenue is derived through the sale of the Growtopia Smart Watering System.

Financial Snapshot:

- Production Cost per Unit: PHP 260
- Retail Price: PHP 499
- Gross Margin per Unit: ~48% (PHP 239)
- Initial Funding Required: PHP 50,000
- Projected Breakeven: Upon sale of approximately 210 units (covering initial startup costs).

Our founding team, which consists of qualified experts that possess knowledge in hardware engineering (Franz Elwyn F. Anicas), user-centered design (Bella Pereyra Whitehead), and operational finance (J. Fermin), is committed to developing and launching a new product on the Philippine market.

We are seeking PHP 50,000 in initial funding to assist with purchasing the required production inventory for the first product run, execute marketing campaigns before the product launch, and assist with all other costs associated with launching and operating the product.

II. Company Description

Company Name: Growtopia

Legal Structure: Partnership

Mission Statement: To provide all plant owners from the beginner to seasoned gardener (and everyone in between) with easy and affordable technology that will enable all to care for their plants easily without any hassles or difficulties within their own schedule; allowing for greater success and sustainability of plant care.

Vision Statement: To be the premier provider of affordable and easy to use smart garden solutions throughout the Philippines in 3 years; expanding throughout Southeast Asia in 5.

Company History: Growtopia was founded from the personal pain of the founder who was constantly failing to keep his plants alive due to his work schedule and time

constraints, and proved to many others that the need for a low-cost, easy to use automated watering system is not just his problem; it was everyone's problem. The idea started as a personal Arduino prototype and has evolved into a validated product through testing and user feedback.

Core Principles:

- Accessibility: Making smart technology available to everyone at an affordable price
- Simplicity: Creating technology that is easy to navigate for all user experiences and backgrounds
- Dependability: Manufacturing durable, accurate devices that work reliably
- Ecological: Fostering healthy plants and sustainable living practices.

Short Term & Long Term Plans:

- In Year 1 of this project, we will successfully bring to market, sell 300+ units, and build an online presence for the brand
- In Year 2, we will have 1,000 users actively using the products, create an online community, and develop a mobile version of the website
- In Year 3, we will introduce new product features such as support for multiple plants, alerts and notifications, create partnerships with 5+ international retailers, and investigate potential export opportunities in our region.

III. Products & Services

1. Core Product: Growtopia

An easy-to-use, readily assembled smart gardening device that waters plants using real-time soil moisture requirements.

- Physical Unit: A small unit with enclosed electronics
- Main Components:
    - Controller: ESP32 Microcontroller with integral software.
    - Sensor: Capacitive Soil Moisture Probe (capable of corrosion protection).
    - Watering Mechanism: Quiet integrated pump connected via waterproof tubing to a drip nozzle.
    - Power Supply & Connectivity: 12v AC to DC power supply with 5v Voltage regulator

- Packaging: Ready-for-Consumer Packaging with controller unit, sensor, pump with tubing, power adapter, and Quick Start Guide.

2. Key Features & Benefits:
   - True Plug & Play: The unit comes fully assembled and calibrated - simply place the sensor, fill the water reservoir, and plug it in to start using it.
   - Automatic Plant Maintenance: The system waters plants at exactly the correct time to avoid over/under watering, allowing users to take vacations without worrying about plants being cared for.
   - Straightforward to Manage Locally: There is no long registration process; just connect to the device via Wi-Fi through any web browser and have access to a clear control panel.
   - Two Methods for Watering: Auto Mode sets your desired soil moisture level, and the Growtopia do the rest; Manual Mode allows you to water plants at the push of a button.
   - Affordable and Available: The Growtopia is priced much lower than currently available imported smart garden products, so that users have access to better way of watering and looking after plants.

3. Design & Technology
   - Hardware Platform - Using reliable and commonly available materials such as the ESP32 microcontroller, capacitive touch sensors, and direct current pumps, this device ensures consistent performance and manufacturability.
   - Embedded Software (Firmware) - C++ developed custom-written programs that capture the sensor data accurately and control the pump's motor precisely and host the web server accordingly.
   - User Interface - HTML, CSS, and JavaScript based interactive web dashboard that is hosted on the device. The dashboard can only be accessed by the device owner and does not require the internet.
   - Connection Method - The home device creates a dedicated Wi-Fi network with which the owner can connect to it securely and configure it.
   - Industrial Design - To have a clean, discreet, and easy-to-use appearance.

4. Development Timeline
   - Q4 2025: Final Design of Product Housing and Begin Pilot Manufacturing. Collecting Useers Comments Concerning Physical Experience.

- Q1 and Q2 2026: Create and Begin Beta Testing of a Mobile Application (Android and iOS) to provide In-App Notifications to Allow Remote Monitoring of Devices (requires the device to connect to the owner's home Wi-Fi).
- Q3 2026: Official Launch of the Mobile Application, including Moisture Trend Analysis and Custom Alert Threshold Notification.
- 2027: Start Develop of a 'Pro' Multi-Zone System (i.e. Multiple Plants Managed Independently From One Control Unit

5. Intellectual Property and Manufacturing Strategies

- Your information technology (IP) protection is comprised of the proprietary copyright on your firmware, copyright and copyright of the technical specifications and diagrams of your product, and any trade secrets of your product design. The proprietary algorithms you will create for sensor calibrating and controlling will most likely be the subject of a utility model or patent application.
- Your production of your product will include: raw material sourcing, assembly, coding and completing and quality assurance of the final product. This will ensure your customers will have a product with consistent reliability.

IV. Market Analysis

Target Demographics:

- Busy urban professionals and tenants. Urban tenants who have houseplants but lead busy lifestyles.
- Plant novices and college students. Plant lovers who are not experienced with growing plants and need more confidence in their growing skills.
- Technically inclined people who enjoy working on their own smart home and Internet of Things (IoT) projects.
- Small non-commercially produced plant nurseries and retail shops. Plant retailers will provide products to maintain their plants for display purposes, and it can also serve as an additional revenue stream.

Market Size and Opportunity (focus on the Philippines):

- Total Available Market (TAM): Primarily, every household (over 18+ million households) that exists in the Philippines. A high percentage of those households currently own at least 1 house plant.

- Serviceable Available Market (SAM): Households with internet access located in urban areas that have an interest in gardening or technology (approximately 3-5 million).
- Serviceable Obtainable Market (SOM): Based on year 1, people in Luzon (especially those located in Metro Manila) who will be reached through online channels (estimated 5,000-10,000 potential customers).

Industry trends are increasing in urban gardening ("plant parenthood") and adoption of smart home technology. People are becoming more aware of the benefits of plants (such as improved mental health and increased sustainability).

Competitive Analysis:

Competitor	Price Range	Key Features	Growtopia's Advantage
Xiaomi Mi Flora	PHP 800 - 1,500	Bluetooth sensor, app, fertility/light data.	Lower cost, direct watering control, simple dashboard, no complex app needed.
High-End Import Systems	PHP 2,500+	Multi-zone, cloud apps, scheduling.	Extreme cost advantage, simplicity, local support.
DIY Arduino Projects	Variable	Highly customizable, requires technical skill.	Pre-assembled, user-friendly, plug-and-play, supported product.

Barriers To Entry And Risks

- Manufacturing Scale: Government agencies must go from prototype production to a continuous, repeatable process involving small batches.
- Component Reliability: Assembling components that will endure in order to be productive and reliable, including sensors, pumps and other equipment.
- Market Education: Teaching traditional gardeners about the advantages of using technology that supports their gardening efforts.

- Competition: The possibility of larger electronic manufacturing companies starting price competition with each other.

V. Marketing & Sales Strategy

Pricing Strategy:

- The direct price will be PHP 499, making it the least expensive smart watering solution. Future pricing will allow for bundled purchases -- e.g., two units for PHP 899 -- or will be available at wholesale stores for an approximate retail price of (PHP 350).

Promotional & Acquisition Methods:

- DIGITAL MARKETING: Develop targeted Facebook/Instagram advertising campaigns that reach gardening groups, plant care pages, and technology enthusiasts.
- Content Creation and SEO: Generate blog and YouTube video content that offers "how to" on plant care, "set-up tutorials", and plant troubleshooting tips to increase organic search engine exposure.
- E-COMMERCE: Cretae an official online storefront on the Shopee and Lazada marketplaces (future development), optimised for SEO with relevant keyword tagsets, quality image files, etc.
- INFLUENCER & COMMUNITY: Collaborate with micro-influencers who belong to the #plantiktok and #plantita communities by providing them with product samples to create "unboxing" style reviews.
- PARTNERSHIPS: Contact local plant retailers to pursue consignment/wholesale arrangements with them by providing them with sample units to use.

Sales Channels:

1. Primary- Direct-to-consumer sales (Shopee & Lazada).
2. Secondary- Website(signed for future development) and social media orders via direct messaging platforms.
3. Tertiary - Physical retail partnership stores.

Consumer Journey:

1. AWARENESS- Social media advertisement or blog post related to gardening.
2. INTEREST- Consumer will click on Shopee landing page within their advertisement and view the demo video.

3. EVALUATION - Read other customers' reviews and compare products based on their features and prices.
4. PURCHASE- Consumer will complete the purchase through an e-commerce platform.
5. ONBOARDING- Consumer will receive their device with an easy-to-follow user guide on set-up.
6. RETENTION & SUPPORT- They will have access to their dashboard, email support, and responsive customer service.
7. ADVOCACY- Consumers will be encouraged to leave product reviews and refer their friends and family.

VI. Operations Plan

Key Business Activities:

1. Assembly of Product Components through Sourcing and Quality Inspection
2. Development of Software through maintaining firmware and dashboard code (hosted on GitHub)
3. Testing and Calibration (every unit sold passes through functional and sensor calibration testing before being packaged for shipment)
4. Our customers receive all products from us packed and delivered via Lalamove or J&T (for bulk orders) and Platform Logistics (for single product orders), including all management of the inventory.
5. Providing post-sales customer service support.

Product Assembly Process Flow:
Sourcing Components -> Q/A Inspection of Components -> Assemble Components -> Flash Software -> Test System Functionality -> Calibrate System -> Package System -> Manage Inventory -> Fulfill Orders -> Ship Orders.

Supplier Partners: Our main suppliers for the major component parts (ESP32, sensors and pumps) are trusted electronic suppliers on Shopee, Lazada or Local Distributors like Deeco and RS Components so that we may ensure Quality Consistency in Product Parts.

Technology/Infrastructure: We will be managing the operation with the use of cloud-based technologies such as Google Workspace for all operation management Practice, Inventory Spreadsheets for all inventory management and E-commerce

Platform Seller Centers for all e-commerce Selling activities. Our Software Development Process will also follow the Agile Methodology.

Support Model:

- Main Contact Channels: Seller Chat on Shopee/Lazada, Dedicated Messenger on Facebook Page, Email
- Resources Available: FAQ Online Page, Step-by-Step Setup Video, PDF of Troubleshooting Guide
- Policy of Supporting Replacement of Defective Units (7 Days).

VII. Management Team

Founder & Lead Developer: Franz Elwyn F. Anicas

- Responsible for hardware design, firmware development, system architecture, and production oversight.

UI/UX & Marketing Designer: Bella Pereyra Whitehead

- Responsible for user interface design, user experience, branding, packaging, and marketing visuals.

Operations & Finance Lead: J. Fermin

- Responsible for documentation, accounting, budgeting, inventory management, and logistical coordination.

Organizational Structure: All founders will participate in strategic decision-making through a flat and collaborative organisational structure with clear operational responsibilities identified.

Identified Gaps and Hiring Plan: When sales grow, will fill the identified gaps by contracting a mobile app developer to help with the app roadmap, hiring part-time staff for assembly/packaging tasks, and hiring a marketing consultant/VA to manage social media accounts.

VIII. Financial Plan

Startup Costs (Detailed Breakdown):

Item	Estimated Cost (PHP)

Initial Production Run (100 units)	26,000
Packaging & Labels	5,000
Testing Equipment & Tools	4,000
Marketing & Launch Campaigns	10,000
Branding & Website/E-commerce Setup	3,000
Contingency Buffer	2,000
Total Funding Required	50,000

Funding Allocation:

- 60% (PHP 30,000): Hardware & Initial Inventory
- 20% (PHP 10,000): Marketing & Promotion
- 10% (PHP 5,000): R&D & Software Development
- 10% (PHP 5,000): Packaging, Logistics, & Contingency

Unit Economics:

Component	Cost (PHP)
ESP32 Microcontroller	150
Capacitive Soil Moisture Sensor	40
Relay Module	25
DC Water Pump & Tubing	35
Wires, Connectors, Housing	10

Total Component Cost	260
Suggested Retail Price	499
Gross Profit per Unit	239

Breakeven Analysis:

- Total Startup Costs: PHP 50,000
- Gross Profit per Unit: PHP 239
- Breakeven Unit Volume: 50,000 / 239 = ~210 units
- Note: This covers initial startup costs. Post-breakeven, profit per unit funds further production and growth.

Financial Projections (Year 1 - Conservative):

- Q1: Sell 50 units | Revenue: PHP 24,950 | COGS: PHP 13,000
- Q2: Sell 75 units | Revenue: PHP 37,425 | COGS: PHP 19,500
- Q3: Sell 100 units | Revenue: PHP 49,900 | COGS: PHP 26,000
- Q4: Sell 125 units | Revenue: PHP 62,375 | COGS: PHP 32,500
- Year 1 Total: 350 units | Revenue: PHP 174,650 | Gross Profit: PHP 83,650

This projection assumes reinvestment of profits into inventory and marketing to fuel growth.

IX. Appendix

A. Technical Documentation & Source Code

The core firmware and dashboard source code for the Growtopia Smart Watering System is hosted in a private repository. A public demonstration repository with sample code and setup instructions is available at:

GitHub: https://github.com/FranzElwynAnicas/Growtopia/tree/main

B. Product Demonstration

A video demonstration of the Growtopia system in operation, showcasing the setup process, dashboard interface, and automatic watering functionality, can be viewed here:

Demo Video:

https://drive.google.com/file/d/1vs8BsHaDv4U9dSBW9JqpjKZsAAqQaB-b/view

Maxima Street, Arca Subdivision, Project 8, Quezon City

Technopreneurship Project Report for Dr. Rigan Ricafort
AMA University

Project Title: Growtopia – A Smart Water Monitoring System

This report is submitted in partial fulfillment of the course requirements for Technopreneurship.

Project Group Members:
Anicas, Franz Elwyn F.
Fermin, J.
Whitehead, Bella Pereyra

DECEMBER 2025