PROJECT CHARTER

GENERAL PROJECT INFORMATION

PROJECT NAME	PROJECT MANAGER	PROJECT SPONSOR
GrowHub	Filip Vallo	Filip Vallo

EMAIL	PHONE	ORGANIZATIONAL UNIT
filip.vallo@gmail.com	---	*[personal project]*

INITIAL BUDGET	EXPECTED START DATE	EXPECTED COMPLETION DATE
€ 1 500	**08. 07. 2024**	**31. 08. 2024**

PROJECT OVERVIEW

PROJECT DESCRIPTION	GrowHub is an MVP IoT product designed to help indoor growers monitor and control their growing environments. The system will collect real-time data from various sensors and provide users with a web-based dashboard for monitoring and managing growing conditions. The product will include a set of fully programmable peripheral devices for irrigation scheduling, fertilizer injection, and power control. The dashboard will also allow to set alerts with notifications if any of the measured parameters exceeds set thresholds.
PROJECT PURPOSE	The purpose of the GrowHub project is to develop an MVP IoT solution that provides hobbyists and professional growers with the tools to monitor and control their indoor growing environments. This solution aims to enhance plant growth by maintaining optimal conditions through automated and precise control of environmental factors.

PROBLEM STATEMENT	Indoor growers face challenges in maintaining optimal growing conditions for their plants. The lack of precise and automated control over environmental factors can lead to suboptimal plant growth and reduced yields.
BUSINESS CASE	Developing the GrowHub MVP will demonstrate the feasibility of an IoT-based solution for indoor growing environments. This project has the potential to attract commercial interest, leading to further development and potential market entry. Successful implementation of the MVP will showcase the value of precise environmental control in improving plant health and yields.
GOALS	• Manufacture a functional prototype of the monitoring system using Raspberry Pi with integrated sensors to measure atmospheric and soil conditions • Manufacture connected programmable peripheral devices for irrigation scheduling, fertilizer injection, and power control • Develop a fully operational website with dashboard for live and historical data visualization with notification system and environmental control system for managing growing conditions • Test the MVP's commercial potential
SUCCESS CRITERIA	• Successful integration of sensors with Raspberry Pi for real-time data collection • Reliable performance of peripheral devices in controlling the growing environment • Fully functional web dashboard with user-friendly interface • Positive feedback from initial users and potential interest from commercial partners
METRICS	• Accuracy and reliability of sensor data (measured by testing against known standards) • Performance and reliability of peripheral devices (measured by controlled environment tests) • User satisfaction with the features (measured by user feedback)
EXPECTED DELIVERABLES	• **Phase 1**: Prototype of monitoring IoT device with sensors • **Phase 2**: Web-based dashboard with data collection from sensors, historical data tracking, visualization, and notification system • **Phase 3**: Prototypes of peripheral devices for irrigation scheduling, fertilizer injection, and power control (connected through custom embedded PCB circuit) • **Phase 4**: Environmental control system for managing growing conditions through peripheral devices

PROJECT SCOPE

FUNCTIONAL REQUIREMENTS	**IoT Device**: • Real-time data collection from atmospheric sensors (temperature, humidity, CO2) and soil sensors (moisture, pH, NPK) connected to Raspberry Pi microcomputer • Design and manufacture prototypes of peripheral devices for irrigation scheduling, fertilizer injection, and power control • Design prototype of embedded PCB with custom electronic circuit • Solder electronic components and connectors for peripheral devices onto the embedded PCB **Web-based Dashboard**: • Real-time data collection from IoT device • Historical data tracking and visualization • Notification system for alerts when measured parameters exceed thresholds • Environmental control system for managing growing conditions through peripheral devices
NON-FUNCTIONAL REQUIREMENTS	• High reliability and accuracy of sensor data • Secure and responsive web dashboard • User-friendly interface for both novice and experienced growers • Scalability to handle multiple users and devices in the future
OUTSIDE OF SCOPE	• Full commercialization and mass production (beyond MVP) • User registration/authentication and user management system • Advanced features not essential for the MVP • Casing and product design

TENTATIVE SCHEDULE

KEY MILESTONE	START	FINISH
Project scope | Project Charter	29. 06. 2024	30. 06. 2024
Project plan | Design Document | Resource gathering	01. 07. 2024	07. 07. 2024
Phase 1: IoT device prototype with sensors	08. 07. 2024	21. 07. 2024
Phase 2: Web dashboard with monitoring and notification functionalities	22. 07. 2024	04. 08. 2024
Phase 3: Prototypes of embedded PCB and peripheral devices	05. 08. 2024	18. 08. 2024
Phase 4: Environmental control system integrated into web dashboard	19. 08. 2024	29. 08. 2024
Project Summary Report | Close out	30. 08. 2024	31. 08. 2024

RESOURCES

PROJECT TEAM	Filip Vallo [personal project]
SUPPORT RESOURCES	*[TBD in Design Document]* • **Vendors**: External PCB manufacturer
SPECIAL NEEDS	*[TBD in Design Document]* • **Software**: Access to software development tools, cloud services, and project management tools • **Hardware**: Raspberry Pi microcomputer, various sensors (temperature, humidity, CO2, moisture, pH, NPK) • **Supplies**: Wiring, breadboards, soldering material, various microelectronic components and connectors • **Tools and Machinery**: Workstation, soldering stations and testing equipment • **Facilities**: Controlled environment to test the sensors and peripheral devices

INITIAL BUDGET

COST TYPE	PRODUCTS / SERVICES / VENDORS	RATE	QTY	AMOUNT
Labor	Project team	€ 0	1	€ -
Development and Management tools	*[TBD in Design Document]*	€ 200	1	€ 200
Cloud services	*[TBD in Design Document]*	€ 200	1	€ 200
Hardware components	*[TBD in Design Document]*	€ 500	1	€ 500
Supplies	*[TBD in Design Document]*	€ 200	1	€ 200
Tools and Machinery	*[using personal tools]*	€ 0	1	€ -
Outsourcing	*[TBD in Design Document]*	€ 200	1	€ 200
Miscellaneous	*[TBD in Design Document]*	€ 200	1	€ 200
			TOTAL INITIAL BUDGET	€ 1 500

STAKEHOLDERS AND BENEFITS

KEY STAKEHOLDERS	• Potential investors or commercial partners
FINAL CUSTOMER	• Hobbyists or professional indoor grower of plants or mushrooms
EXPECTED BENEFITS	• Improved plant health and yields through precise environmental control • Increased convenience and efficiency for growers • Demonstration of commercial potential for further development

RISKS, CONSTRAINTS, AND ASSUMPTIONS

RISKS	• Technical challenges in integrating sensors and developing the dashboard • Limited budget and resources • Delays in hardware procurement • Delays in custom PCB manufacturing from the external vendor • Quality issues with the manufactured PCB
CONSTRAINTS	• Limited budget for hardware procurement and development • Tight timeline to complete the MVP within the four planned phases • Dependence on third-party services for cloud hosting and data storage • Dependence on external vendor timelines for custom PCB manufacturing
ASSUMPTIONS	• Availability of necessary hardware components (Raspberry Pi, sensors, peripheral devices) • Access to development tools and platforms for building the website • The external vendor will meet the specified quality and timeline requirements for the custom PCB circuit • Initial funding is sufficient to develop the MVP

PREPARED BY	TITLE	DATE
Filip Vallo	---	30. 06. 2024