



User Manual



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1. Introduction

Thank you for choosing Screen2Green!

Screen2Green is a smart indoor basil-growing system designed to encourage healthier digital habits by connecting smartphone screen time with plant care.

The system combines a basil plant pot, environmental sensors, automated watering, and mobile application. By monitoring screen-time activity, Screen2Green creates a visible connection between digital behavior and plant growth.

Unlike traditional productivity applications, Screen2Green uses a living basil plant as a physical reminder of healthy habits. The goal is to promote awareness and balance between technology use and everyday well-being.

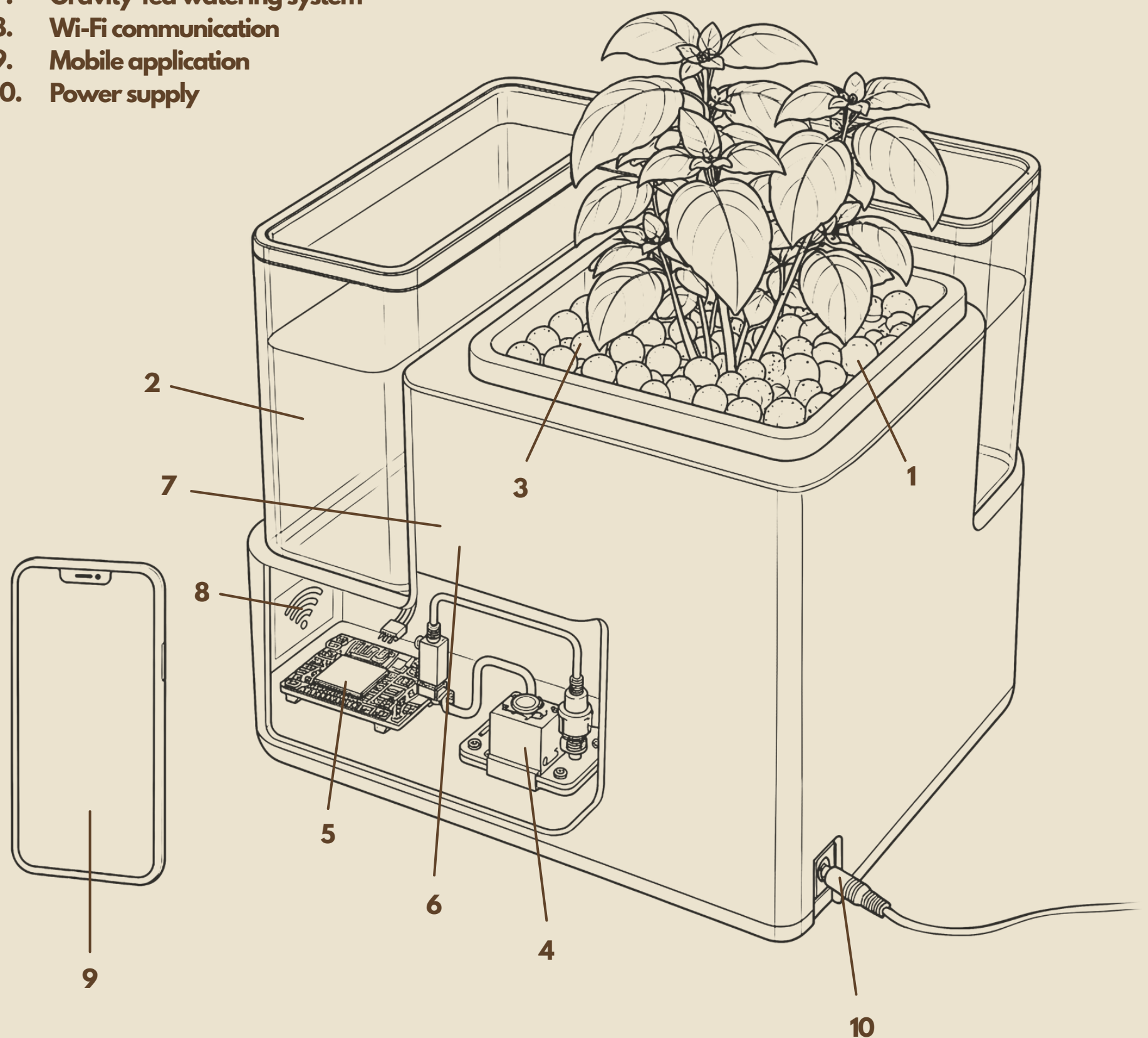
The product is intended for indoor use only.



2. Product Overview

Screen2Green consists of the following integrated components:

1. Basil growing compartment
2. Water reservoir
3. Soil moisture sensor
4. Temperature sensor
5. ESP32 microcontroller
6. Solenoid valve
7. Gravity-fed watering system
8. Wi-Fi communication
9. Mobile application
10. Power supply



The moisture and temperature sensors continuously monitor growing conditions. The ESP32 processes sensor data and communicates with the mobile application. Screen-time data collected by the app is compared with user-defined limits. The system then adjusts watering behaviour and provides feedback to encourage healthier digital habits.

3. Components and Parts

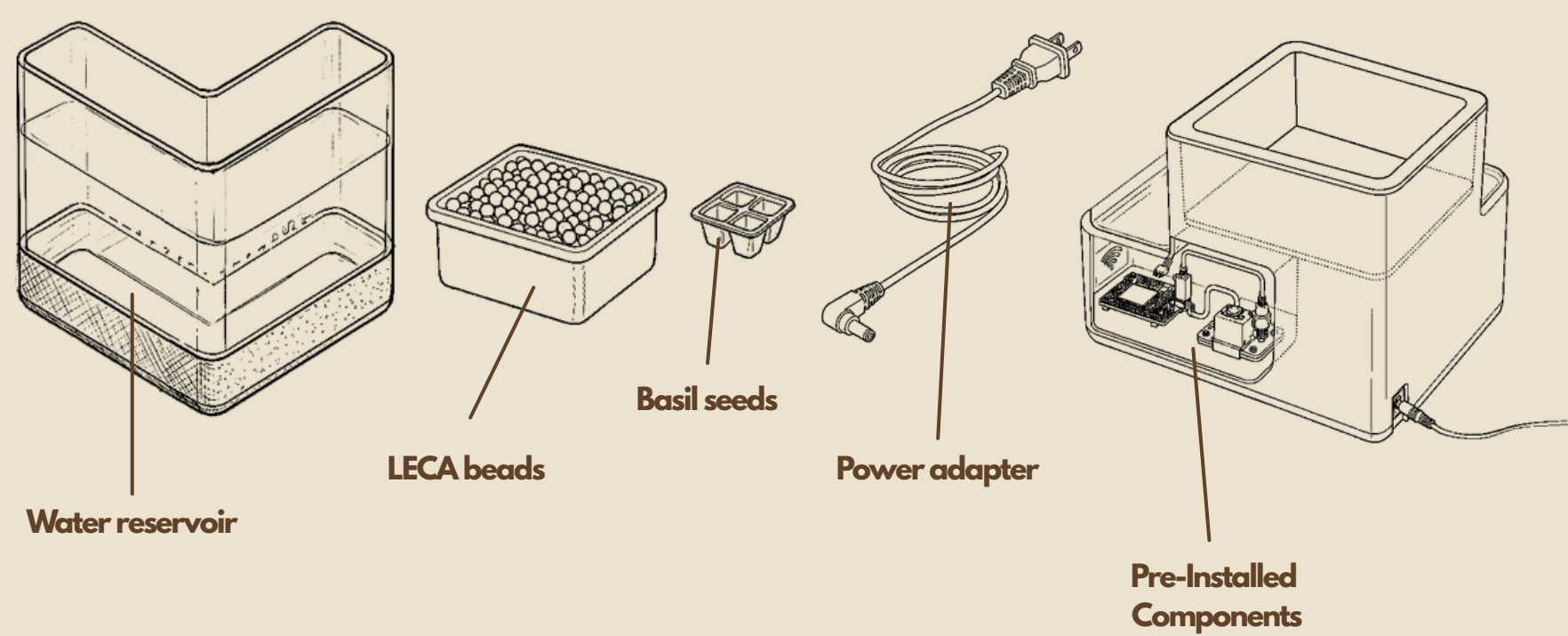
User-Installed Components

Component	Description
Water reservoir	Stores water for automatic irrigation
LECA beads	Supports plant roots and water distribution
Basil seeds	Living feedback element of the system
Power adapter	Supplies power to the device

Pre-Installed Components

Component	Description
ESP32 controller	Controls system functions
Soil moisture sensor	Measures moisture levels
Temperature sensor	Measures environmental conditions
Solenoid valve	Controls water release

Note: All electronic components are pre-installed and calibrated. No electrical assembly is required by the user.



4. Technical Specifications

Specification	Value
Microcontroller	ESP32
Connectivity	Wi-Fi
Power supply	12V DC, 2A
Voltage regulation	5V buck converter
Sensors	Soil moisture, temperature
Watering System	Gravity-fed reservoir with solenoid valve
Plant type	Basil
Mobile application	Android
Operating environment	Indoor
Operating mode	Automatic

5. Safety Guidelines

To ensure safe operation:

- Read instructions before use
- Use indoors only
- Keep electrical components dry
- Disconnect power before cleaning
- Do not modify internal electronics
- Use only the supplied power adapter
- Keep away from heat sources and open flames
- Keep out of reach of small children
- Inspect cables regularly
- Do not immerse electronic components in water.



Failure to follow these safety instructions may result in equipment damage or malfunction.

6. Assembly Instructions

All sensors, electronics, wiring, and control systems are pre-installed.

Only the following assembly steps are required.

Step 1 – Unpack components

Remove all components from the packaging.

Verify that all parts are included.

Step 2 – Insert water reservoir

Place the water reservoir into the designated compartment inside the pot.

Ensure it is seated securely.

Step 3 – Add LECA beads

Fill the growing compartment with the supplied LECA beads until the sensor area is covered and the plant can be supported securely.

Step 4 – Insert basil plant

Place the basil plant in the centre of the growing compartment.

Gently surround the roots with LECA beads.

Step 5 – Fill reservoir

Fill the reservoir with clean water up to the MAX marking.

Do not overfill.

Step 6 – Connect Power

Connect the power adapter to the Screen2Green unit.

Plug the adapter into a wall outlet.

Step 7 – Connect mobile app

Follow instructions in Chapter 7.

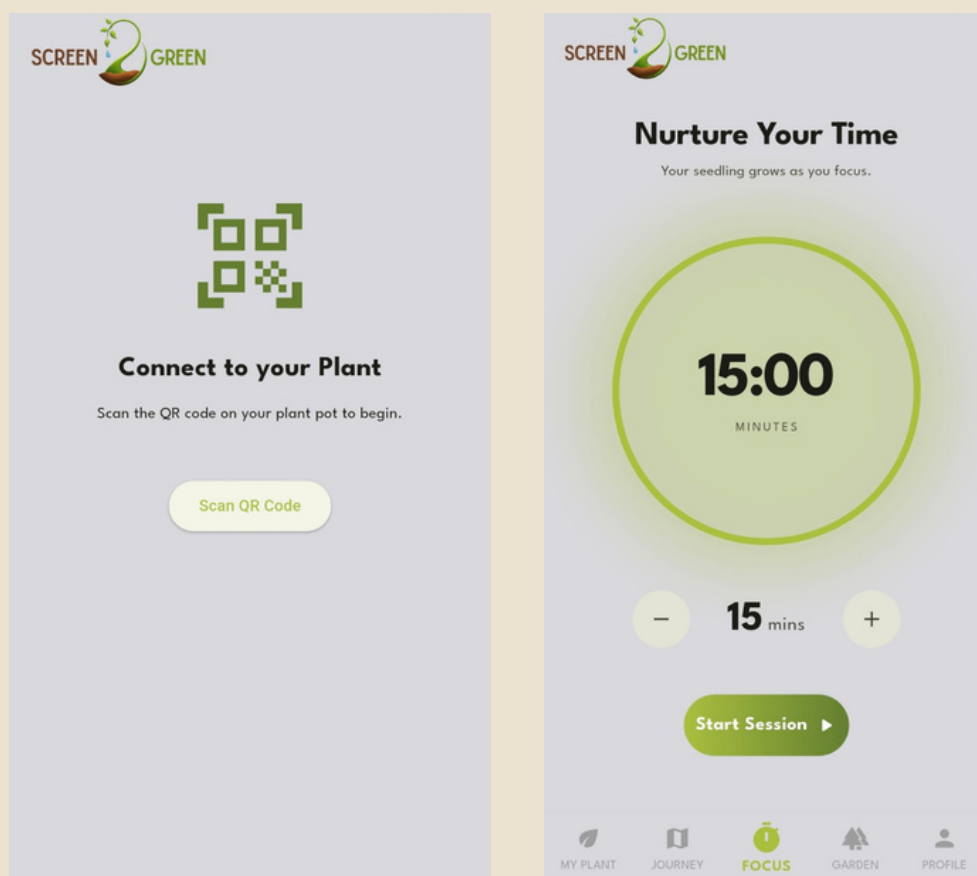
7. Mobile App Setup

Follow the steps below to connect the Screen2Green mobile application:

1. Download the Screen2Green application.
2. Create an account or sign in.
3. Open the app.
4. Select Pair New Device.
5. Select your Screen2Green device.
6. Connect the device to a Wi-Fi network.
7. Enable screen-time permissions.
8. Complete the setup process and confirm successful connection.



Once connected, the application will begin monitoring screen-time activity and communicating with the plant system.



The app consists of five main pages designed to help users stay productive while keeping track of their plant's growth and condition.

From left to right, the pages are:

- **Plant Overview:** This page displays your plant and its current condition, as well as the status of the plant pot. It helps you stay informed about when your plant needs watering and how it is developing.
- **Journey:** This is your personal overview page, where you can track your productivity and review how much focused work you have completed.
- **Focus:** This page provides a built-in focus timer designed to help you concentrate. During a session, distractions are reduced and notifications are temporarily disabled.
- **Garden:** The Garden acts as a social space where users can share updates on their progress and their plant's growth. You can post pictures and see how others are caring for their plants.
- **Profile:** In this section, you can view your personal information and adjust settings to customize the app according to your preferences.

8. Operating Instructions

Daily Operation

After setup, Screen2Green operates automatically.

The system continuously:

- Monitors screen time
- Measures soil moisture
- Measures temperature
- Controls watering
- Sends app notifications

Automatic Watering

Watering is controlled automatically through the moisture sensor and gravity-fed reservoir.

User responsibility:

- Refill the reservoir when notified.

Screen-Time Monitoring

The app compares usage with the selected daily limit.

User responsibility:

- Keep screen-time permissions enabled.

Power

The system must remain connected to power during operation.

9. Plant Feedback System

The plant feedback system is the core feature of Screen2green.

The basil plant acts as a physical representation of the user's digital habits.

Healthy Screen-Time Habits

When screen-time remains within the selected limit:

- The plant receives optimal watering.
- Positive feedback is displayed in the app.

Excessive Screen Time

When screen-time significantly exceeds the selected limit:

- Watering behavior is adjusted.
- The app encourages healthier usage habits.

Important

Screen2Green is designed to support awareness and behaviour change.

The system is not intended to punish users, and plant welfare always remains the highest priority.

10. Maintenance and Cleaning

Task	Recommended Interval
Check water level	Regularly
Refill reservoir	When low
Clean reservoir	When buildup or contamination is visible
Add nutrients	Every 2-4 weeks
Replace basil plant	When plant health declines significantly

Cleaning

1. Disconnect power.
 2. Remove reservoir.
 3. Empty remaining water.
 4. Rinse with clean water.
 5. Reassemble.
- Do not use strong cleaning chemicals.

11. Troubleshooting & FAQ

Plant Is Not Receiving Water

Possible causes:

- Empty reservoir
- Blocked valve
- Sensor malfunction

Solution:

- Refill reservoir
- Restart system
- Contact support if problem persists

App Will Not Connect

Possible causes:

- Wi-Fi unavailable

Solution:

- Verify Wi-Fi connection
- Restart app

Basil Leaves Turning Yellow

Possible causes:

- Overwatering.
- Underwatering.
- Excessive direct sunlight.
- Insufficient light.
- Natural plant cycle (Several months: typically up to one growing season under favorable indoor conditions)

Solution:

- Ensure the reservoir contains water.
- Review the plant's watering and lighting conditions and ensure they are suitable for basil growth.
- Remove damaged leaves.
- Replace the plant if overall health continues to decline.

12. Warranty

Screen2Green is an educational prototype developed as part of the European Project Semester program.

The warranty does not cover:

- Unauthorized modifications
- Physical damage
- Incorrect installation
- Water damage caused by misuse
- Damage caused by incorrect power supplies

Performance may vary depending on environmental conditions and plant health.

13. Contact Information

Screen2Green Team

European Project Semester 2026

Instituto Superior de Engenharia do Porto (ISEP)

GitHub Repository: <https://github.com/AvkaranSarinder/Screen2Green>

QR Code for Wiki:



For technical support, updates, and project information, please contact the Screen2Green team using the information above.