

# GOhydro – A smart-sensing AI-driven platform for scalable, low-cost hydroponic units



SCiO

*Panagiotis Zervas*

[panagiotis@scio.systems](mailto:panagiotis@scio.systems)

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End-term Project Seminar  
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# Partners & Involved Countries



1. SCiO [Greece] - **Coordinator**

2. Institute of Nanoscience and Nanotechnology, National Centre for Scientific Research “Demokritos” [Greece]



3. Department of Plant and Environmental Sciences, University of Copenhagen [Denmark]



4. Nr21 Design [Germany]



5. Holisun SRL [Romania]



6. Department of Technical and Soil Sciences, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca [Romania]

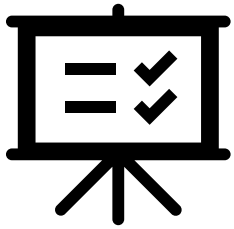


**24 Months**  
(Feb 2021 – Feb 2023)



**983.600**

## Main Objective



*“To develop a low-cost, DIY sensor kit, equipped with different sensors for monitoring the cultivation and empowered by tailored AI technologies for optimising plant growth”*

# Research Approach



*Review and analysis of the factors that affect microgreens growth and nutrient quality*



*Identification of optimised cultivation "recipes" (cultivation conditions)*



*Correlation of factors with measurable variables*



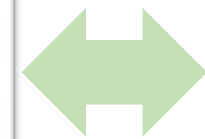
*Development of predictive AI operating over limited data volumes*



*Sensor selection and sensor kit design and app development*



*Evaluation cycles (in Greece, Denmark and Romania) of incremental proximity to realistic platform usage*



# Key Results



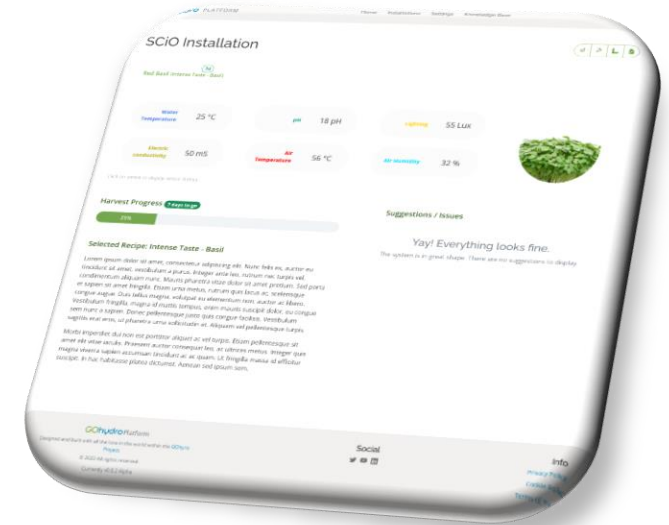
Formulation of climate recipes, i.e., instructions for optimising cultivation and coming up with sufficient and nutritional yield



Development of the GOhydro Sensor Kit that incorporates sensors for air/water temperature, humidity, and light conditions, into a single custom-designed enclosure kit compatible with common 3D printing technology and freely available as open hardware



Trained AI models associating sensing measurements with yield and quality, over data acquired via the pilots



Incorporation of the trained models in the GOhydro data platform and connection with the GOhydro mobile app to provide guidelines for the growers to treat their cultivation

## Cooperation with stakeholders

- Our aim was to enable everyone who wants to be a grower by supporting low-cost, low-maintenance hydroponic units, either directly (consumers) or indirectly (via unit providers and agronomists)
- Various dissemination activities were performed, including participation to fairs, conducting of press interviews and publishing on informational web portals.
- Several liaisons were made with industrial partners via online events organized by the Hellenic Federation of Enterprises.

## Opportunities and next steps for innovation

- Expansion of the GOhydro solution for covering additional hydroponically cultivated crops (such as tomatoes)
- Inclusion of more sophisticated and/or additional sensors in the GOhydro sensor kit for measuring additional parameters for crops growth with better accuracy

## Summary and Conclusions

- The process for designing the GOhydro platform, namely the GOhydro Sensor kit along with the GOhydro mobile app followed a scientifically and technically solid methodology
- The core final products, namely the GOhydro Sensor kit and the GOhydro mobile app, have strong business potential
- Training the AI models incorporated within the GOhydro mobile app would require additional evaluation cycles for optimizing their predictive accuracy due to the complexity of the crops' growth optimization problem.



# LET'S KEEP IN TOUCH!

Please feel always free to reach out to us.

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## TWITTER - LINKEDIN

@SCiO\_systems - <https://www.linkedin.com/company/scio-systems/>

## WEBSITE

[www.scio.systems](http://www.scio.systems)

## EMAIL

[panagiotis@scio.systems](mailto:panagiotis@scio.systems)

# Thank you for your attention!