

# Optimizing Smart Irrigation

ElectroCap Final Pitch Deck





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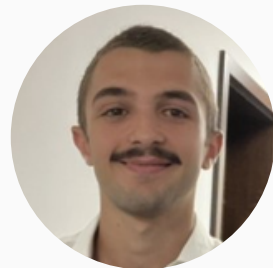
## Introduction

**Thousands of farmers water their plants through schedule or by hand, OSI creates a solution**

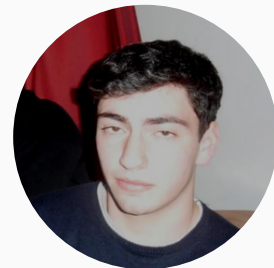
OSI is a project developed by 6 Electrical and Computer Engineering students from Instituto Superior Técnico that aims to improve the development of crops through a fully autonomous irrigation system.



## Our Team



**António Simões**  
103057



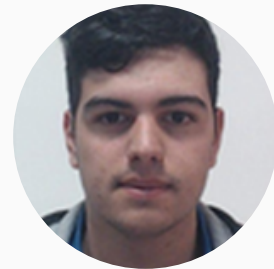
**Rodrigo Arriegas**  
103110



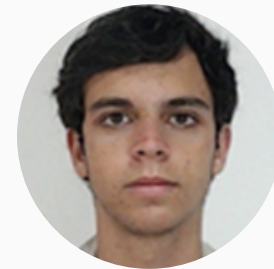
**Filipe Cruz**  
102755



**André Carvalho**  
103774



**João Galego**  
109234

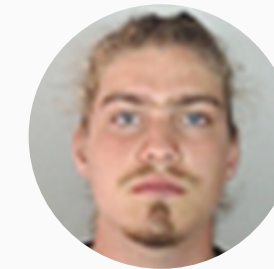


**Gonçalo Amado**  
110342

## Advisors and Mentors



**Prof. Marcelino Santos**  
Scientific Co-advisor



**Francisco Simplício**  
Coordinator

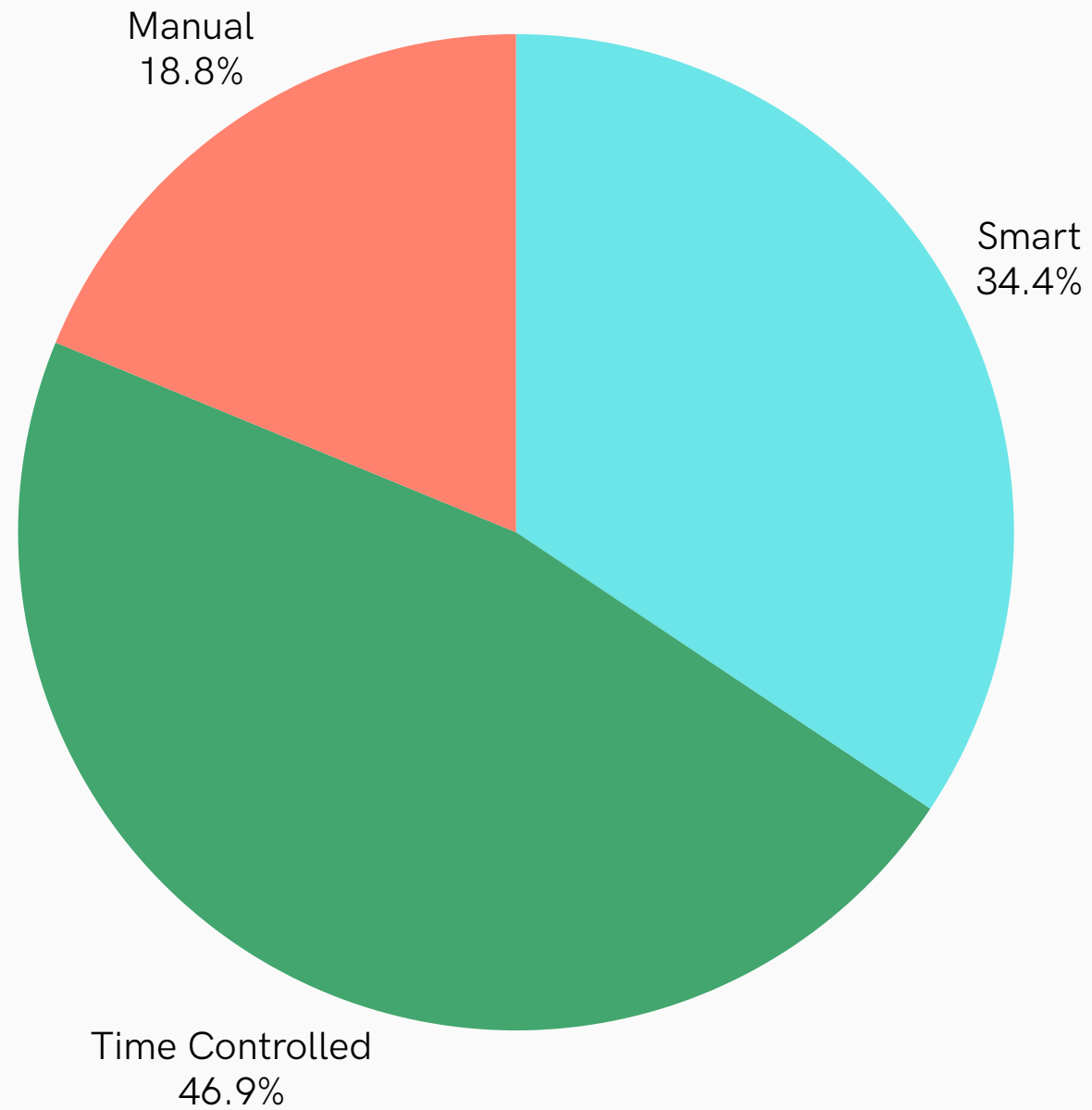
## **| Problem**

**A majority of farmers don't own a smart irrigation system.**

**This leads to:**



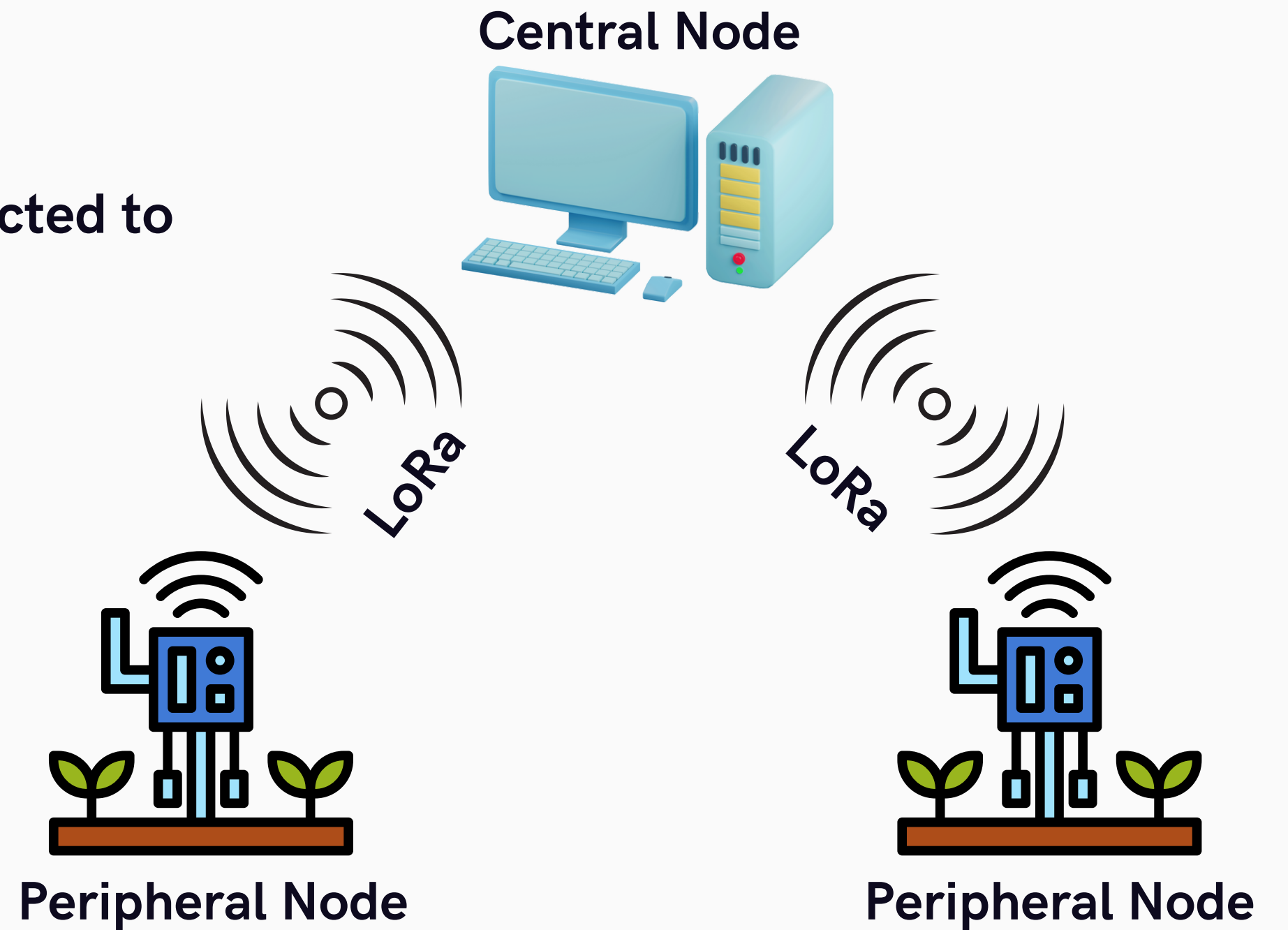
## Survey Results: Insights from Farmers on Their Irrigation Systems



- The majority of farmers surveyed (81.2%) expressed that they currently do not employ a smart irrigation system.
- The primary deterrents cited were the perceived high costs and limited availability within the market.

## | Solution/Product

OSI works based on a central node connected to several peripheral ones.



## Solution/Product

By combining the data from the peripheral and central nodes, the decision algorithm calculates if there's a need to irrigate the crops.

Humidity Sensor Data



Peripheral Node

Weather forecast and Evapotranspiration via IPMA API



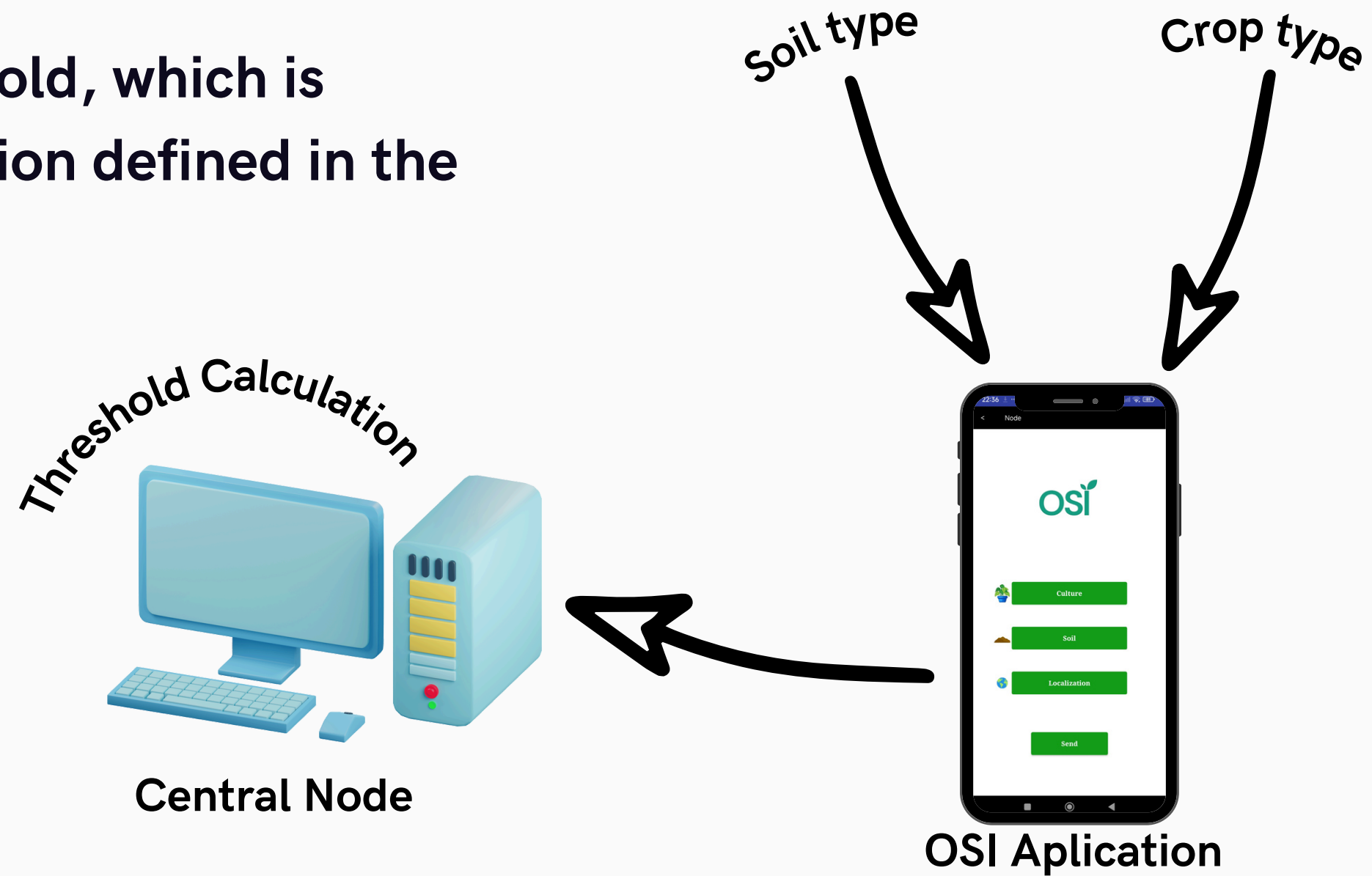
Central Node





## Solution/Product

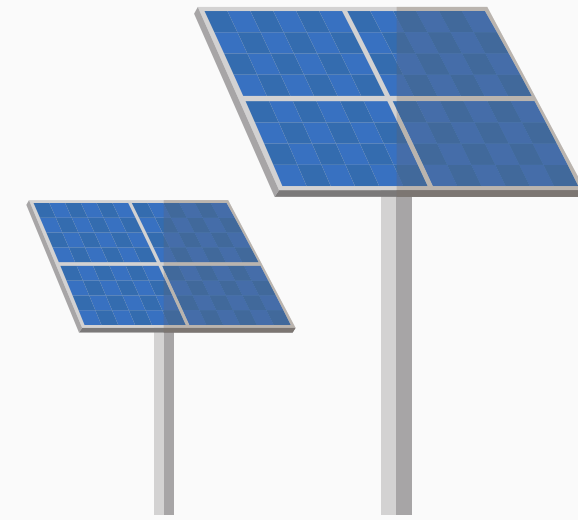
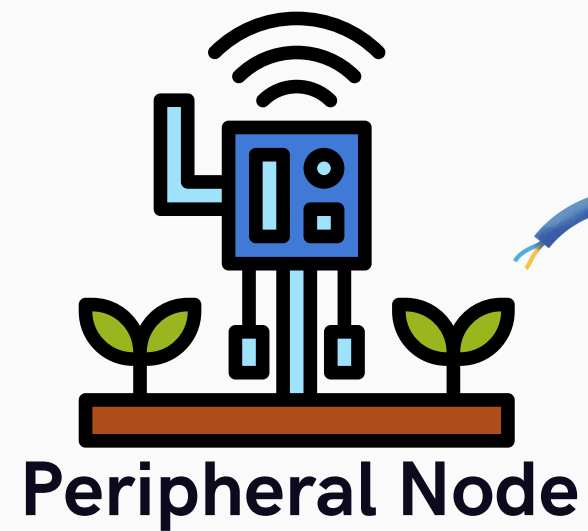
The decision is based on a threshold, which is calculated based on the information defined in the OSI Application



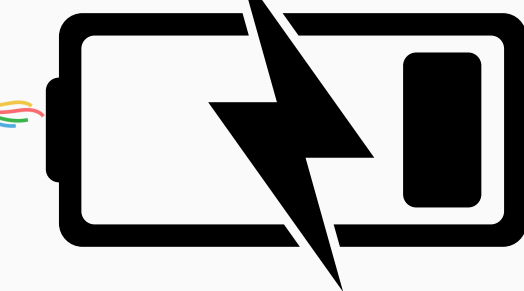


## Solution/Product

OSI is completely solar powered, being dimensioned to have the ability to be turned-on all year round.



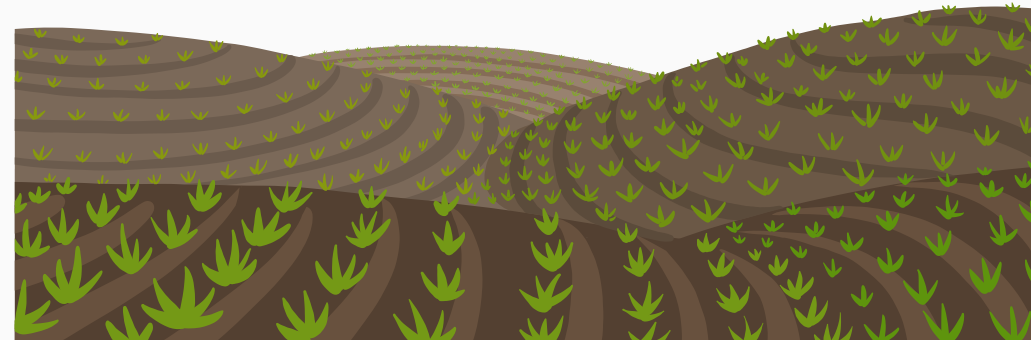
Protected by a charge controller



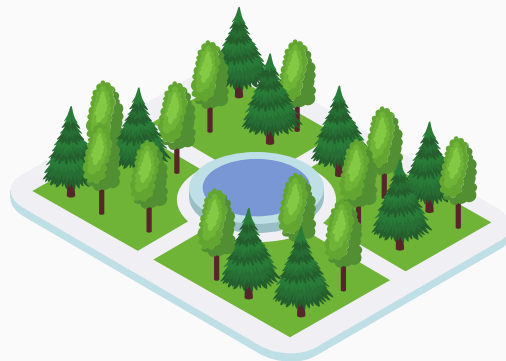
Capacity of 80 hours in one charge

# | Target Audience

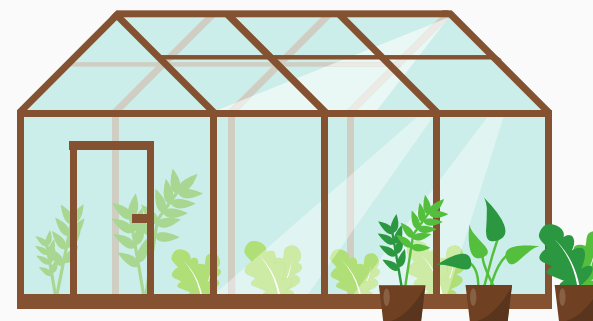
## Large Scale Agriculture



## Public Parks



## Greenhouses



## Domestic Gardening

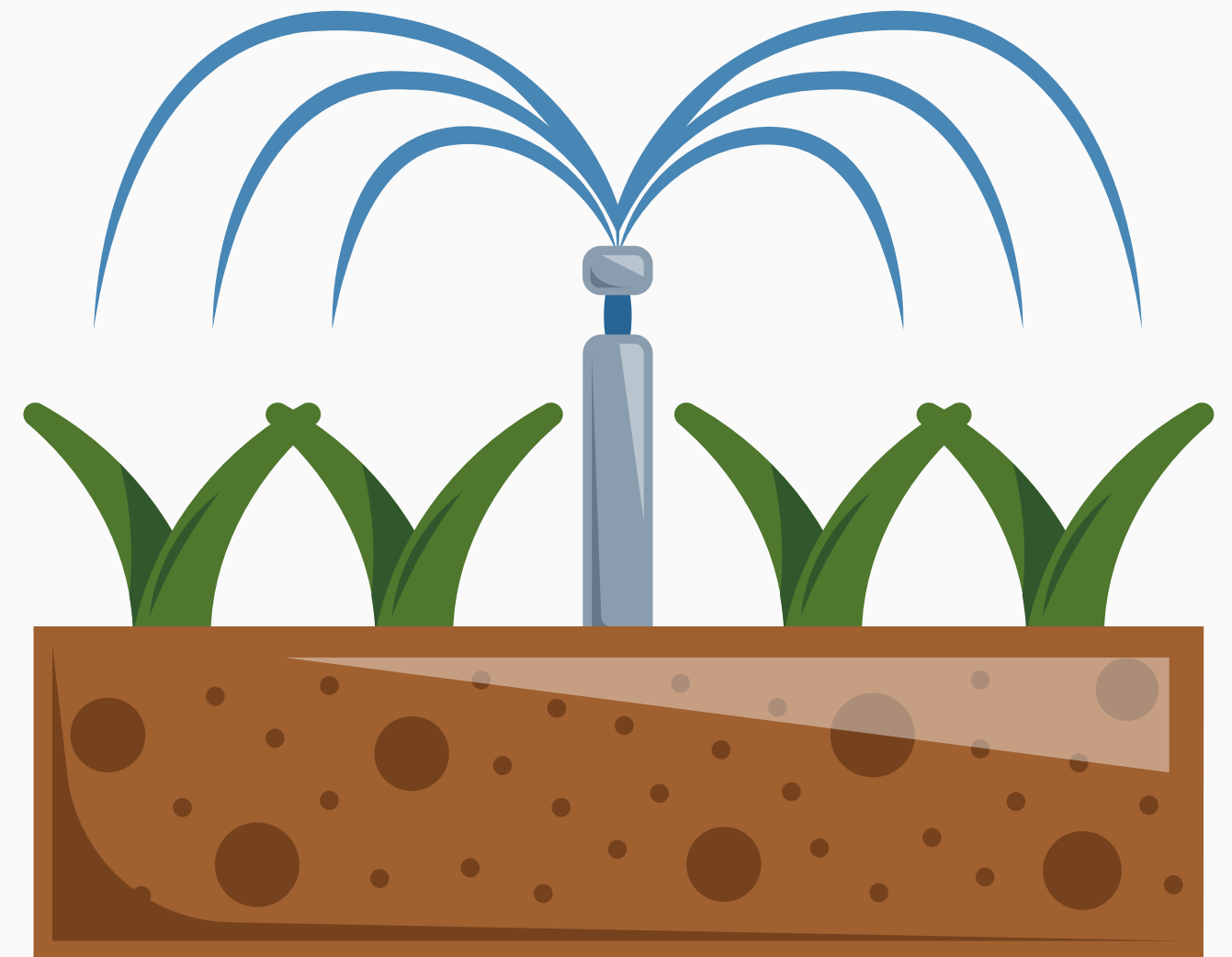




## Competitors

There are numerous companies in the market offering smart irrigation systems. They mainly use one of these types of systems

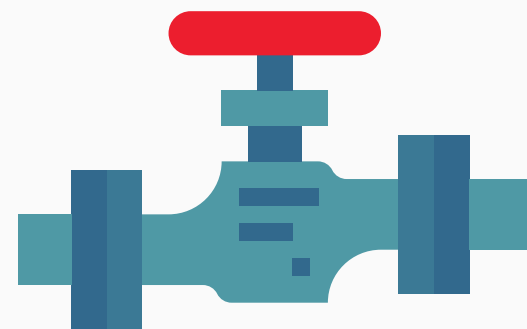
- Soil moisture sensors that schedule irrigation and activate irrigation systems.
- Climate-based solutions that use climate data to estimate evapotranspiration, predicting soil water levels and scheduling irrigation accordingly.



# Competitors

## NOS Rega Inteligente

A system that collects and provides users with data, assisting them in deciding when to irrigate. Users can remotely control valves and pumps



## Watersystems

A system that uses climate data to estimate evapotranspiration and predict IWN



## IRRIOT, Spherag, Hydropoint

Systems that acquire data with soil and climate sensors, controlling irrigation based on thresholds defined by the user.



## Team Members' Contributions

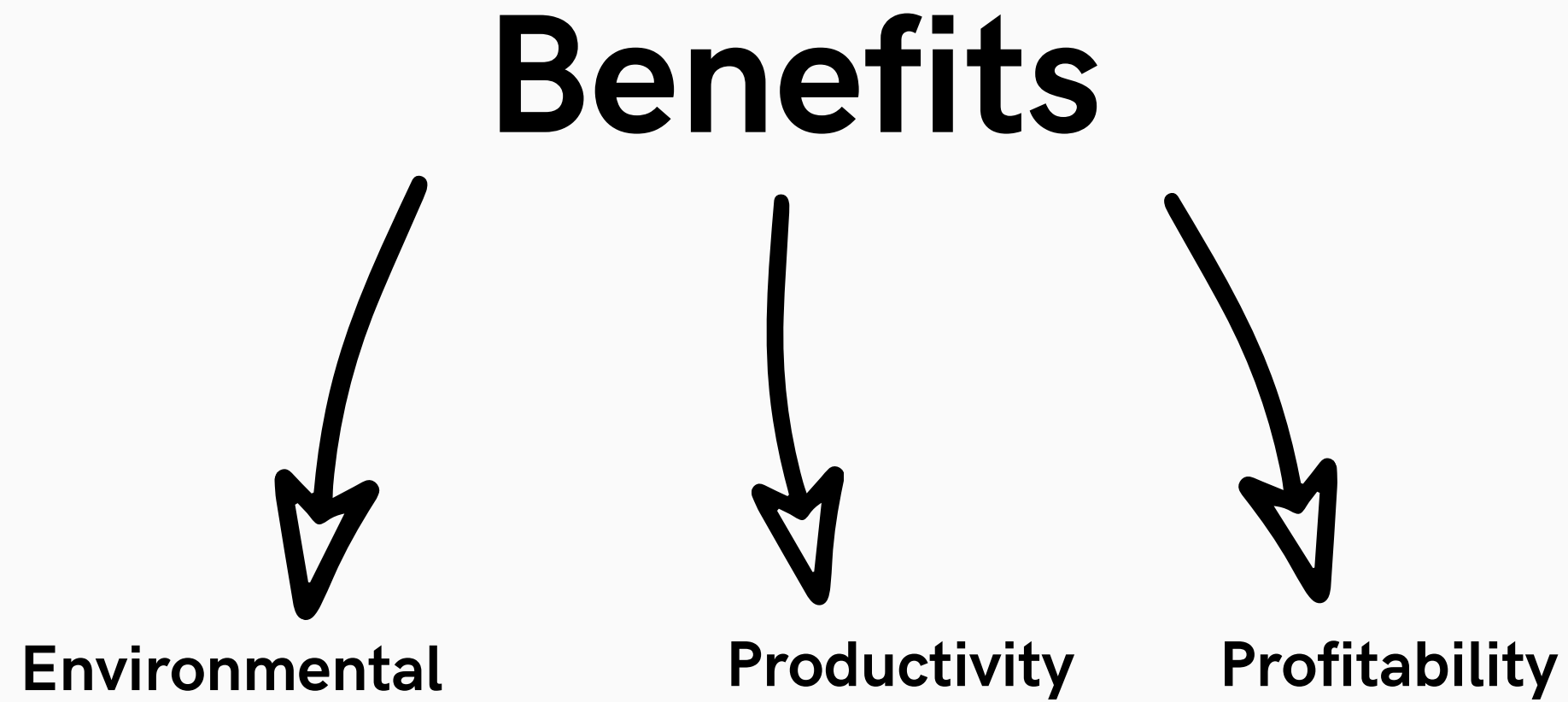
<b>António Simões</b>	<b>Rodrigo Arriegas</b>	<b>André Carvalho</b>
<b>Redefining the Prototype</b>	<b>Redefining the Prototype</b>	<b>Website Designing</b>
<b>Google Forms Conception</b>	<b>Google Forms Conception</b>	<b>Blog Entries</b>
<b>Website Development</b>	<b>Pitch, Poster and Video</b>	<b>Prototype assembling</b>
<b>Pitch, Poster and Video</b>	<b>Energy Management</b>	<b>LoRa Communication</b>



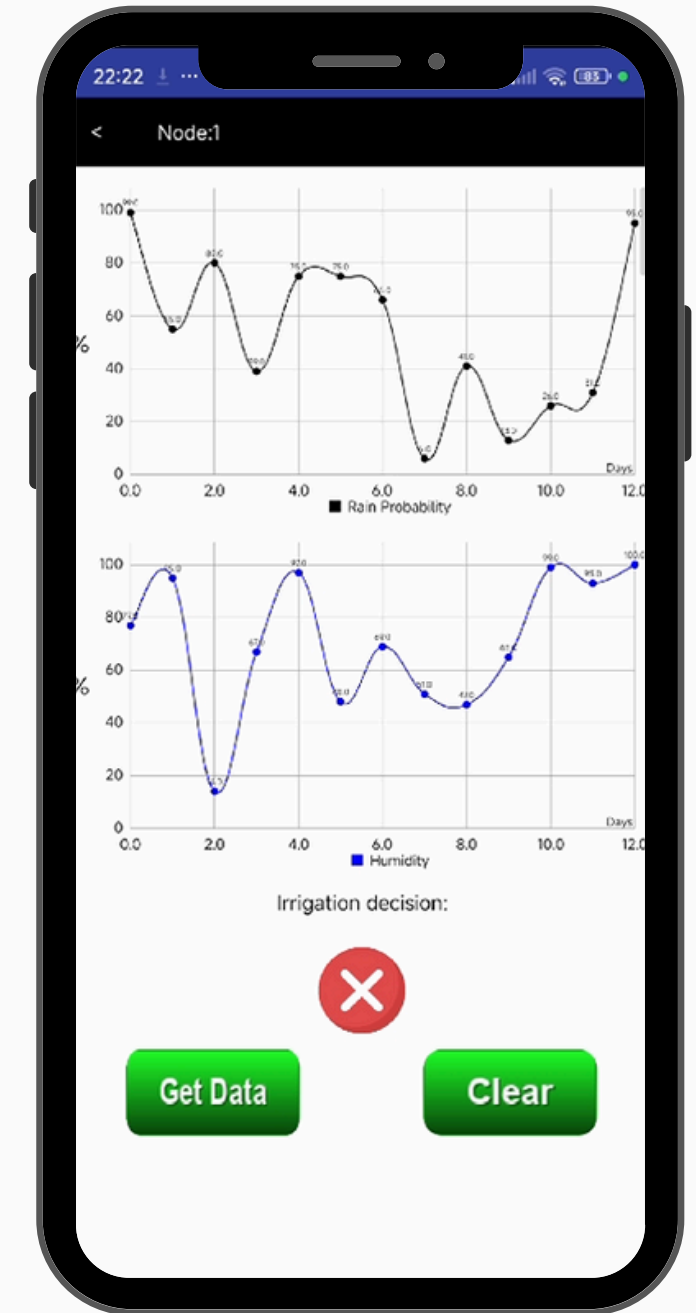
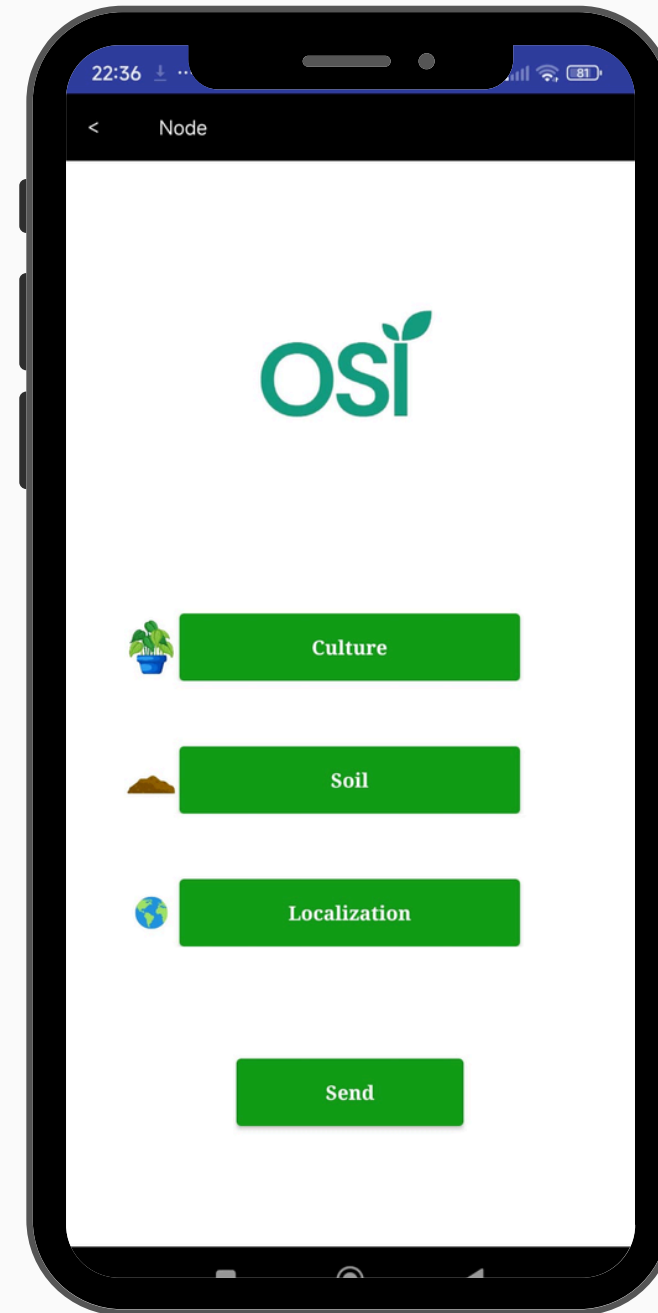
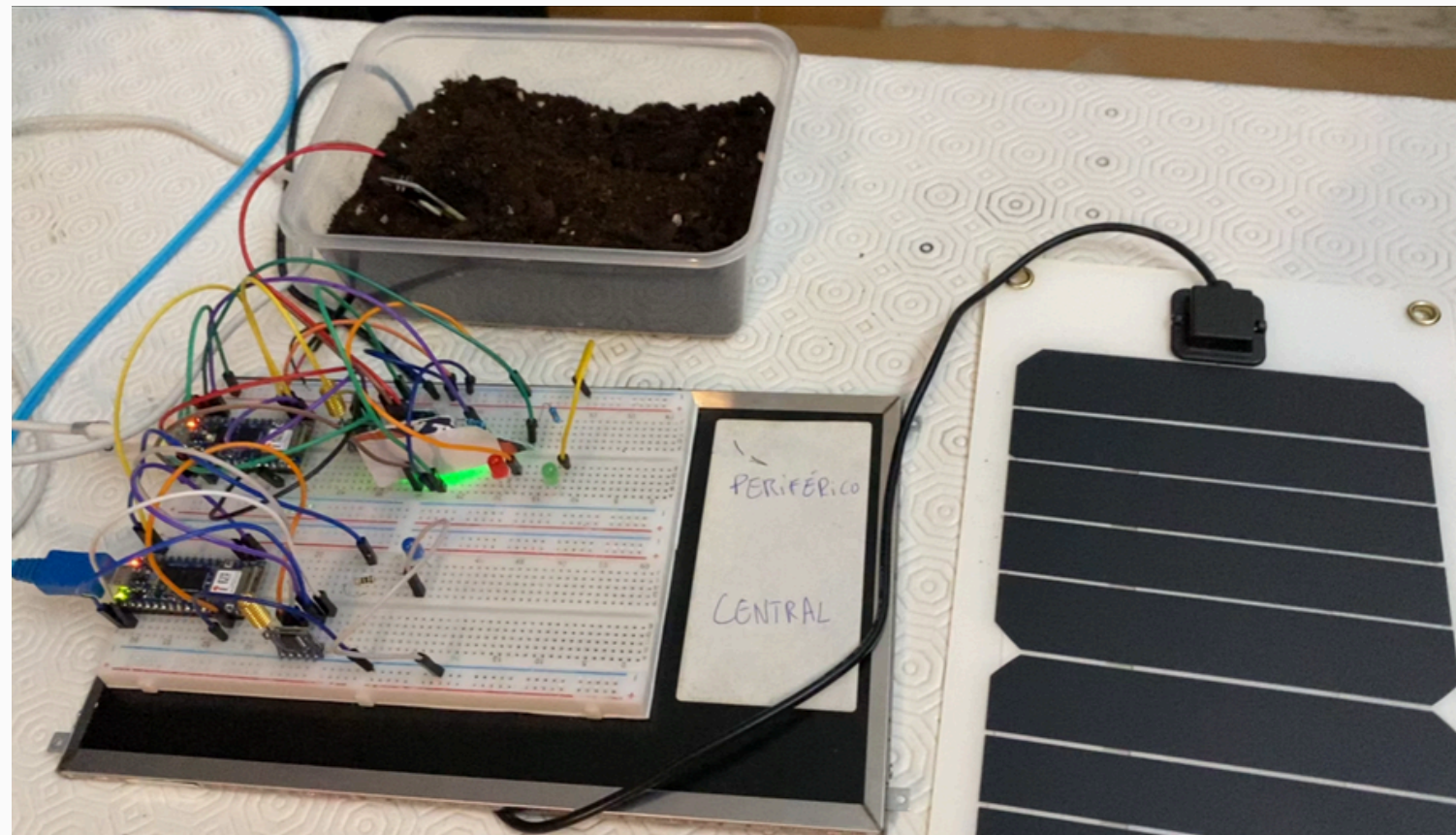
## Team Members' Contributions

<b>Gonçalo Amado</b>	<b>João Galego</b>	<b>Filipe Cruz</b>
App Development	App Development	IPMA API
App Communication with Arduino	App Communication with Arduino	Blog Entries
		Prototype assembling
		LoRa Communication

## Benefits



# Results







## | OSI-Optimizing Smart Irrigation

# Thank You



 <https://web.tecnico.ulisboa.pt/ist1102774/index.html>

 <https://www.youtube.com/watch?v=IbECUuzoaec>