Accurate irrigation controller with multi-sensoring and interactive cloud-based platform to evaluate real plant needs and save up to 80% of water

Sprawozdania

Informacje na temat projektu

RAINOLVE

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Podsumowanie kontekstu i ogólnych celów projektu

Irrigation is a need in the cities, in th gardens and of course in the agricoltural plants.
From one side iirrigation of public and private lawns is becoming more and more an economic burden for society and a source of environmental concern due to the high-water consumption it entails.
On the other side according to the New York State Department of Enviromental Conservation trees and green areas creates cooler environment through the process of evotranspiration, generating a positive balance between water used for irrigation and energy saving.
The actual contest of temperature increasing is requiring more and more irrigation in public parks and private garden with an increasing risk of water scarcity in medium terms.
Since “each drop of water counts” the challenge for the irrigation manufacturer is to provide the exact amount of water needed by the plants. Currently irrigation controllers only take in account a small number of general factors to allow users to create their watering programs, which makes the irrigation still inaccurate
The challenge is to develop and manufacture an intelligent system able to monitor and decide irrigation cycles in an accurate, precise and easy to use way.
With RAINOLVE we want to realize the most evolved, simple and cost-effective irrigation control system on the market, targeting landscape and municipal irrigation systems.
It will be the first multi sensor intelligent irrigation controller coupled with a cloud-based platform with vast botanical and agronomical database and connected with weather forecast services.
Thanks to these inputs, AI will calculate and check the exact plant needs in function of site conditions.
The result of RAINOLVE will be an annual save of water then can be estimated in 350-450 liters per square meter of grass watered with sprinklers, depending on the climate area.
The dissemination program will enlarge the actual base of customers and will open new segment of market to the company, such as income coming from exploitation of data and performances of the platform.

Prace wykonane od początku projektu do końca okresu sprawozdawczego oraz najważniejsze dotychczasowe rezultaty

We worked on two main directions: electronic and product structure.
On the electronic side we are developing a reliable sensor and his electronical hub that can be buried under the grass to avoid any vandalism in public areas and we are also developing antennas that will have a longer range connecting all the devices of the installation.
On the product structure we are developing IP68 cases and all the accessories needed to install properly the system in gardens and public areas.
We are also developing a micro turbine that will give energy to the system using the speed developed by the water during the irrigation cycle.
This micro turbine in stage of definitive pre-production prototyping is giving an output of power even higher than what targeted.
The sensor is performing correctly in different soil and weather conditions.

The system has been shown in multiple shows and presented to our best customers during a dedicated international convention, the acceptance has been very good.

Innowacyjność oraz oczekiwany potencjalny wpływ (w tym dotychczasowe znaczenie społeczno-gospodarcze i szersze implikacje społeczne projektu)

Nowadays the users are irrigating using timers, so using an intuitive program which wastes water because it’s not efficient and does not consider: the plant, the type of soil and its modification during the seasons.
Some timers are connected to weather stations but none of them is completely autonomous in terms of decision based on the real situation of the plants.
RAINOLVE is an autonomous and intelligent system which manages the garden by itself considering the vital parameters of the plant and informs smartly the gardener of any relevant alert.
RAINOLVE system is able to save up to 60% of water given to the grass in one year. In a temperate climate as Milan, using traditional timer-controlled irrigation, the annual consumption of water is between 600 to 700 liters of water per square meter. Our system will save up to 420 liters of water per square meter per year, it means that a small garden of 1.000 square meter will save 420.000 liters in one year only.
The benefit of our system is at the same time for the end-user and for the society: the end-user will have a pay back of his investment in less than 4 years.

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