Gaia Robotics: Transforming Agriculture with Innovative Technology Solutions

Name of the Organisations Involved

- Gaia Robotics, Greece

Challenges Identified

Gaia Robotics is an innovative Greek SME leveraging on the experience and knowledge of its multidisciplinary core members, working in numerous R&D activities. Gaia's main focus is a holistic vision of innovation, generated by efficiency, scientific curiosity and expert knowledge where ideas, techniques, tools and methods from different disciplines are integrated to make innovative, secure and responsible technology.

Gaia's main area of expertise lies in ICT, Green and Environmental Tech, Agritech, Robotics, Artificial Intelligence and Critical Infrastructures.

Goals and Solution

Gaia Robotics particularly works on crossing the gap between booming cutting-edge technology and the real efficiency it brings at a low cost and has managed to become the leading UAV and Precision Agriculture technology solutions Provider in Greece, that has collaborated with a multitude of customers and types of crops successfully addressing their specific needs. Gaia Robotics has already completed complex large-scale projects utilizing the vast experience of its remote sensing and geospatial analysis experts by assisting its customers using advanced scientific sensors and unmanned aerial vehicles (UAV) in acquiring, processing, and analysing remote sensing and computer vision data.

Gaia Robotics is actively engaged in various projects and case studies and its team constantly conducts research and development on emerging technologies. This highly skilled team is responsible for the development of

- **MyGaia Cloud Platform** which is a Decision Support System tailormade to help producers and agronomist optimize their farming management decisions and achieve a sustainable production that can produce more yields with less inputs and a smaller environmental footprint.
- **COLT Weather Station,** which is an innovative low cost, IoT enabled environmental sensor that leverages novel green technologies such as tree energy harvesting and provides crucial data to our clients helping them better monitor their crops or greenhouses;
- MyGaia360 is a state of the art, end to end robotic solution that is poised to revolutionize urban farming and democratize food production.

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Short description of the technology and the beneficiaries

MyGaia, is a pioneering Digital Agriculture Platform that is crop agnostic and offers the most complete farm management and problem prediction solution.

The Platform helps farmers analyze crop status by using a broad spectrum of available farming data sources. They create easy to understand plant health maps and crop management zones accompanied by an up to date weather data stream. This enables to offer a complete suite of analytical tools generated by scientifically collected data.

How it works:

- Data Collection

Data collection is achieved through a broad set of technological tools such as multi spectral sensors, satellite imaging as well as a wealth of additional satellite data.

- Data Processing and Analysis

After the data collection is completed, they are automatically uploaded and processed by our proprietary MyGaia platform.

- Data Visualization

The end results are readily accessible to the user, using their personal code, through any device connected to the Internet and can also be downloaded in various formats.

Gaia Robotics succeeds in combining information technologies with agronomic science in a holistic and sustainable way that aims on revolutionizing food systems through the digital transformation of the production process. It enhances and optimizes the decision making and precise applications in agricultural crops no matter how small or large scale they are and collects and fuses actionable data from both the crops, remote sensing solutions like satellites and UAV enabled multispectral sensors and also from the agronomist and the producer. Thus, Gaia Robotics provides the necessary tools to the agricultural advisor, the researcher and the producer in order for them to optimize their yields, while reducing the environmental footprint of their practices. Therefore, the innovation and scalability potential of Gaia Robotics lies exactly in its unique characteristic that it concerns everyone engaged in the food system production cycle**.**

Actions Taken

Gaia Robotics has completed for 3 consecutive years, in close cooperation with KYKNOS SA, the largest UAV enabled precision agriculture survey in Greece. The data collection and analysis campaigns concluded have produced a wealth of novel and extremely useful data regarding the growing process and farming regimens of processing tomato and have enabled related producers and agronomists to expand their knowledge and optimize their production.

Finally, MyGaia360 is an innovative and very promising robotic project, that could offer novel solutions to existing production problems, leading to a new circular economy paradigm.

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Benefits and Impact

My Gaia offers

- Plant Development & Growth Monitoring
- Early Detection of Disease and pests
- Detection and diagnostics of stress
- (mechanical damage, nutrient deficiency, water stress, soil compaction)
- Constant Monitoring of the effect of herbicides & fertilizers (optimization of fertilization)
- Prediction of yield
- Crop Management Zones
- Alerts - Users Notifications

Gaia Robotics solutions empowers farmers to achieve significant economic gains including 30% increase in yield, 40% decrease in costs, as well as 70% decrease in disease-related risks, all of which facilitates the production of quality products and reduces negative environmental impact.

Contact Information

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Application Area

☒ Soil ☒ Plants ☒ Terrain

Digital Technology in the Value Chain

☒ Agronomic Services

Digital Technologies

☒ Robotic and Automation ☒ IoT ☒ Sonsor Technology ☒ Drones and AGvs

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