



SWITCHMED BLUE ECONOMY

Catalog of Innovative Technologies for Sustainable
Aquaculture in the Mediterranean

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SMART TECHNOLOGIES

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for the Pilot Project



BiOceanOr
Biology For Ocean

MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE (AI)

Description of Solution : BiOceanOr provides high value-added services linked to the monitoring and forecasting of water quality as well as its associated impact on biomass. Our mission is to support aquaculturists in order to optimize and secure their production operations, by providing them with predictive services (especially dissolved oxygen) and correlative analyzes with production data.

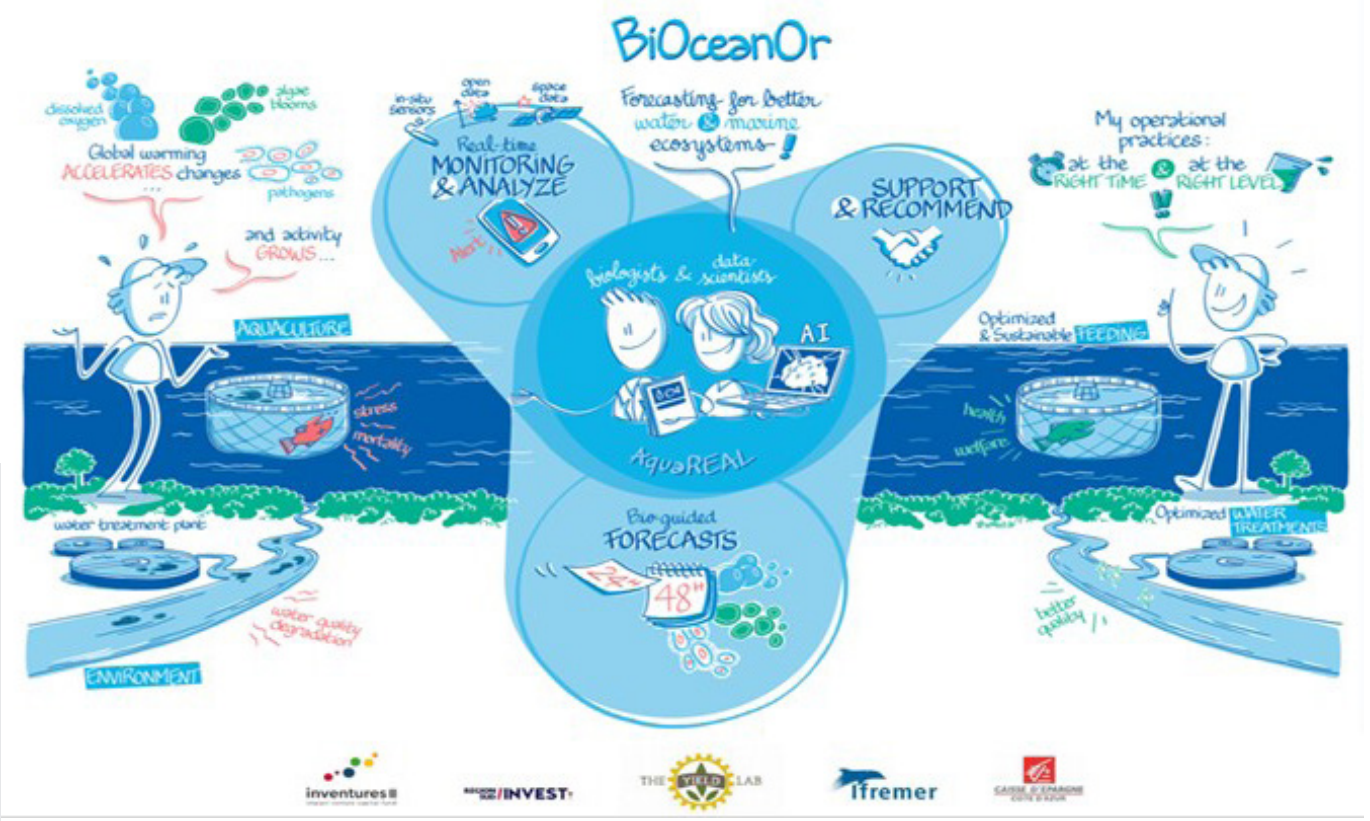
Thanks to the exploitation of large quantities of data, the development and operation of models using Machine Learning and Artificial Intelligence (AI) techniques, BiOceanOr provides two main areas of services:

- A service for predicting the concentration of dissolved oxygen in water with 48 hours of anticipation.
- A data analysis service to establish correlations between environmental, biological and production variables (food, animal health, sustainability).

Environmental Benefits :

BiOceanOr solutions make it possible to reduce the portion of food that is not assimilated by the fish and therefore released into the environment, thus contributing to the fight against eutrophication of aquatic environments.

Our solutions also have an impact in terms of animal health and welfare, through the understanding and anticipation of environmental changes and their impact on aquatic organisms.



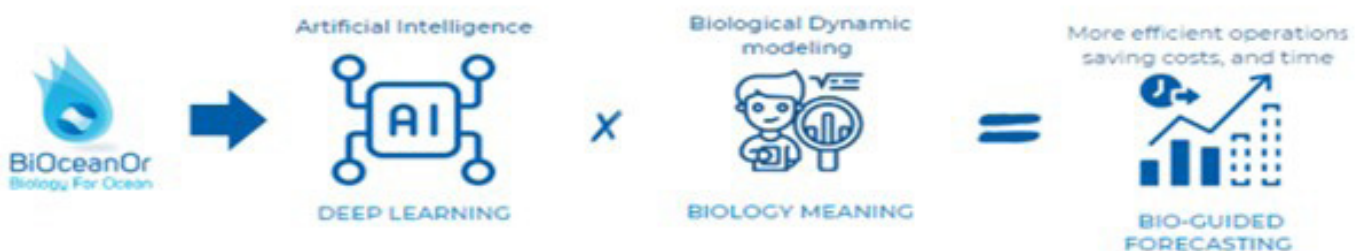
Economic Benefits : The solutions offered by BiOceanOr have a beneficial economic impact on various positions linked to production:

- Reduction of mortality events through better control of the environment and its impacts on biomass.
- Optimization of feed costs thanks to feed distribution within the optimal time window generating better physiological conversion by the fish.
- Better planning of operations on sites thanks to the anticipation of environmental conditions and their impact on daily production activities.

Function and Application : The services provided by BiOceanOr aim to support aquaculturists in their daily operations by providing them with bio-guided decision-making elements. Thus, the service for predicting the concentration of dissolved oxygen in water makes it possible to respond to numerous applications:

- Optimize the feeding and growth of biomass, thanks to the definition of 'best feeding windows' allowing the maximization of the FCR (Feed Conversion Ratio) and the SGR (Specific Growth Rate).
- Provide early warnings in the event of anticipation of significant variations in the oxygen level in the water, in order to implement preventive actions to minimize the impacts (e.g. stopping fish feeding, switching on oxygenation systems, etc.).
- Plan routine biomass operations (handling, vaccination, etc.) at the optimal time based on environmental conditions, to improve welfare and reduce mortality.

The data analysis service allows it to identify correlations between biomass, production and the environmental characteristics of production sites. These results are presented around regular 'efficiency meetings' which are held between BiOceanOr experts and the client, in order to take a step back and improve operational practices on a given site based on the results obtained and the trends observed.



SPECIFICATION :

Technical aspects of the solution: BiOceanOr has developed models using Machine Learning and Artificial Intelligence (AI) techniques and drawing on a vast source of data, such as:

- | | |
|--|--|
| <ul style="list-style-type: none"> • In-situ data obtained by probes installed in production centers. • Satellite data. • Weather models. • Open data. | <p>These different sources of information make it possible to understand the numerous mechanisms that affect water quality and its evolution over time. Our teams have cross-expertise in the fields of Data Science, marine biology and fish health, which allows us on the one hand to collect, structure and analyze large datasets, and to on the other hand to derive a true biological understanding applied to the aquaculture field.</p> |
|--|--|

Our prediction services are delivered to our users through a web platform called AquaREAL, which allows this information to be viewed 24/7, for continuous monitoring of production sites. BiOceanOr also works in collaboration with different partners to provide, via web service, its services in more integrated systems, such as production management software.

Availability : Market readiness, trademark, existing market coverage, commercialization strategy

BiOceanOr has developed its activity in different segments of the aquaculture industry. Thus, beyond its experience in the salmon industry, BiOceanOr has expertise in the field of Mediterranean aquaculture, around the breeding of species such as sea bass and sea bream. The projects developed with producers in countries such as Greece or France have allowed us to acquire skills and knowledge specific to aquaculture in the Mediterranean arc.

Targeted and Type of Local Business Partners :

Targeted : BiOceanOr has a network of distributor agents spread across the world: from Chile to Singapore via Turkey, BiOceanOr has established alliances with leading companies in the aquaculture field, in order to support aquaculturists locally, at closer to their production centers.

Type : BiOceanOr seeks to build partnerships with Tunisian aquaculturists, in order to highlight the added value that its services in terms of prediction and data analysis can bring in the optimization and security of production cycles.

On-site After Sales Service Support : The BiOceanOr teams are made up of data scientists, biologists, fish health managers, etc. Thanks to the expertise of our teams, we can support aquaculturists in the execution of diverse and varied projects by providing tailor-made assistance in depending on the needs of each producer.

Requirements : Adapt the solution to the local market and potential applications/market size

Regulatory compliance: Since BiOceanOr’s solutions are SaaS solutions, they are not subject to any particular regulatory constraints.

Location: At BiOceanOr, our teams are located as close as possible to the markets we address. Thus, our teams located in the south of France allow us to engage in fluid and close discussions with Mediterranean aquaculturists, while our teams present in Chile and Norway work closely with the main players in the salmon market.

Affordability/Market Size: The geographic proximity to Tunisia and the subsidiary’s development projects make it a market of strong interest for BiOceanOr.

Company Overview : Founded in 2018 by former members of IFREMER, BiOceanOr is a player committed to the digitalization of aquaculture. Thanks to its dual expertise in the field of biology and data science, BiOceanOr supports acuaculturists in optimizing and securing their production methods.

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BLEUPSOL

POWER SUPPLY - SOLAR GENERATOR

Description of Solution (BLEU POWER) : This system is equipped with an application that allows fishermen to consult in real time the GPS position of the dinghy, the images of the sounder, the working status of the searchlights, as well as the voltage and the current of input while charging. This application also offers the possibility to trigger an alarm in case of problem or danger, as well as to save a sonar image manually with the date, GPS position and weather status to create a database.

Description of Solution : The BLEUPSOL solar generator allows the cameras and the neptulink to operate permanently. It is equipped with an intelligent energy management and monitoring system in order to monitor statuses in real time and remotely and extend battery life.

Function and Application : The customizable BLEUPSOL solar generator can operate and control any type of device permanently and independently in off-grid areas via solar energy.

SPECIFICATION : Technical aspects of the solution : The energy produced by the solar panel is stored in well-designed batteries. This Energy will be used at night and on dark days. With the management system, the excess energy produced by the panels will be directly used during the day to extend the life of the batteries.

The monitoring system allows you to view in real time all the charge and discharge states, functional states of the devices, the case temperature with recording to have a history.

- Green and sustainable energy
- Intelligent and connected system

SMART GREEN ENERGY FOR SUSTAINABLE FISHING

POWER BLEUPSOL

Smart power station for light fishing

+216 28 695 169

WiFi transmission Monitoring Solar charging

contact@bleupsol.com

Availability : Market readiness, trademark, existing market coverage, commercialization strategy

After the developments and tests carried out since 2019 Bleu power Solution has won several titles in Tunisia (best innovative project in Tunisia 2022 GIZ); which made a good impression on the Tunisian market as well as on the international market. With a B to B and B to C strategy we started to make our first sales.

Economic and Environmental Benefits : The BLEUPSOL solar generator uses clean and free energy. With its monitoring system it makes it possible to minimize maintenance costs and predict potential breakdowns.

Targeted and Type of Local Business Partners :

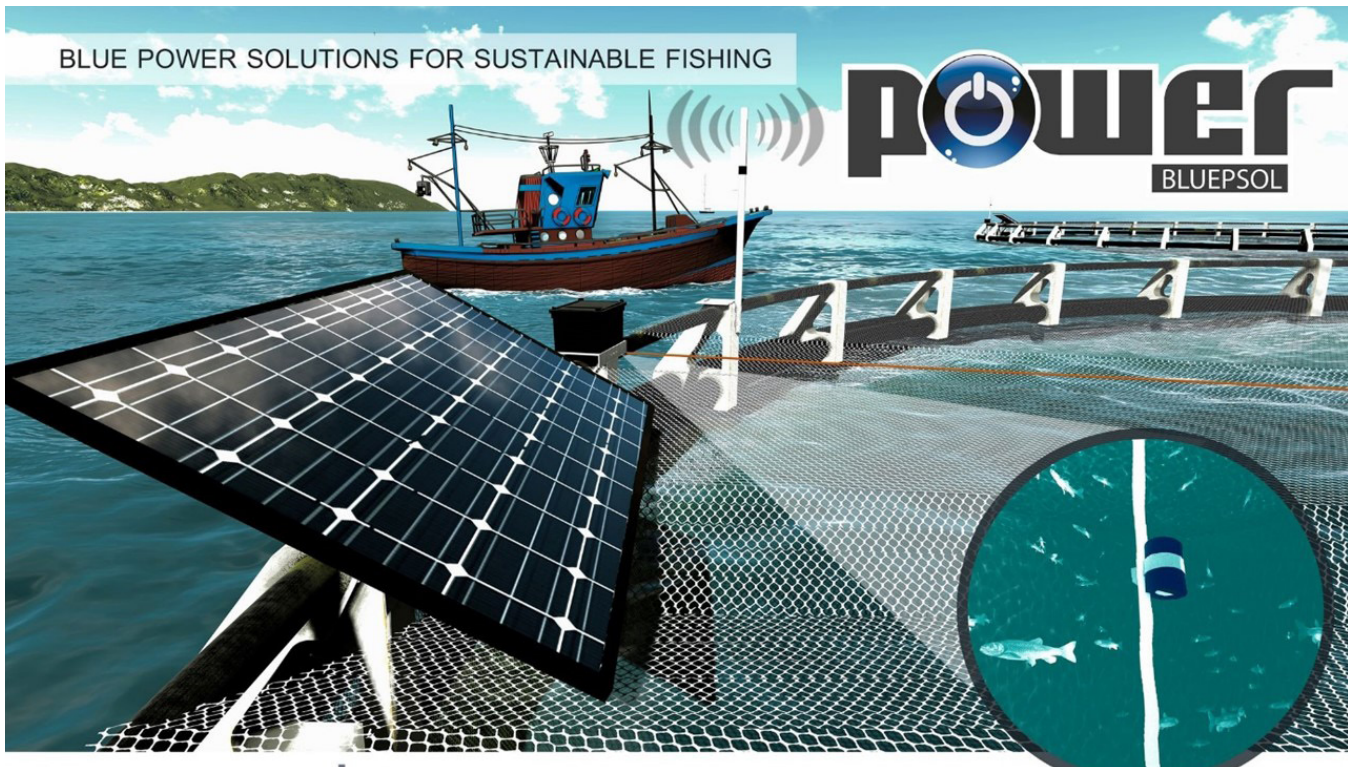
Targeted: Supplier of fishing and aquaculture equipment

Type: Marketing, technology, industrial partnership

Requirements : Adapt the solution to the local market and potential applications/market size

The aquaculture industry in Tunisia and around the world is continuously growing and requires more development with sustainable solutions. So having economical and ecological solutions has become a necessity. With more than 25 specialized companies in aquaculture, Tunisia represents a market with great potential.

On-site After Sales Service Support : Customer support and technical support in particular make it possible to achieve customer satisfaction objectives while benefiting from feedback to better develop our solutions with each customer.



Company Overview : The BLEUPSOL company is a start-up in the field of intelligent energy storage.

After the developments and tests carried out since 2019 Bleu power Solution has won several titles in Tunisia (best innovative project in Tunisia 2022 GIZ); which made a good impression on the Tunisian market as well as on the international market. With a B to B and B to C strategy we started to make our first sales.

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Exynotech Engineering Services

INTERNET - EYEFISH

Description of Solution : EyeFish is a cutting-edge technology solution designed for fish farmers, providing precise control of their operations. This innovative technology redefines aquaculture management, driving efficiency, disease prevention and better collaboration within the fish farming industry. Its main features include:

- Estimation of biomass by determining the average weight and counting fish in real time, allowing optimized feeding and a reduction in the FCR coefficient.
- Monitoring fish health through early detection of disease symptoms in real time, ensuring fish populations are protected.
- Comprehensive operations management with centralized control, global data analysis and a dashboard.
- Monitoring of stocks, food, contacts and activity for effective management of fish farming.
- Promote collaboration between team members.

Economic and Environmental Benefits :

- **EyeFish optimizes fish feeding:** Through a better understanding of their health and needs. This results in an approximately 15% reduction in fish feed consumption, thereby contributing to the sustainability of the aquaculture industry.
- **Accurate Monitoring:** Ability to accurately monitor fish and early disease detection through the deep learning model contributes to an approximately 25% reduction in the use of antibiotics in fish farms. This has a positive impact on the environment by reducing the release of harmful chemicals into the water.
- **Reduction in labor costs:** It provides an estimated reduction of approx. 20% in labor costs associated with fish monitoring and management. The ability to automatically count fish and monitor their health contributes to more efficient use of human resources, thereby reducing operational costs.
- **Economic Benefit:** By reducing operational costs and notable environmental benefits by promoting more sustainable aquaculture management, with estimated reductions of 20% in labor costs, 15% of fish feed consumption and 25% of antibiotic use.

Function and Application :

- **Biomass Estimation:** EyeFish offers real-time biomass estimation by determining the average weight and performing an accurate count of fish. This function allows for optimized feeding and a significant reduction in the Feed Conversion Coefficient (FCR), thereby improving operating efficiency.
- **Health Monitoring:** The solution provides continuous monitoring of fish health by detecting disease symptoms early. This real-time capability ensures the protection of fish populations by enabling rapid and targeted response in the event of health problems.
- **Complete Farm Management:** EyeFish offers centralized control of the entire farm. It provides a global analysis of the collected data, presented in the form of an intuitive dashboard. This function allows more efficient and informed management of all fish farming operations.
- **Stock and Feed Monitoring:** The solution allows precise monitoring of fish stocks as well as feed. This facilitates resource management and ensures adequate feed distribution, thereby contributing to fish health and growth.
- **Promote Collaboration:** EyeFish promotes collaboration between team members working on fish farms. By centralizing data and providing real-time insights, the solution enables industry players to work together more efficiently.



SPECIFICATION

Technical aspects of the solution :

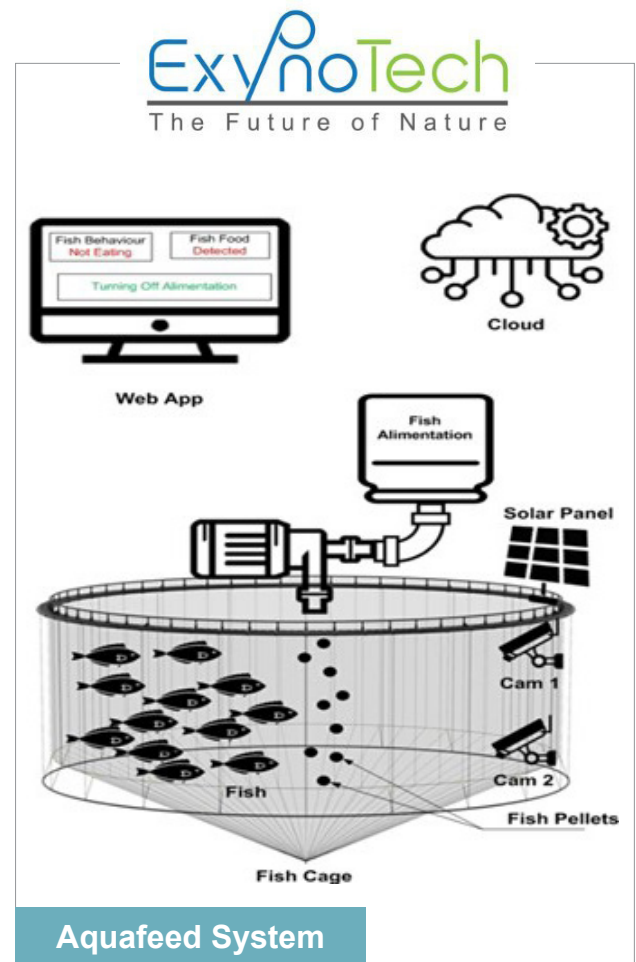
- EyeFish represents a cutting-edge technology solution that leverages advanced principles in deep learning and computer vision. This state-of-the-art system is designed to provide comprehensive functionality related to fish growth monitoring and aquaculture management.
- EyeFish excels at species identification, precise measurement of fish dimensions (height and width in millimeters) through the use of depth cameras, and offers highly accurate estimation of fish weight through learning algorithms automatic. The system also uses computer vision techniques for fish counting.
- EyeFish 's health monitoring capabilities are underpinned by a deep learning model that detects disease symptoms visible on the fish's skin, ensuring early detection of disease.
- These robust features are executed in a smart case, which is equipped with a high-performance integrated GPU and versatile power options (main power or battery), which improves the ease of use of the system. All collected data is stored securely in a local database.
- EyeFish 's user interface is designed to be user-friendly, secure and multilingual, making it accessible to a wide range of customers. It provides detailed dashboards for fish pen monitoring, allowing users to access essential parameters through a high-resolution and responsive 15.6-inch touchscreen interface.
- For effective fish farming management, EyeFish is seamlessly integrated into a highly secure online platform. This platform has a large data storage capacity, an intuitive user interface and a large number of filtering options to simplify data manipulation.
- Data visualization and analysis is enhanced with Business Intelligence (BI) tools, ensuring accurate and insightful data analysis.
- EyeFish devices is seamlessly transmitted to the online platform via Internet connectivity, either by WiFi or Ethernet. This process takes place when fishing activities are completed and users return from sea to land. EyeFish 's holistic approach provides a comprehensive, advanced solution for the aquaculture industry, combining technical excellence with user-friendly design and data-driven insights.

INTERNET - AQUAFEED

Description of Solution : AquaFeeder, an advanced Internet of Things (IoT) solution, is poised to transform aquatic fish feeding. This innovative system leverages IoT technology and uses deep learning to automate and optimize the fish feeding process in aquaculture and other aquatic environments, eliminating the need for human intervention. Thanks to its IoT infrastructure, it allows you to:

- Ensure a well-balanced diet.
- Adapt to the specific needs of different fish species.

AquaFeeder continuously monitors feed pellets as well as fish behavior and eating habits, all in real time. This not only prevents overfeeding, which can lead to environmental problems, but also maximizes fish health and growth. Users can manage and monitor the system remotely, receiving alerts and notifications in case of irregularities.



SPECIFICATION

Technical aspects of the solution : AquaFeeder, being an IoT solution, integrates several key components :

- **Smart Power Generator with Real-Time Monitoring:** The system integrates a smart power generator connected to the 4G network with real-time monitoring capabilities. This device is equipped with an intelligent control module that continuously evaluates environmental conditions and fish behavior.
- **Machine Learning for Predictive Feeding:** Using machine learning, AquaFeeder predicts optimal feeding times and portions, taking into account recorded data and real-time conditions. This proactive approach minimizes overfeeding and underfeeding, ensuring that fish receive the right amount of food precisely when they need it.
- **Adaptive Camera System:** AquaFeeder uses two underwater cameras: one at the top and one at the bottom of the fish cage. These cameras are powered by solar panels and are equipped with advanced image recognition features. The camera at the top monitors the behavior of the fish and assesses their appetite, while the camera at the bottom accurately measures the amount of uneaten food.
- **Smart Alerts and Notifications:** The system provides smart alerts and notifications, not only for power shutdown but also for any abnormalities in the aquatic environment. This proactive monitoring ensures a rapid response to potential issues.
- **AI-based Algorithm and Cloud Computing:** AquaFeeder integrates an AI-based algorithm for data analysis. It processes data from cameras, evaluating fish behavior, food pellet detection and environmental conditions. All of this data is analyzed and processed in the cloud, enabling advanced predictive modeling and adaptive feeding schedules.
- **Advanced Telemetry and Remote Control:** Users can access the system remotely via a user-friendly app. They receive live telemetry data on fish behavior and feeding habits. This real-time access allows for immediate adjustments and ensures precise tuning of the feeding process.

Function and Application : The AquaFeeder solution presents several essential functions and applications in the aquaculture and aquatic environments industry:

- **Fish Feeding Automation:** AquaFeeder automates the fish feeding process, ensuring that fish receive the right amount of food at the right time. This feature improves feeding efficiency and helps minimize food waste.
- **Real-Time Monitoring:** The solution continuously monitors feed pellets, fish behavior and feeding patterns. This helps maintain optimal fish health and adjust feeding schedules accordingly.
- **Customizing Feeding Schedules:** AquaFeeder allows users to customize feeding schedules based on the specific needs of fish species.
- **Remote Control and Notifications:** Users can control and monitor the AquaFeeder system remotely through a user-friendly mobile app. Notifications and alerts are generated in the event of irregularities, ensuring proactive management of the aquatic environment.
- **Environmental Sustainability:** By reducing food waste and ensuring fish receive the appropriate amount of food, AquaFeeder promotes environmental sustainability by preventing overfeeding and reducing water pollution.



Company Overview : ExypnoTech is an innovative and dynamic startup on a mission to revolutionize the aquaculture industry through cutting-edge technology solutions. With a strong commitment to sustainable growth, increased productivity, and unwavering environmental stewardship, they are reshaping the future of fish farming. They firmly believe that sustainable aquaculture is vital to meet the growing global demand for fish and seafood while alleviating pressure on wild fish stocks. Through our technology-driven approach, they empower farmers to maximize yields, minimize environmental impacts, and ensure the long-term health and well-being of aquatic ecosystems.

Economic Benefits :

- **Productivity Optimization:** By automating the fish feeding process and adjusting times and portions according to actual needs, AquaFeeder improves aquaculture productivity. This results in faster growth of fish and reduced operational costs.
- **Reduced Feed Costs:** By avoiding overfeeding, AquaFeeder significantly reduces the costs associated with purchasing fish feed, thereby contributing to greater profitability for fish farmers.
- **Minimization of Losses:** The system prevents food waste by providing well-calculated and dosed quantities, which reduces food losses and waste, thereby preserving financial resources.
- **More Efficient Management:** Automation and remote monitoring reduce labor requirements, which optimizes human resource management.

Environmental Benefits :

- **Preservation of the Aquatic Ecosystem:** AquaFeeder prevents overfeeding and reduces water pollution, thus preserving the balance of the aquatic ecosystem and limiting the risk of contamination.
- **Reduced Energy Consumption:** The use of solar panels to power the cameras and 4G connectivity thus reduces energy consumption, while promoting a more environmentally friendly approach.
- **Reduction of Environmental Impact:** Precision in the quantity of feed to be provided and continuous monitoring minimize the harmful environmental impact of aquaculture, thereby promoting more sustainable practices.

Their primary objective is clear: aim to seamlessly integrate innovative technologies like artificial intelligence, machine learning, and data analytics into aquaculture practices, transforming the way fish farming operates. By harnessing the power of technology, they empower fish farmers worldwide to optimize efficiency, enhance feed management, monitor water quality, and proactively detect diseases at an early stage.

Contact :

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FishFarmFeeder

FEEDING SYSTEM - CAGES

Description of Solution : Intelligent and autonomous feeding system for aquaculture offshore cages (*Silo personalised for 1 Ton*).

- Individual feeding system for on growing in fish farms at sea or on large land areas.
- Manual and simple operation to be carried out by a single operator.
- Can connect to Artificial Intelligence systems.



Function and Application : The solution allows automated and autonomous feeding of a fish cage in the sea. By means of algorithmic systems, it is able to control each dose and the necessary dosing time on a daily basis. It has a specific API that facilitates its integration with other systems and is enabled to collect information from external sensors for feedback and improved.

Application to all sub-sectors where feed has to be applied to the culture organisms:

- Easy to use
- Affordable price
- Without automation
- Powered by solar energy
- Ready to work with AI





SPECIFICATION : Solution developed accordingly for project requirements (Silo for 1 Ton)

| Specifications | Feeder 250kg | Feeder 1 Ton |
|--|---|---|
| Spreader: kilograms of feed / min | 5 Kg/min max. Variable according to type of feed and programming | 5 Kg/min. Variable according to type of feed and programming |
| Dimensions | N/A | N/A |
| Weight | 200 kg | 615 kg |
| Material | Stainless steel | Stainless steel |
| Power | Autonomous Solar Panel 2 m2 Battery Autonomy: 3 hours | Autonomous Solar Panel 2 m2 Battery Autonomy: 3 hours |
| Pellets Size | 1,5 – 5 mm | 1,5 – 5 mm |
| Dispersion Radius | 4,5 m | 4,5 m |
| Pipe Diameter | 50 mm | 50 mm |

Availability : Market readiness, trade mark, existing market coverage, commercialization strategy

This smart feeder is part of FFF's portfolio of intelligent offshore feeders. FFF is a globally operating company with business partners in more than 25 countries. From a marketing point of view, the adaptation and implementation of our systems is done through our commercial partners. The equipment is manufactured in Vigo (Spain) and shipped to our customers for commissioning with additional support from our local partners (when available) or directly by Feding Systems personnel.

Targeted and Type of Local Business Partners :

Distributors trained to install and maintain the power systems installed in their geographical area, giving the first level support of proximity that the customer demands.

Requirements : Adapt the solution to the local market and potential applications/market size

This solution is adapted for its correct operation regardless of its location (local market). All its manufacturing has been made according to European quality standards (of international application).

On-site After Sales Services Support :

FFF has remote support for all its installations. For on-site technical support, it has a network of partners in more than 30 countries. All the system is supplied with components of the world's leading brands, which guarantees the adequate replacement of the same in case of need. Once an installation has been commissioned, technical training is planned for the people designated by the client to provide first class on-site technical support, in addition to the other resources mentioned above.

Economic and Environmental Benefits

Economical Aspects :

- **Optimized Feed Usage:** Can dispense the exact amount of feed needed, reducing waste and saving on feed costs. Precision feeding ensures that each fish receives the right quantity of nutrients necessary for its growth.
- **Improved Growth Rates:** By providing consistent and timely feeding, can help improve the growth rates of the fish. Regular feeding schedules and optimal nutrition contribute to healthier and faster-growing stock.
- **Reduced Labor Costs:** Automation reduces the manpower needed for feeding operations. This can significantly cut down labor costs and also minimize human error in feeding practices.
- **Enhanced Monitoring and Control:** Is enabled to receive data from external sensors and/or software that allow for monitoring and control of feed delivery. This can include adjustments based on the biomass in the cages, the behavior of the fish, and environmental conditions.
- **Better Health Management:** Overfeeding or underfeeding can lead to health issues in fish. This FFF system can help maintain an optimal feeding regime that keeps fish healthy, reducing the need for treatments and potential losses due to diseases.
- **Data Collection and Analysis:** Can collect data on feeding patterns, growth rates, and feed conversion ratios, which can be used to further optimize feeding strategies and overall fish farm management.
- **Scalability:** Can be easily scaled up or down depending on the size of the aquaculture operation. This makes it easier for businesses to expand and adapt to market demands.
- **Operational Consistency:** Provides consistency in feeding, which is crucial for maintaining the health and growth rate of the fish stock. This consistency is difficult to achieve with manual feeding.
- **Remote Operation and Notifications:** Can be operated remotely, allowing for adjustments to be made without being physically present at the site. Notifications can alert operators to issues with the feeding system, allowing for quick responses.
- **Integration with Other Systems:** Can be integrated with other farm management systems, such as water quality monitoring and climate control, for a more holistic approach to farm management.

Environmental Aspects :

- **Environmental Sustainability:** By minimizing feed waste, this automated feeder help reduce the environmental impact of aquaculture operations. Excess feed can lead to water pollution and negatively affect local ecosystems.
- **Energetically Clean:** Uses solar panels to power electromechanical systems, guaranteeing their correct operation through clean energy.

Company Overview : FishFarmFeeder is a company founded in 2008 that manufactures feeding systems for aquaculture with a complete catalog of feeders that cover all stages of fish life: hatcheries, pre-grow and ongrowing, both on land and at sea. Globally offer specialized solutions only in the field of automation of feeding systems for aquaculture.

- Contribute to sustainable aquaculture by helping to optimize production and improve fish welfare.
- Respond to the needs of automation in the feeding of all stages of the fish's life.
- Develop a cost-effective, reliable, accurate and safe technology.
- Facilitate integration with other existing technologies in aquaculture such as sensors, software...



Contact :

FishFarmFeeder

+34 677 574 750 | paco.vilor@fishfarmfeeder.com
fishfarmfeeder.com

Local Business Enquiries:

www.fishfarmfeeder.com/en/dealers/our-distributors/

INTERNET - 4G CONNECTIVITY

Description of Solution : NeptuLink by MVG equips your boat with ultra-fast Internet access of up to 100 Mbps, with ship-to-shore communications within a radius of approximately 20 nautical miles. NeptuLink by MVG is suitable for the maritime environment thanks to its hardened mechanics. Developed in collaboration with internationally recognized experts from a major telecommunications school, it takes into account the specific characteristics of the propagation of radio waves over the sea and maintains optimal communication regardless of pitching and rolling movements. suffered by the boat.

- Affordable solution
- High-speed connection with low latency
- Robust system resistant to marine environmental conditions

Function and Application : For users looking for fast, high-speed Internet access on board ships and various craft in coastal areas (fishing boats, sailboats, yachts, scientific vessels, wind farms, coast guard and sea rescue boats, etc.).

Availability : Market readiness, trademark, existing market coverage, commercialization strategy

Neptulink has been marketed since 2015 mainly in France and in a few European countries. MVG is completely open to discuss possible partnerships for the distribution of this product, particularly on the African continent.

Requirements : Adapt the solution to the local market and potential applications/ market size

- Neptulink was the subject of a real-world test carried out by Aquabiotech as part of a project located in Tunisia.
- The existing solution has shown its good adaptation to the need.



Economic and Environmental Benefits : Current solutions (HF, VHF) are either limited in speed (~10 kbits/s) or expensive (satellite communications). NeptuLink by MVG offers high-speed connection to networks 4G at the same cost as data network access on your phone.



SPECIFICATION : Technical aspects of the solution

| FREQUENCY BANDS | |
|---|---|
| LTE with MIMO diversity | Band 1 (2100 MHz) / Band 2 (1900 MHz) / Band 3 (1800 MHz) / Band 4 (AWS) / Band 5 (850 MHz) / Band 7 (2600 MHz) / Band 12 (700a) / Band 13 (700 MHz) / Band 20 (800DD) / Band 25 (1900+) / Band 26 (850+) / Band 29 (700d) / Band 41 (TD2500) |
| UMTS (WCDMA), HSDPA, HSUPA, HSPA+, DC-HSPA+ with diversity | Band 1 (2100 MHz) / Band 2 (1900 MHz) / Band 3 (1800 MHz) / Band 4 (AWS) / Band 5 (850 MHz) / Band 8 (900 MHz) |
| Distance from transmitter¹ | ± 20 NM |
| Antenna gain² | 2 dBi ± 1dB |
| System weight | 3.5 Kg |
| System dimensions | 750 x 225 x 83 mm |
| SIM type (dual SIM) | Mini SIM (micro & nano SIM accepted with mini SIM adapter) |

| POWER | |
|---|------------------|
| Power supply by cable | 12 VDC to 24 VDC |
| Power supply by passive PoE with external injector | 24 VDC |
| Power consumption - Start | 15 W |
| Power consumption - Operation | 2 W (max) type |

| INTERFACE | |
|---|---|
| Data link | Ethernet Port and Wi-Fi 2.4 GHz 802.11b/g/n |
| Pin code & APN configuration | Via web interface |

| ENVIRONMENTAL CONDITIONS | |
|------------------------------|------------------|
| Operating temperature | -20° C to +60° C |
| Storage temperature | -40° C to +85° C |
| IP protection | IP66 |

Note:

¹Real distance depends on your telecom operator.

²Antennas are directly connected to modem, thus no losses in coaxial cables.

On-site After Sales Service Support : MVG

provides remote technical support and does not directly manage installations or on-site support operations.

Targeted and Type of Local Business Partners :

- MVG is looking for an entity that can manage commercial distribution and local installation/technical support of the product.
- MVG is looking for a distributor (purchase/resale) who will be the technical and commercial intermediary between MVG and the end user.



Company Overview : Since its creation in 1986, MVG has become a key international player in the visualization of electromagnetic waves for carrying out precise and rapid tests of antennas and wireless connectivity. Our current successes are based on more than 30 years of continuous innovation.

Contact :

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OTAQ

CAMERAS - EAGLE IP 120, 180 & 360

Description of Solution : Eagle IP 180 and 360 cameras deliver an incredible blend of high performance specifications and features in a cost effective package. With market leading field of view (FOV), distortion correction and in vision orbital movement the Eagle IP 180 and 360 cameras enable wide field image capture and manipulation on a previously unobtainable budget.

- Advanced software enables 'Back to Back'.
- Image generation and correction.
- Full 180/360° real time viewing and software.
- Based zoom capability.
- Orbital viewing removes requirement for mechanical pan and tilt.
- 24h real-time monitoring and recording.

Economic and Environmental Benefits :

Low cost and low power proven solution that enables fixed installation monitoring.

Function and Application : Proven in Aquaculture, Offshore Energy and Oceanographic Research, Eagle 180 / 360 camers have been deployed in applications including;

- Situational awareness
- ROVs of all sizes
- AUVs
- Fixed installations
- Seafloor landers

Availability : Market readiness, trademark, existing market coverage, commercialization strategy

Typically available off the shelf, Ex-works Aberdeen Scotland.

SPECIFICATION : Technical aspects of the solution

| Model | Eagle IP 120° | Eagle IP 180° | Eagle IP 360° |
|----------------------------------|--|--|--|
| Resolution and Frame Rate | 8 Megapixel / 4K / 3840 x 2160P @ 15FPS (variable) | 8 Megapixel / 4K / 3840 x 2160P @ 15FPS (variable) | 2 x 8 Megapixel / 4K / 3840 x 2160P @ 15FPS (variable) |
| Communication | 10 / 100 BaseT Ethernet | 10 / 100 BaseT Ethernet | 10 / 100 BaseT Ethernet |
| Compression Protocol | H.264 and H.265 | H.264 and H.265 | H.264 and H.265 |
| Focus | Fixed with digital zoom | Fixed with digital zoom | Fixed with digital zoom |
| Field of View | 120 Degrees | 180 Degrees | 360 Degrees |
| Min. Light Level | 0.01 Lux | 0.01 Lux | 0.01 Lux |
| Dimensions | 81 x 66 mm | 81 x 66 mm | 81 x 66 mm |
| Weight | 250g in air / 0g in water | 250g in air / 0g in water | 460g in air / -90g in water (floating) |
| Depth Rating* | 300 / 6000m | 300 / 6000m | 300 / 6000m |
| Material | Acetal / Titanium | Acetal / Titanium | Acetal / Titanium |
| Power | 18-20VDC @ 200mA | 18-20VDC @ 200mA | 18-20VDC @ 500mA |
| Connector | MCBH-6-M (options available) | MCBH-6-M (options available) | MCBH-6-M (options available) |
| Topside | Software GUI, laptop | Software GUI, laptop | Software GUI, laptop |

Eagle IP 180°



Requirements : Adapt the solution to the local market and potential applications/market size

No adaption required. Proven in Aquaculture, Offshore Energy and Oceanographic Research, Eagle 180 / 360 cameras have been deployed in applications including; situational awareness, ROVs of all sizes, AUVs, fixed installations and seafloor landers.

On-site After Sales Service Support : Free of charge online support and training as required.

Targeted and Type of Local Business Partners :

- Open to discussion.
- Underwater services and technical experience essential.

Eagle IP 360°



Company Overview : From aquaculture to offshore energy, OTAQ delivers and supports world class marine technology products. Innovation, experience and quality are the values at the heart of everything they do and have earned them the trust of their customers across the globe. All OTAQ products are designed, developed, manufactured and tested in house to the very highest standards.

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ARTIFICIAL INTELLIGENCE (AI)

Description of Solution : The solution assists aquafarm managers to: (i) Monitor, whenever they want their production, in a 24/7 fashion; (ii) average weight estimation, given video streams, production data, while tuning to the conditions in the farm; (iii) feeding optimization; (iv) behaviour monitoring; (v) health aspects, disease prevention.

The solution leverages on: (i) IoT (Internet of Things) technologies, underwater cameras, quality sensors; (ii) networking, cloud (including on premise installations); (iii) advanced algorithms, leveraging on AI (Artificial Intelligence) techniques; (iv) systems for visualization and early warning.



The System Enables :

- 24/7 monitoring
- Weight estimation at 5-10% accuracy following a 1-3 month training
- 10-15% reduction in the feeding consumption / waste
- Accurate mobility estimation

Function and Application : The system is oriented to aquafarms, for diverse species (seabream, sea bass, other fin fish, shrimps, mussels), as well as to industries targeting pharmaceutical and feeding optimization. The system is also applied to environment monitoring and protection cases.

Availability :

Market Readiness: our system is oriented to aquafarms, for diverse species (seabream, sea bass, other fin fish, shrimps, mussels) and enables: 24/7 monitoring, weight estimation at 5-10% accuracy , 10-15% reduction in the feeding consumption / waste, accurate mobility estimation.

Existing Market Coverage: We started from the Mediterranean region (Greece,Cyprus). Almost 15 site installations in 1 year, following strategic partnerships all over Europe and with validated results from our customers.

Commercialization Strategy: Direct approach, strategic partnerships with companies with access to Aquaculture farms , strategic partnerships with telco (and IT) companies.

SPECIFICATION

Technical aspects of the solution : The solution comprises the following parts:

- **Multi-parameter Sensors:** (temperature, pH, dissolved oxygen, salinity, turbidity, chlorophyll, P redox etc.) attached to the aquaculture unit, that will automatically collect and transmit parameter measurements, replacing the manual data collection taking place at a restrained time and place.
- **Cameras (underwater):** Record and store image and video data that can be used for added value functionalities offered by WINGS Aquaculture Platform.
- **WINGS Smart Gateway:** A smart data transmission unit that retrieves and sends data from sensors, cameras over any available network (NB-IoT, 3G/4G/5G, WiFi, GPRS, LoRa) and provides remote configuration, management and adjustment of measurement and transmission profiles.
- **WINGS Aquaculture Platform:** For added value services based on Artificial Intelligence and Customizable dashboards that will use all mentioned technologies and embed the desired functionalities that will help improve the operational management of the aquaculture unit.



Services :

- **Average Weight Estimation:** Through WINGS AI at 5-10% accuracy following a 1-3 month training.
- **Feeding Optimization:** Is achieved by three important aspects - behaviour monitoring (mobility), accurate weight estimation, monitor of environmental parameters.
- **Behaviour Monitoring:** Analysis of video recording provides important aspects of fish condition.

Economic and Environmental Benefits

Economic Benefits :

- **Feeding Optimization:** Can lead to a 10-15% reduction in feeding consumption, directly translates into cost savings for aquafarm managers.
- **Labor Costs:** The estimation of average weight through WINGS AI can lead to a 20% reduction in labor costs (manhours-fuels-equipment). Traditional method of fish weight estimation in sea cages requires manual sampling and weighing, which is labor-intensive and time-consuming process.



Environmental Benefits :

- **Healthier Aquatic Ecosystems:** Monitoring health aspects and behavior can help prevent disease outbreaks and improve the overall well-being of the aquatic organisms. This contributes to the maintenance of a healthier and more sustainable aquafarm ecosystem.
- **Reduced Environmental Pollution:** Less waste and controlled feeding protect the natural environment and nearby aquatic ecosystems.
- **Sustainability:** Our solution promotes sustainable aquafarming practices by helping to maintain a balance between aquafarm production and environmental considerations.

Requirements : Adapt the solution to the local market and potential applications/market size

Requirements for Local Market

- **Compliance:** Research and comply with any local regulations and standards relevant to aquaculture in Tunisia (environmental regulations and data privacy laws).
- **Local Infrastructure:** Consider the availability and quality of internet connectivity and infrastructure in Tunisia.

On-site After Sales Service Support :

- WINGS resources
- **Local Presence:** establishing a local presence in Tunisia to provide on-site after-sales service, partnering with a local service provider.
- **Technical Assistance Requirements:** Customer Training.

Potential Applications and Market Size

- Marine Aquaculture
- Freshwater Aquaculture
- Environmental Monitoring
- Government and NGO Partnerships
- Market size in Tunisia : Total aquaculture production was around 22,000 tonnes in 2018, of which over 20,000 tonnes consisted of marine species.

Smart Technology Provider – B2B Event

- 24/7 Support
- Remote Assistance
- Knowledge Base and Documentation
- Collaboration with Local Partners

Targeted and Type of Local Business Partners : Companies with access to Aquaculture farms (consultants, fish feed companies, medical companies) and partnerships with telco (and IT) companies from Tunisia.

Some types of local business partnerships they can consider:

- **Distributor Partnerships:** Collaborate with local distributors who have established networks and relationships with aquafarm operators in Tunisia.
- **Consulting Firms and Service Providers:** Partner with local consulting firms or service providers specializing in aquaculture and agriculture.
- **Government and NGO Partnerships:** Establish partnerships with local government agencies and non-governmental organizations (NGOs) involved in aquaculture development and sustainability initiatives.
- **Local Aquafarm Cooperatives:** Cooperate with local aquafarm cooperatives that represent the interests of multiple aquafarm operators.



Company Overview : WINGS ICT Solutions provides complete integrated, intelligent digital (software, hardware) solutions and transformation for vertical business sectors; Environment (air quality, natural disasters), Utilities and Infrastructures (energy/water/gas, transportation, construction), Production & Manufacturing (food, factories/logistics), Service Sectors (health, education/culture, government, security/defense), as well as Smart Cities.

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SMART TECHNOLOGIES

Other Innovative Technologies for the Mediterranean
Aquaculture Sector

FCR - SOLUTIONS

Description of Solution : Precision feeding is a set of tools, which when used together, provide the fish farmer a solution to feed their fish optimally to improve growth and reduce the Feed Conversion Ratio (FCR).

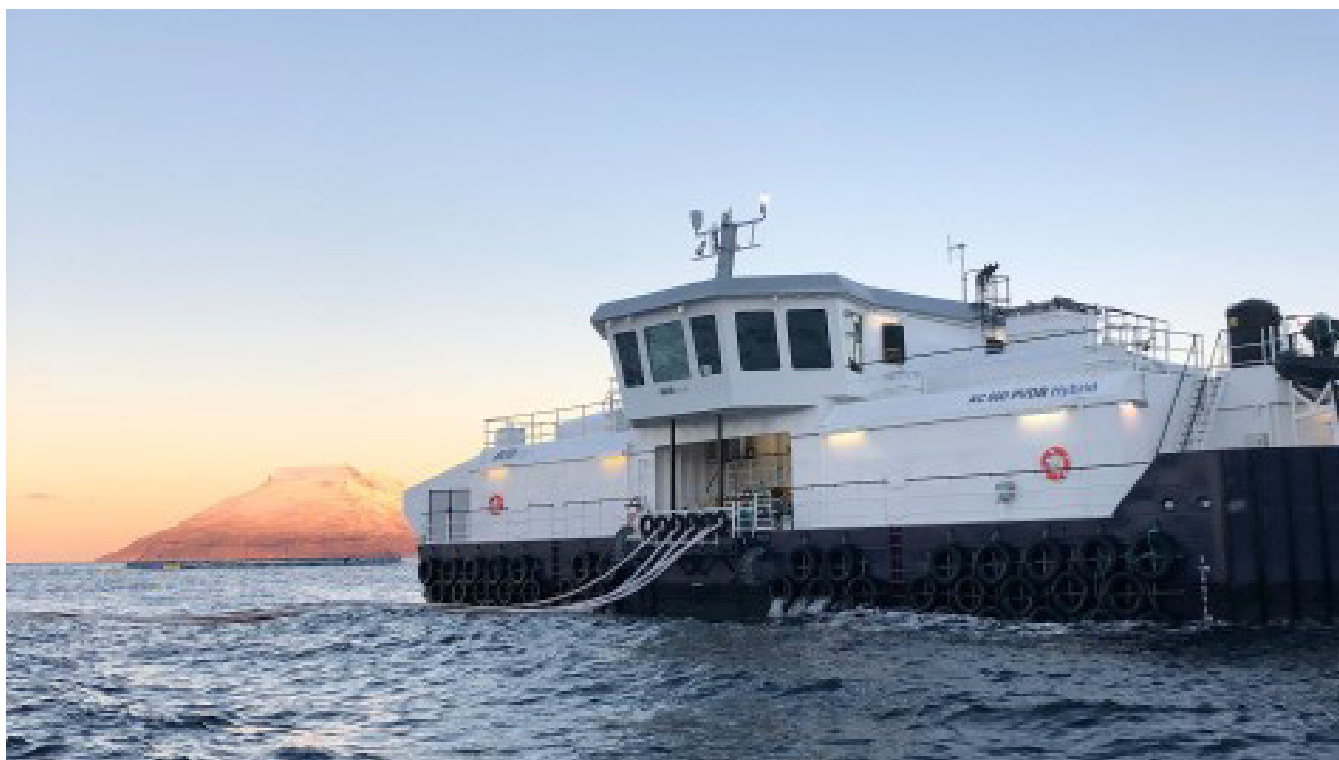
The solution is composed of several standalone products that work together to achieve this. We consistently provide new innovations and improvements for these products, from feed barges, feed systems, camera and winch solutions, to software such as AKVA fishtalk and our artificial intelligence solutions AKVA connect and AKVA observe.

- Feed barges
- Feed systems
- Camera & Sensors
- Intelligent Feeding Assistant

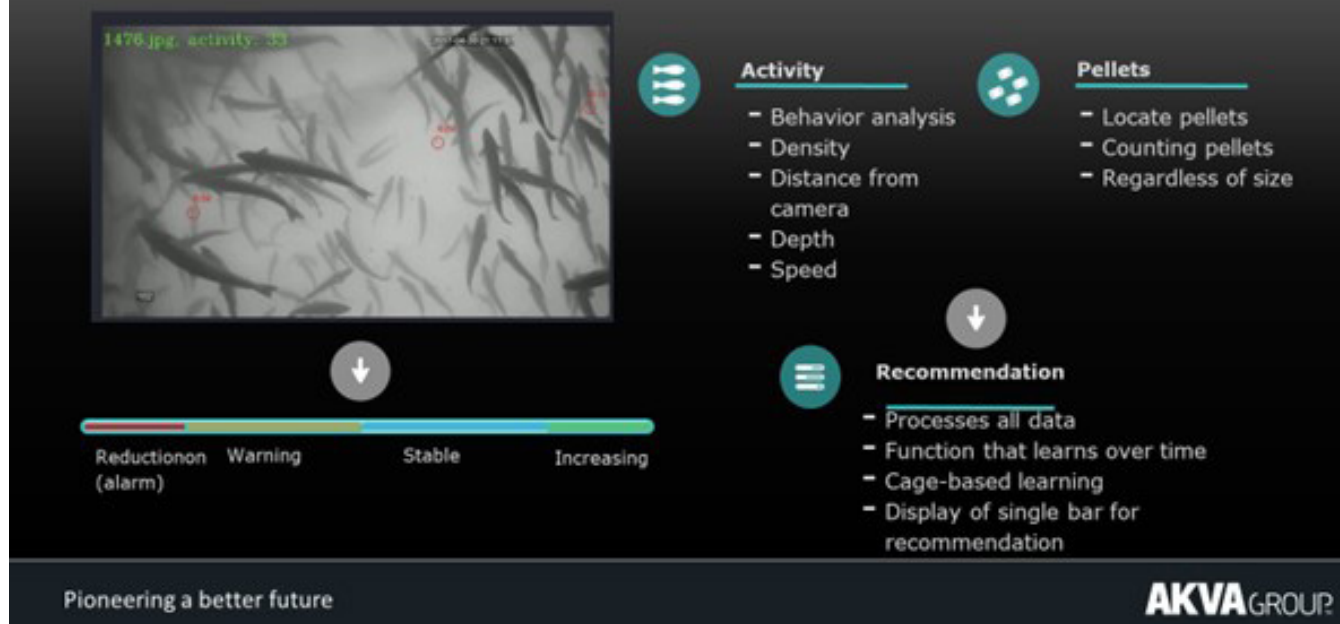
Economic and Environmental Benefits : By ensuring that the fish are feed to satiation and no feed are wasted you will obtimize your growth and minimaze the feed conversion rate (FCR).

SPECIFICATION: Technical aspects of the solution : Often more than half of the on-farm production cost is directly attributed to feed. Optimal feed means that the fish has the right development, better health, plus the production is sustainable and the farm can operate cost-effectively. But it isn't feeding before the fish actually eats the food.

Feeding has undergone a shift from traditional experience-based processes to utilizing modern digital tools to allow data-driven decisions. Our aim is to show how people and machines can work together to achieve optimal results for the fish, the environment and the industry. At AKVA group, we help our customers achieve optimal fish performance by making sure that their feeding is optimized.



From art to science - Real-time recommendations



The screenshot displays a video feed of fish in an aquaculture tank. The interface includes a central video window with a red 'X' indicating a detected pellet. To the right, there are two columns of data: 'Activity' and 'Pellets'. Below the video is a horizontal bar chart showing the status of the system, ranging from 'Reduction (alarm)' to 'Increasing'. The 'Activity' column lists: Behavior analysis, Density, Distance from camera, Depth, and Speed. The 'Pellets' column lists: Locate pellets, Counting pellets, and Regardless of size. The 'Recommendation' column lists: Processes all data, Function that learns over time, Cage-based learning, and Display of single bar for recommendation. The AKVA GROUP logo is visible in the bottom right corner.

Activity

- Behavior analysis
- Density
- Distance from camera
- Depth
- Speed

Pellets

- Locate pellets
- Counting pellets
- Regardless of size

Recommendation

- Processes all data
- Function that learns over time
- Cage-based learning
- Display of single bar for recommendation

Reduction (alarm) Warning Stable Increasing

Pioneering a better future

AKVA GROUP

Function and Application : Aquaculture worldwide.

On-site After Sales Service Support : As modern fish farming and the technology has become more advanced, the need for professional service and preventive maintenance has increased. AKVA group offers global professional service on all products.

Targeted and Type of Local Business Partners :

Targeted: Local 1st line support on technical.

Type: Technical company, Vessel for installation of infrastructure (cage, mooring systems).

Availability : Market readiness, trademark, existing market coverage, commercialization strategy

All our product are ready for the market, there can be needed local adaptations for different specie or local conditions.

Requirements : Adapt the solution to the local market and potential applications/ market size

Most equipment can be installed directly without any adaptation, but there could be adaptation as language or other adaptation to local conditions.

Company Overview : AKVA group is the world's largest supplier of solutions and services to global aquaculture. Driven by passion, commitment and a deep understanding of the complexity in our industry, we can solve the most advanced challenges at sea and on land, and contribute in making aquaculture more sustainable. The will to pioneer a better future has been the driving force for AKVA group since our inception in Norway over 40 years ago. We are present in all the world's markets with offices in 11 countries and employees from 39 nationalities.

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SUSTAINABLY

EXPANDING
THE AQUACULTURE
DIGITAL FRONTIERS.

Better feed management, healthier
populations and resource efficiency

aquaManager

AQUAMANAGER

PRODUCTS - INTEGRATED INFORMATION SYSTEMS

Description of Solution : AquaManager presents a unique fusion of cutting-edge management software, IoT solutions, business intelligence, analytics, hardware, customization services, and extensive expertise to deliver a comprehensive “mission control” platform. Our dedicated team leverages information and communication technologies to empower aquaculture companies in achieving enhanced efficiency, cost reduction, improved quality, and sustainable, environmentally-friendly production.

Availability : Market readiness, trademark, existing market coverage, commercialization strategy

AquaManager can be implemented any time. At the moment we have clients worldwide, including Tunisia.

- **Management Software:** Advanced software solution for Grow Out and Hatcheries.
- **BI:** OLAP cube and Power BI to analyze, benchmark, and optimize performance across farms, generations, cohorts, and more.
- **AI:** Blueminer platform.
- **Smart Equipment & Maintenance:** Flexible data loggers and IoT platform collect and process real-time data, empowering you to make fact-based decisions and monitor environmental conditions. iMaint aquaculture system tailored to manage physical assets, enhance maintenance operations, reduce equipment failures and downtime, optimize performance.

Function and Application : Aquaculture and Technology sector. AquaManager is widely used on land based/offshore and RAS facilities for multispecies and shrimps included.

SPECIFICATION : Technical aspects of the solution

| Specifications - AquaManager | |
|------------------------------|--|
| Back End | C#, SQL Server database, Entity Framework |
| Front End (Windows Client) | Winforms, Devexpress |
| Export - Import Solutions | Manually to Excel/PDF , Via Integration with other software/hardware (Files, Direct Queries or other) , Integration REST API over HTTP |
| Front End (Web Client) | Typescript, AngularJS, Kendo UI, DevExtreme UI, Bootstrap framework |
| Mobile Apps | React native, Ionic |

Economic and Environmental Benefits :

- By using our software solution, producers can ensure traceability and compliance with certification bodies.
- By implementing our Artificial Intelligence solutions, we can detect missing pellets and make real-time feeding adjustments which will benefit the company economically and benefit the environment.

Requirements : Adapt the solution to the local market and potential applications/market size

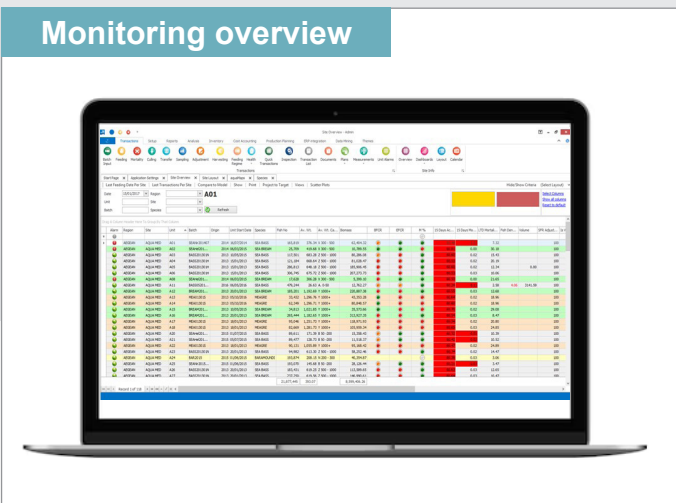
There are no specific requirements for applying AquaManager in aquaculture companies. If you have an operational aquaculture unit we can work together on implementing our solutions.

On-site After Sales Service Support :

AquaManager can support the client for the implamentation phase and afterwards the team will assist the client online for any requirements.

Targeted and Type of Local Business Partners :

- At the moment we are collaborating with a referral agent.
- We are open for partnerships.



Company Overview : For more than 20 years, AquaManager has been offering integrated software solutions and technological innovation in the fastest growing food-producing industry around the globe, aquaculture. A major protein source destined to feed the world, thereupon in dire need of hoping on and riding the digital revolution wave. Their mission is to enable aquaculture professionals throughout the marine and all inland water environments to realize their full potential. Whether we are reaching out to entrepreneurs, investors or good old fish and shrimp breeders.

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IOT - FARM360

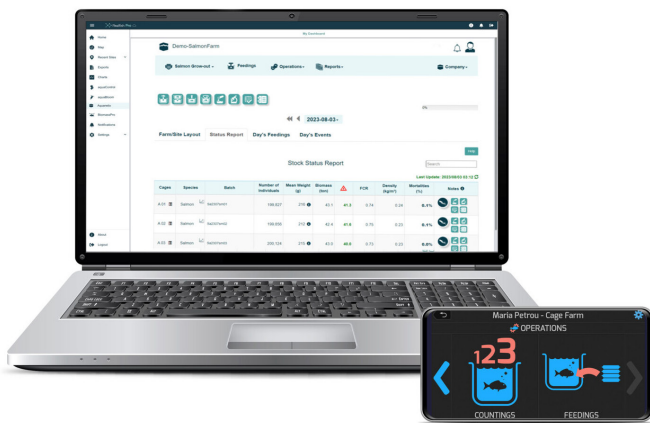
Description of Solution : Farm360 is an easy-to-use, cloud-based software platform that gives users complete control and better understanding of their aquaculture operations through accurate, up-to-date tracking and monitoring of farm activities and performance. It enables farm owners and operators to optimize operations, lower costs and maximize profitability.

Data-driven excellence

- **Real-time collection** of data involving feedings, fish health and environmental conditions.
- **Efficient stock management** updated daily.
- **Production planning** to define harvest and stocking plans and create precise budgets.
- **Full traceability** for transparency, credibility and compliance.
- **Business intelligence** through automated reporting and data visualization.

Why Farm360?

- **Better control** of farm operations through real-time data.
- **Smarter decision-making** throughout the organization via a holistic view of farm operations – and the power to take action.
- **Accurate long-range forecasting** for better business planning of sales and production.



Beyond just a Software Platform : At Innovasea we value your success. Our dedicated customer service and customized reporting ensure your farm operations thrive with our software by your side.

Function and Application : Fish and shrimp farms, pond, tank, cage or RAS farms, all stages from broodstock management to hatchery, nursery and growout sites, marine or freshwater.

SPECIFICATION

Technical aspects of the solution : Farm360 is a Cloud aquaculture SaaS for farm management. It traces fish from egg to harvest and models status and KPIs for each day for each tank or cage.

- Easy to use user interface, fast on-boarding
- Control of operations
- Farm overview
- Notifications
- Inventory status – fish / shrimp, feeds, chemicals, nets
- Powerful reporting and analytics
- Export / import of data
- CLOUD-based solution





Economic and Environmental Benefits :

Reduce time to collect and report data by 60%, keep your company's data in the company, reduce FCR by 5-10% per year and increase profitability. By reducing FCR you are reducing use of resources such as fishmeal, fish oil and other animal and vegetable raw materials used in fish feeds, and you are reducing the impact of your operation on the natural environment.

Availability : Market readiness, trademark, existing market coverage, commercialization strategy

Farm360 is used by over 300 fish and shrimp farms around the world, covering the 5 continents and over 45 different farmed species. Farm360 is a subscription service with most users paying an annual subscription, some paying a monthly or six-monthly subscription for the service.

Targeted and Type of Local Business Partners :

Targeted: We are looking for companies to test and use the software on their fish farms and hatcheries.

Type: Fish farm with grow-out cages, hatchery.

Requirements : Adapt the solution to the local market and potential applications/market size

Farm360 is already translated into 11 languages, including French. It is easy to add new languages such as Arabic. It is already ready for the use of the metric and US measurement systems.

On-site After Sales Service Support : Farm360 has strong customer support via email and conference calls in English, Spanish, Greek, Portuguese and Italian. There is also a YouTube channel with many training videos as well as an online manual for each page of the application.

Company Overview : From land to open ocean, Innovasea provides aquatic solutions that hold up in the most challenging conditions. And stand up for life. This requires more than just delivering the world's most advanced aquatic technologies. It means continuously applying knowledge in science and engineering, fish tracking and farm operations to develop the ideal systems for each site. It means working shoulder-to-shoulder with customers to cultivate and protect fish populations. And it means consciously designing products and services to give back more to nature than we take.

Day in and day out, we are driven by a commitment to make our ocean and freshwater ecosystems sustainable for future generations. A pioneer in developing end-to-end solutions for aquatic ecosystems, at Innovasea we're intent on leading and feeding innovation. Today. Tomorrow. For life.

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ORASEAS L.P.

NET CLEANING - AUTOBOSS

Description of Solution : The AutoBoss is the only autonomous in situ net-cleaning machine in the market. The machine is self-contained and self-propelled, so after inserting it in the cage there is no need for boats/platform and cranes. The operators job is to pre-program the robot and oversee it's performance. The AutoBoss delivers impressive results for it's compact size and is offered in two variations: The AutoBoss smartbot V4.0 and the AutoBoss V3.1

The AutoBoss™ Smartbot V4.0 is a game-changer for in-situ net cleaning. With its advanced technology, it offers unmatched performance, autonomy, efficiency, and reporting capabilities. This intelligent bot takes net cleaning to new heights, ensuring a cleaner net environment and delivering exceptional results. It is (i) reliable and easy to use (ii) high efficiency / Low cost washing.

Function and Application : The AutoBoss net cleaning robot is specifically designed for the aquaculture industry. It's used to clean fish farming nets and remove fouling and debris, improving water quality and fish health, while reducing manual labor.



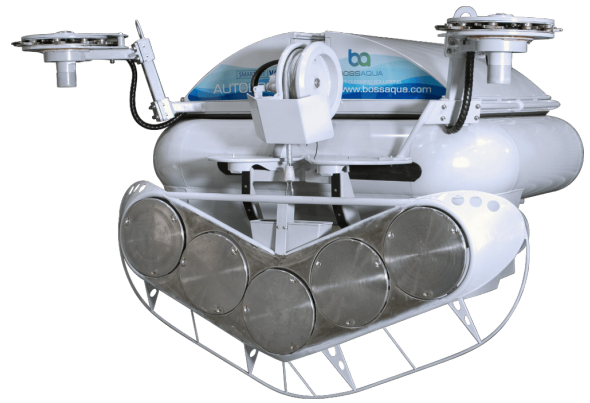
SPECIFICATION

Technical aspects of the solution :

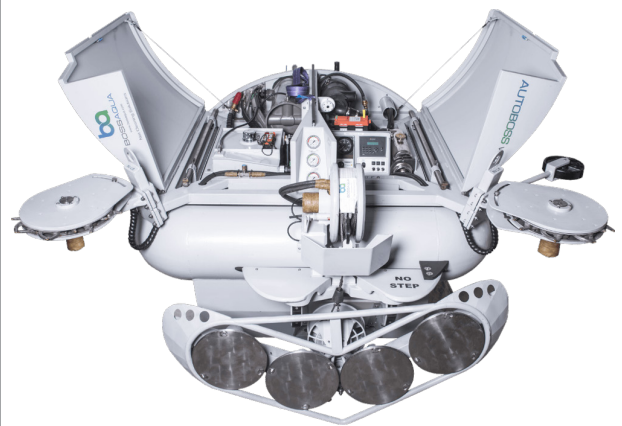
- Highly autonomous as it attaches to the inside of the net and uses “fingers” that attach and walk the machine around the net.
- At the same time the washing head will move down and up the net, as many times as it is programmed, to effectively clean through high pressure water, the fouling on the nets.
- The AB uses a propulsion system in both the pontoon and the washing head to keep the components in place even if there is waves in the surface or currents.
- Sensors and alarms are utilized to detect the working condition of the machine and also allow for higher autonomy as they will trigger automations to assist in continuous washing as the AB will try to resolve issues by it self.
- Remote control and enhanced real-time monitoring systems that allows for productivity reporting and remote diagnostics.

On-site After Sales Services Support : We provide on site commissioning and training with a new machine. We come back to the site for the first official service to continue with training and make sure of the smooth integration of the machine in the daily farm operations. After sales support includes mechanical assistance and a spare part inventory that is kept in Greece.

AUTOBOSS V4.0



AUTOBOSS V3.1B



Availability : Market readiness, trademark, existing market coverage, commercialization strategy

- **Market Readiness:** The AutoBoss robot is technologically mature and has undergone rigorous testing to ensure its effectiveness and reliability in real-world aquaculture settings.
- **Trade Mark:** The AutoBoss is protected by a registered trademark, distinguishing it from competitors and providing legal protection for its branding and intellectual property.
- **Existing Market Coverage:** The AutoBoss already has a presence in key aquaculture markets, with established partnerships and sales channels in regions where the technology is in high demand. These include: Australia, New Zealand, Canada, United Kingdom, Greece and Norway.
- **Commercialization Strategy:** The commercialization strategy involves targeted marketing, strategic partnerships with aquaculture industry stakeholders, and ongoing research and development to refine and expand the product's capabilities.

Requirements : Adapt the solution to the local market and potential applications/market size

- **Regulatory Compliance:** Ensure adherence to local industry standards and regulations. Also import regulations as the machine is shipped from New Zealand.
- **Localization:** Translate materials, interfaces. There is no need of adapting the design as the AutoBoss is already used in similar farming conditions in Greece for sea bass and bream culture.
- **Affordability / Market size:** As this equipment has a high up front cost, it is more commonly bought by larger companies (production > 1500T). This needs to be investigated for the Tunisian industry. To address this issue, some businesses can explore financing options, subsidies, or partnerships between farms.

Economic and Environmental Benefits

Economical Aspects :

- **Labor Cost Reduction:** By automating the net cleaning process, aquaculture operations can significantly reduce labor costs associated with manual cleaning, leading to cost savings.
- **Increased Productivity:** Cleaner nets promote healthier fish and improve their growth rates, ultimately increasing the overall yield and revenue of the aquaculture operation.
- **Maintenance Savings:** Regular net cleaning extends the lifespan of the nets and other equipment, reducing the need for frequent replacements and maintenance expenses.

Environmental Aspects :

- **Reduced chemical use:** The AutoBoss robot uses high-pressure water jets, reducing the need for harmful chemicals that can harm aquatic ecosystems as are anti-biofouling dyes.
- **Improved Water Quality:** Cleaning nets prevents the accumulation of organic matter and waste, enhancing water quality in the farming environment and reducing the risk of disease outbreaks.
- **Low Carbon Footprint:** The AutoBoss smart compact design uses only 13L of Diesel per Hour which is the lowest consumption compared with other net washers.



Company Overview : Oraseas is a company based in Greece. We are the exclusive distributors for the net-cleaning robot AutoBoss which is manufactured in New Zealand by BossAqua. The first machine was sold in 2019 and now there are 10 AutoBosses in Greece making sure the nets are always clean.

They deliver excellence in commissioning and training and also after-sales support. They have a stock of spare parts in Greece and can offer mechanical support 24/7 to our customers.

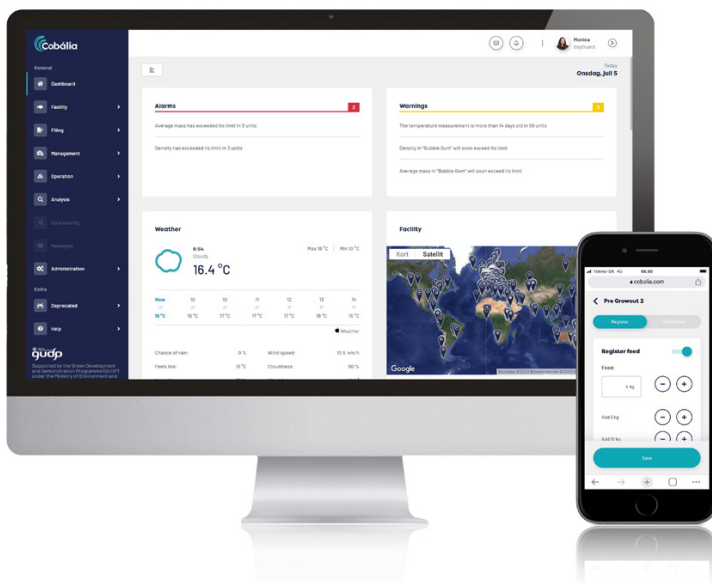
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AQUACULTURE - SOLUTIONS AND TECHNOLOGIES



Description of Solution : High quality sensors, monitoring and control equipment and digital solutions for Aquaculture.

- High-quality sensors for tracking and controlling water quality are essential.
- A reliable monitoring and control system is important to ensure good water quality, fish welfare, and optimal production conditions.
- Digital software using advanced algorithms enables optimization both environmentally and economically.

Function and Application : OxyGuard delivers solutions for aquaculture in 120 countries globally. This includes Ras, ponds, Sea cages, and Fish Transport.





Targeted and Type of Local Business Partners :

Targeted: Fish farmers. The Aquaculture industry in the sector. Systems builders

Type: Equipment for existing aquaculture facilities. Equipment for new and upcoming facilities. Collaboration with system designers and local partners for the establishment of new aquaculture facilities. We can also be helpful with contact to other equipment suppliers from our network.

SPECIFICATION : Technical aspects of the solution : Most equipment needs a stable power supply. Handheld probes run on battery. Advanced solutions require access to internet.

Economic and Environmental Benefits : To run a successful aquaculture facility good reliable monitoring and control are needed. By ensuring an optimal water matrix, the production yields will increase many folds and the risk of potentially hazardous events will diminish.

Digital solutions help on every aspect of the production giving optimal improvement solutions. This includes optimal feeding that has a high impact on the environmental and economic aspects of the product. It also enables good farm logistics regarding production cycle and resource usage.

Availability : Market readiness, trademark, existing market coverage, commercialization strategy

On the market since 1987 with local distributors in 120 countries worldwide.

Requirements : Adapt the solution to the local market and potential applications/market size
Infrastructure: stable power supply and for advanced solutions a reliable internet connection is preferable.

On-site After Sales Service Support : On-site support and aftersales through our local distributor and by OxyGuard. Local electricians can also support at ensure the installation and maintenance of our systems.

Company Overview : OxyGuard has delivered state-of-the-art solutions to the aquaculture industry since 1987 including the very first multi systems for measuring dissolved oxygen. OxyGuard has continued to deliver new innovative solutions to the Aquaculture industry for the past 36 years. OxyGuard's suite of solutions today ranges from high-quality sensors, probes and stationary equipment to advanced monitoring and control systems including solutions for digitalization and optimization using Algorithms (AI and machine learning). OxyGuard provides solutions for Ras, Ponds, Sea cages, fish transport, and on occasion for the waste water industry as well.

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