Exypnotech 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. work, 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.

Implemented by
UNIDO UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
UN environment programme
Mediterranean Action Plan Barcelona Convention
MedWaves the UNEP/MAP Regional Activity Centre for SCP
Co-funded by
Generalitat de Catalunya Departament d’Acció Climàtica, Alimentació i Agenda Rural
Agència de Residus de Catalunya
Italian Development Cooperation Ministry of Foreign Affairs and International Cooperation

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Funded by the European Union

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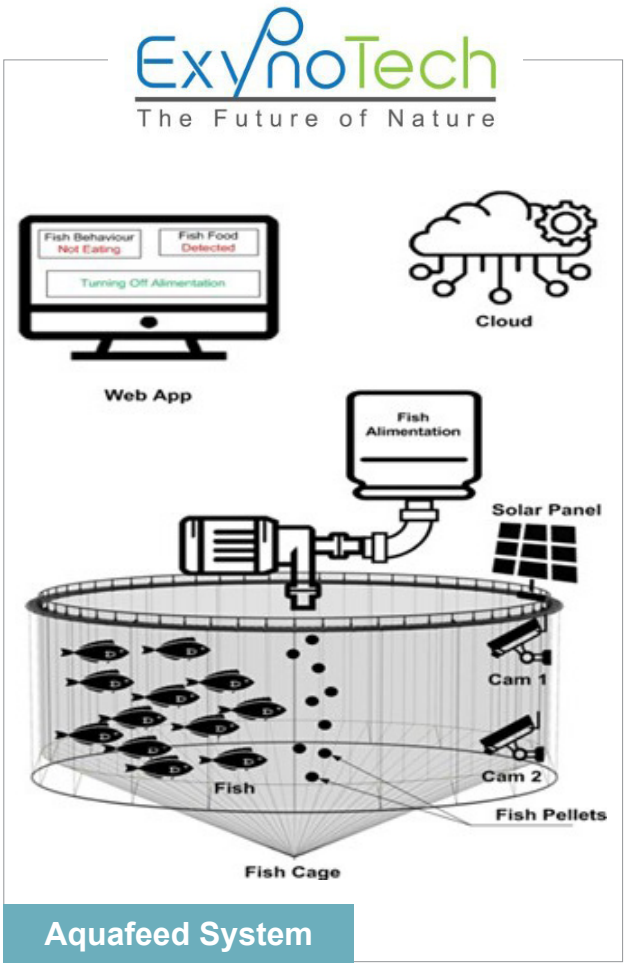
INTERNET - AQUAFEED

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.



Aquafeed System

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.

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.

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.

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.

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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