



Arish University

Faculty of Aquaculture and Marine Fisheries



The Graduation Project

AQUAEXPERT APP

Revolutionizing Aquaculture

Provided By

Sami Alaa S. Abd El-Salam¹

Under supervision of

Prof. Ashraf Y. El-Dakar¹

Dr. Mohamed F. Abd-El Aziz¹

¹Mariculture Program, Aquaculture and Biotechnology Department,
Faculty of Marine Aquaculture and fisheries, Arish University

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With Love,

Sami Alaa Sami

Sami Alaa Sami

Sami Alaa Sami

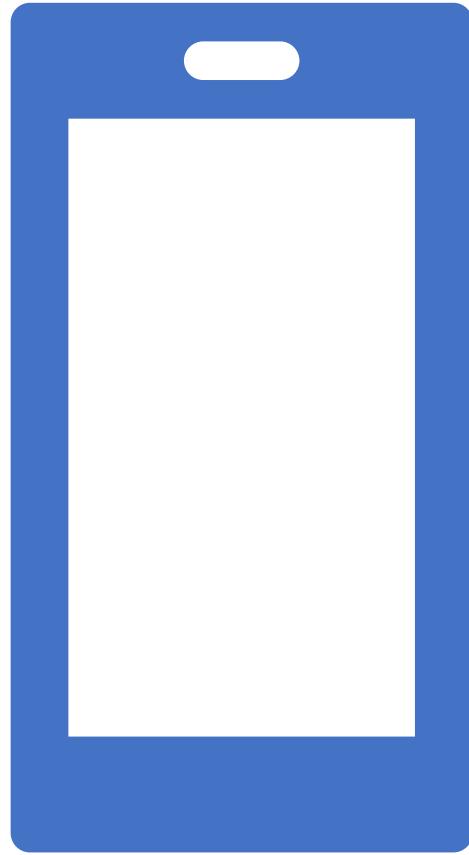


Table of Contents

1.	AquaExpert App	4
.1.1	Abstract.....	4
Key Features:	4	
Overview of AquaExpert App.....	4	
Importance of Aquaculture	5	
Purpose and Scope of the Book	5	
2.	Knowledge or Previous Experience for AquaExpert App	7
2.1.	Overview:	7
2.2.	Marine Shrimp Culture App:	7
2.3.	Core Contributions:	7
2.4.	Technological Expertise:	7
3.	Problem Statement: Addressed by the AquaExpert App.....	9
3.1.	Key Problems in Aquaculture:.....	9
Lack of Access to Expert Advice:.....	9	
Difficulty in Disease Detection and Management:	9	
Inefficient Farm Management and Monitoring:.....	9	
Market Access and Price Fluctuations:	9	
Resource Selection and Management:	10	
Data and Statistical Analysis:	10	
Community and Knowledge Sharing:.....	10	
Communication and Networking:.....	10	
4.	Concept and Vision	12
4.1.	Idea and Concept of AquaExpert App	12
4.2.	Key features of the AquaExpert App include:	12
4.3.	Inspiration and Initial Goals	12
4.4.	Project Development Timeline	12
5.	Impact of the AquaExpert App on the Egyptian Aquaculture Industry	14
5.1.	Enhancing Access to Expert Knowledge and Solutions:	14
5.2.	Revolutionizing Disease Detection and Management:	14
5.3.	Streamlining Farm Management and Monitoring:	14
5.4.	Improving Market Access and Economic Stability:	14
5.5.	Facilitating Resource Selection and Utilization:	14
6.	Technical Overview	16
6.1.	Programming Languages and Platforms.....	16

6.2.	Target Platforms.....	16
6.3.	App Architecture and Design Principles.....	16
6.4.	Backend Infrastructure	17
6.5.	Continuous Integration and Deployment (CI/CD)	17
7.	Steps to Implement the Creation of the AquaExpert App	19
7.1.	Step 1: Define Objectives and Requirements	19
7.2.	Step 2: Conduct Market Research and Feasibility Study	19
7.3.	Step 3: Design the Application	19
7.4.	Step 4: Plan the Development Process	19
7.5.	Step 5: Develop the Application	19
7.6.	Step 6: Testing and Quality Assurance	20
7.7.	Step 7: Deployment	20
7.8.	Step 8: Post-Launch Support and Maintenance.....	20
8.	Application Features	22
8.1.	AquaExpert.....	22
8.2.	AquaChoice	22
8.3.	AquaPhone	22
8.4.	AquaStatics.....	22
8.5.	AquaPrice	23
8.6.	AquaCalculator.....	23
8.7.	AquaQuest	23
9.	Premium Features	25
9.1.	AI AquaDoctor	25
	Key Benefits:	25
9.2.	AquaConnect	25
	Key Benefits:	25
9.3.	AquaMarket	25
	Key Benefits:	25
9.4.	AquaMedia	26
	Key Benefits:	26
10.	Monetization and Growth Strategies	28
10.1.	Premium Subscription Model.....	28
10.2.	Marketing and User Acquisition	28
10.3.	Partnerships and Collaborations.....	29
10.4.	User Education and Community Building	29

10.5.	Analytics and User Feedback	29
11.	Feasibility Study	31
11.1.	Executive Summary.....	31
11.2.	Market Analysis.....	31
11.3.	Technical Feasibility	31
11.4.	Operational Feasibility	31
11.5.	Financial Feasibility	31
	Fixed Costs	31
	Variable Costs	31
	Revenue Model.....	32
	Financial Projections.....	32
	Capital Payback Period.....	32
12.	Summary.....	34
12.1.	English Summary	34
12.2.	ملخص عربي	35
13.	References.....	37



AquaExpert App

1. AquaExpert App

1.1. Abstract

The AquaExpert App is a groundbreaking mobile application designed to transform the aquaculture industry. Developed as a graduation project for the 2023-2024 academic year at the Faculty of Aquaculture and Marine Fisheries, Arish University, Egypt, this innovative platform provides a comprehensive suite of tools and resources for aquaculture professionals. The app is tailored to enhance efficiency and productivity across various scales of fish farming operations, from small-scale farmers to large commercial enterprises.

Key Features:

1. **Expert Consultations and Equipment Selection:** Provides access to expert advice and helps users choose the right equipment for their operations.
2. **Real-Time Market Data:** Offers updated market prices and historical data for various aquaculture products to assist in making informed decisions.
3. **Advanced Disease Detection:** Utilizes AI technology through the AI AquaDoctor feature to diagnose fish diseases via image recognition.
4. **Operational Tools:** Includes calculators for feed conversion ratios, growth rates, and water quality parameters.
5. **Marketplace:** The AquaMarket feature allows users to buy and sell aquaculture products, fostering efficient transactions.
6. **Remote Management:** AquaConnect enables users to monitor and control farm operations remotely, optimizing conditions for fish growth.
7. **Community and Networking:** AquaMap and other features help users locate facilities and connect with industry professionals.

Technical Aspects: The app is developed using Dart and the Flutter framework, allowing cross-platform compatibility with both Android and iOS devices. Its modular architecture ensures scalability and maintainability, while the user-centric design guarantees an intuitive and seamless experience. Security measures are robust, protecting sensitive user data.

This project represents a significant step towards revolutionizing aquaculture practices, making high-quality resources and technologies accessible to a broad range of users, and ultimately contributing to the sustainable growth of the aquaculture industry.

Overview of AquaExpert App

AquaExpert App is a groundbreaking mobile application designed to revolutionize the aquaculture industry. This innovative platform provides a comprehensive suite of tools and resources tailored for aquaculture professionals. From expert consultations and equipment selection to real-time market data and advanced disease detection, AquaExpert App harnesses modern technology to enhance the efficiency and productivity of fish farming operations. The app is designed to cater to a wide range of users, from small-scale farmers to large commercial operations, ensuring that high-quality aquaculture practices are accessible and manageable for everyone.



Importance of Aquaculture

Aquaculture, the farming of aquatic organisms such as fish, crustaceans, mollusks, and aquatic plants, plays a pivotal role in global food security and economic development. As one of the fastest-growing sectors in agriculture, aquaculture provides a sustainable source of protein essential for feeding the ever-growing global population. The sector supports millions of livelihoods worldwide, contributing significantly to local and national economies, especially in coastal and rural areas.

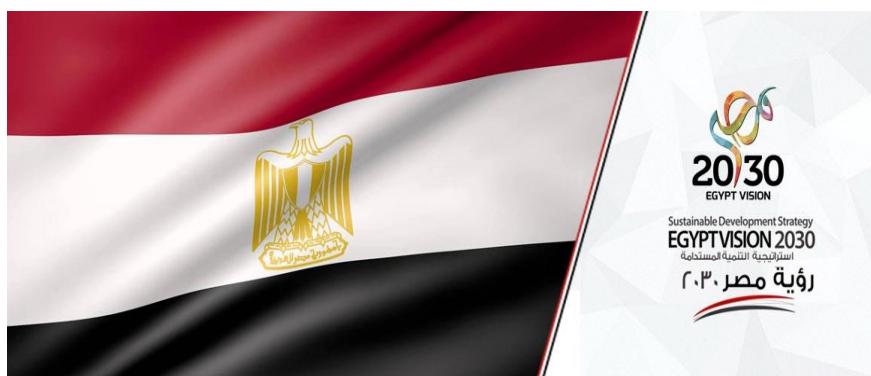
The significance of aquaculture extends beyond food production. It is integral to environmental sustainability, offering an alternative to wild-capture fisheries and helping to alleviate overfishing pressures on natural fish stocks. By implementing best practices and leveraging technological innovations like AquaExpert App, the aquaculture industry can improve its efficiency, reduce its environmental impact, and enhance its overall sustainability.

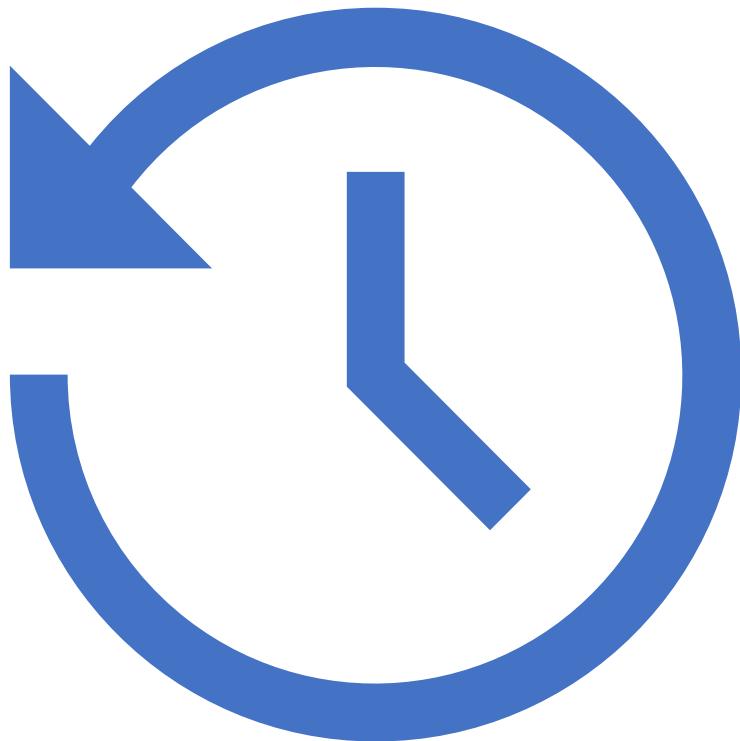
Despite its potential, the aquaculture industry faces several challenges. Disease outbreaks, inefficient farm management practices, fluctuating market prices, and limited access to quality information are some of the hurdles that practitioners must overcome. AquaExpert App addresses these challenges head-on, providing solutions that are not only innovative but also practical and easy to implement.

Purpose and Scope of the Book

The primary aim of this book is to provide an in-depth exploration of AquaExpert App, detailing its development, features, and impact on the aquaculture industry. This book serves as a comprehensive guide for users, developers, and stakeholders interested in understanding the app's capabilities and potential. Through a detailed narrative, readers will gain insight into the journey of AquaExpert App, from its initial concept to its current state and future developments.

By the end of this book, readers will have a thorough understanding of how AquaExpert App can revolutionize aquaculture operations and contribute to the industry's advancement. This book aims to inspire and inform, offering valuable insights into the innovative intersection of technology and aquaculture.





**Knowledge or Previous
Experience for AquaExpert**

2. Knowledge or Previous Experience for AquaExpert App

2.1. Overview:

The development of the AquaExpert App draws on extensive prior experience and knowledge in the field of aquaculture, particularly focusing on the study of marine shrimp culture. The project has been supervised by prominent figures in the industry and builds upon foundational work in aquaculture research and technology. Foundational Experience:

2.2. Marine Shrimp Culture App:

Marine Shrimp Culture App: The project's foundation lies in the comprehensive study of marine shrimp culture, under the supervision of Prof. Dr. Ashraf Y. El-Dakar and Prof. Dr. Shaimaa Shalaby. The research was conducted by Eng. Radwa Yahya from the Faculty of Fisheries, Suez University. Supervision and Guidance: The expertise of renowned professors from Arish University, Egypt, has been instrumental in shaping the app. Their guidance ensured that the app incorporates scientifically sound practices and state-of-the-art technologies.

2.3. Core Contributions:

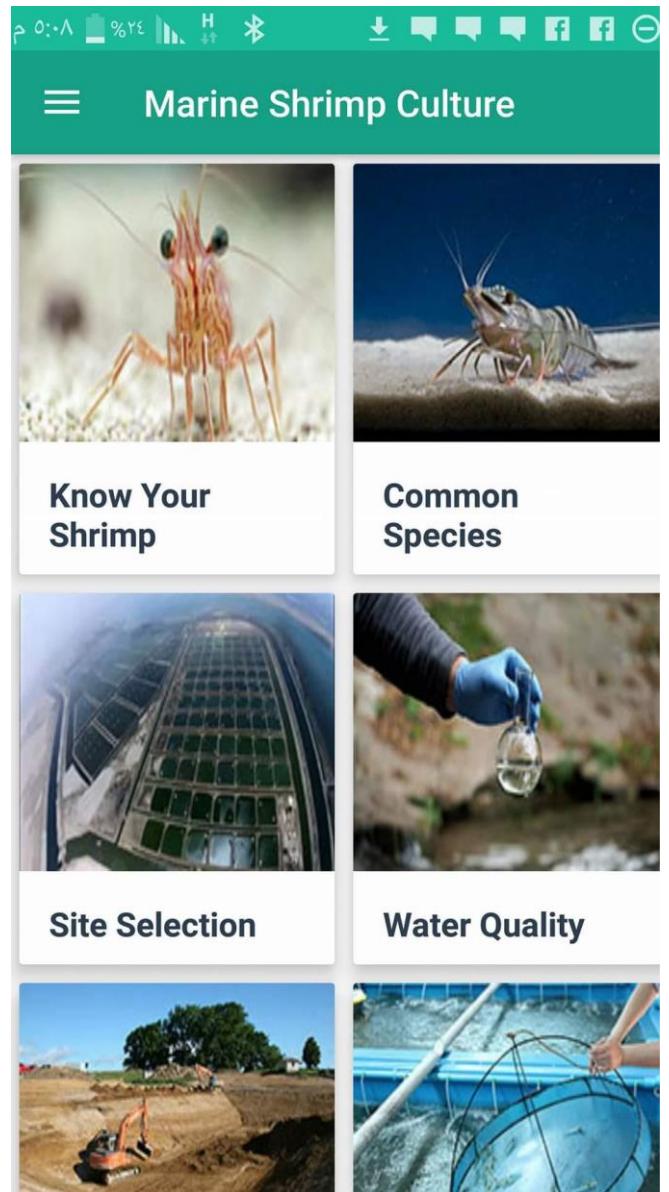
Expert Consultations and Solutions: Drawing from years of practical and academic experience, the app offers expert consultations and solutions tailored to various aquaculture challenges.

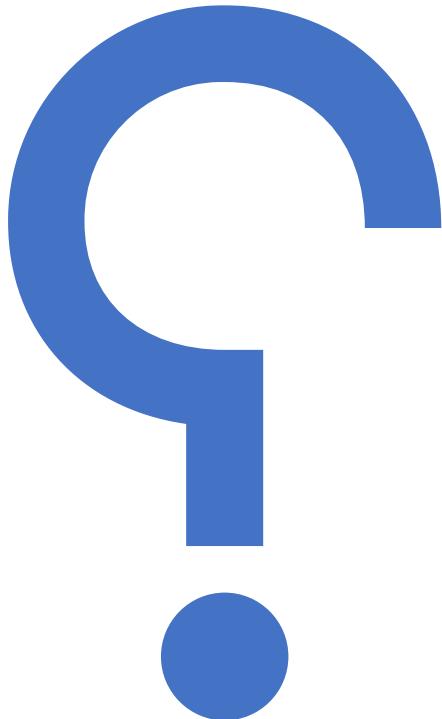
Advanced Disease Detection: The development team leveraged their deep knowledge in biotechnology to create the AI AquaDoctor feature, which uses advanced image recognition technology for disease detection in fish. Comprehensive Tools and Resources: The app provides a suite of tools such as AquaCalculator for calculating feed conversion ratios and growth rates, based on extensive field experience and empirical data.

2.4. Technological Expertise:

Programming and Development: The app is built using the Dart programming language and the Flutter framework, ensuring a robust and scalable solution for both Android and iOS platforms.

Data Analysis and Market Insights: The AquaStatics and AquaPrice sections are developed using thorough market analysis and statistical methodologies, ensuring users receive accurate and actionable data.





Problem Statement: Addressed by the AquaExpert App

3. Problem Statement: Addressed by the AquaExpert App

Aquaculture, the farming of aquatic organisms such as fish, crustaceans, and plants, faces numerous challenges that hinder its efficiency, productivity, and sustainability. The AquaExpert App has been designed to address these critical issues, providing innovative solutions that streamline operations and improve outcomes for aquaculture practitioners.

3.1. Key Problems in Aquaculture:

Lack of Access to Expert Advice:

- Problem: Small-scale farmers and even larger operations often struggle to obtain timely and reliable advice from aquaculture experts. This gap can lead to suboptimal farming practices, poor fish health, and reduced yields.
- Solution: The AquaExpert App offers expert consultations and solutions directly through the platform, enabling users to access high-quality advice and make informed decisions about their farming practices.

Difficulty in Disease Detection and Management:

- Problem: Early detection and accurate diagnosis of fish diseases are critical for maintaining healthy stock. Traditional methods can be time-consuming, costly, and often require specialized knowledge.
- Solution: The AI AquaDoctor feature utilizes advanced image recognition technology to diagnose fish diseases from photos taken with a mobile phone. This provides a quick, accurate, and cost-effective solution for disease management.

Inefficient Farm Management and Monitoring:

- Problem: Managing various aspects of a fish farm, including feeding, aeration, and water quality, can be challenging, particularly for larger operations. Manual monitoring and control can lead to inefficiencies and increased labor costs.
- Solution: AquaConnect allows users to remotely monitor and control farm operations, such as automatic feeders and aeration systems, through their mobile devices. This ensures optimal conditions and enhances productivity while reducing manual labor.

Market Access and Price Fluctuations:

- Problem: Farmers often face difficulties in accessing up-to-date market information and connecting with buyers. Price fluctuations can also impact profitability.
- Solution: AquaPrice provides real-time market prices and historical data for various aquaculture products, helping users make informed selling decisions. AquaMarket facilitates direct transactions between buyers and sellers, improving market access and efficiency.

Resource Selection and Management:

- Problem: Selecting the appropriate equipment, feed, and other resources is crucial for successful aquaculture operations. Incorrect choices can lead to wasted resources and poor growth rates.
- Solution: AquaChoice offers tools and guides to help users select the best equipment and feed pellets, ensuring optimal results in fish farming operations.

Data and Statistical Analysis:

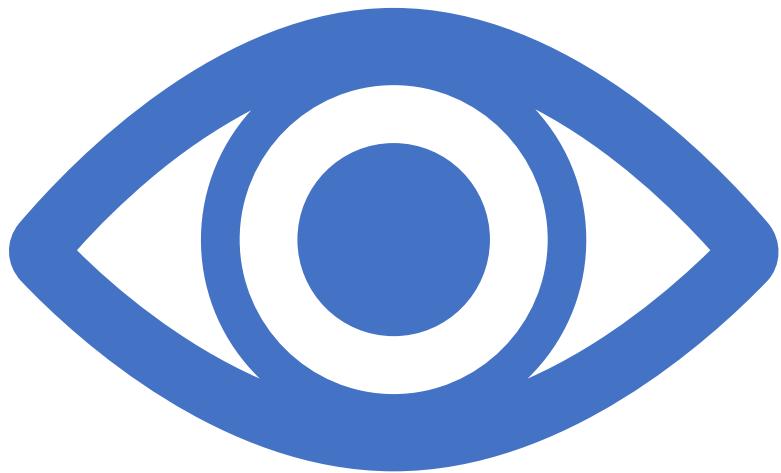
- Problem: Accessing and analyzing relevant data is essential for making strategic decisions in aquaculture. Many farmers lack the tools to gather and interpret this information.
- Solution: AquaStatics provides statistical data relevant to aquaculture production, helping users analyze trends and make data-driven decisions.

Community and Knowledge Sharing:

- Problem: Aquaculture practitioners often work in isolation, lacking a platform to connect, share knowledge, and collaborate with peers.
- Solution: AquaMedia and AquaMap foster a vibrant community of aquaculture professionals, enabling users to share insights, stay updated on industry trends, and locate key facilities and resources.

Communication and Networking:

- Problem: Effective communication with aquaculture companies and centers is essential for accessing services, purchasing supplies, and staying informed about new developments.



Concept and Vision

4. Concept and Vision

4.1. Idea and Concept of AquaExpert App

The AquaExpert App was conceived as a smart, accessible platform aimed at supporting the aquaculture industry by providing expert consultations and solutions for fish farming. The app facilitates communication with aquaculture companies and centers, enhancing efficiency and productivity in aquaculture operations. The name "AquaExpert" combines "Aqua," referring to aquatic farming or aquaculture, and "Expert," indicating the in-depth knowledge and extensive expertise the app provides. The suffix "EG" denotes the project's origin in Egypt.



4.2. Key features of the AquaExpert App include:

- Expert Consultations Offering professional advice and solutions for fish farming challenges.
- Communication Tools: Providing contact details for aquaculture companies and centers.
- Accessibility: Available on smartphones through app stores, making it easy for users to access essential information and tools.

4.3. Inspiration and Initial Goals

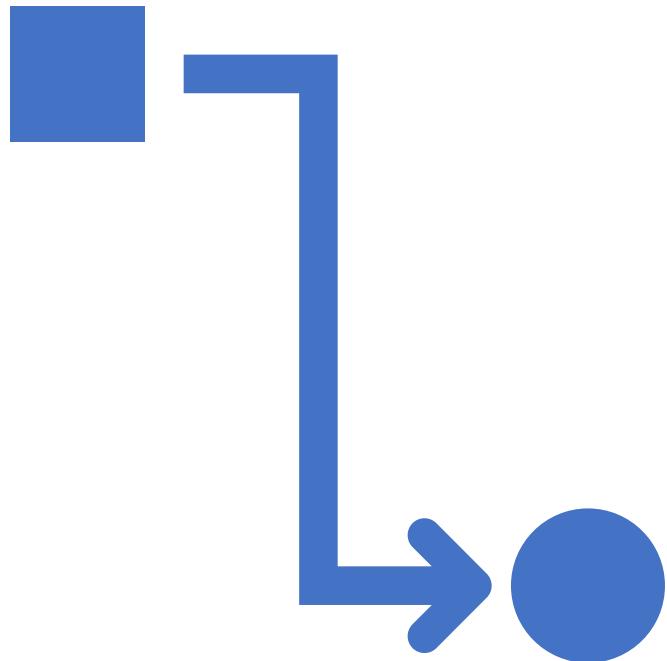
The inspiration for the AquaExpert App came from the growing need to enhance the efficiency, productivity, and sustainability of aquaculture operations. The initial goals of the app included:

1. Providing Expert Advice: Offering reliable and professional guidance on various aspects of fish farming to improve practices and outcomes.
2. Enhancing Communication: Facilitating better communication and networking among aquaculture practitioners, companies, and experts.
3. Centralizing Resources: Creating a comprehensive platform where users can access essential tools, information, and services related to aquaculture.

4.4. Project Development Timeline

The development of the AquaExpert App followed a systematic timeline, focusing on critical milestones to ensure the successful realization of its vision. The timeline included:

1. Conceptualization (Q1 2022): Identifying the need for a comprehensive aquaculture app and outlining its core features and functionalities.
2. Design and Development (Q2 2022 - Q4 2022): Creating the app using Dart and Flutter to ensure compatibility with multiple platforms, including Android and iOS.
3. Alpha Testing and Refinement (Q1 2023): Conducting initial testing to identify and resolve bugs, gathering user feedback for further improvements.
4. Beta Testing and Launch Preparation (Q2 2023): Expanding testing to a broader audience, finalizing app features, and preparing for launch.
5. Official Launch and Marketing (Q3 2023): Releasing the app on major app stores and implementing marketing strategies to attract and retain users.
6. Post-Launch Expansion and Updates (Q4 2023 and beyond): Continuously adding new features, expanding content, and updating the app based on user feedback and technological advancements.



Impact of the AquaExpert App on the Egyptian Aquaculture Industry

5. Impact of the AquaExpert App on the Egyptian Aquaculture Industry

Egypt's aquaculture industry is a significant contributor to the national economy and food security, providing employment and nutritional resources for a growing population. However, the sector faces numerous challenges, including resource management, disease control, and market access. The AquaExpert App is poised to make a substantial impact on the Egyptian aquaculture industry by addressing these challenges and fostering growth and sustainability.

5.1. Enhancing Access to Expert Knowledge and Solutions:

- **Current Challenge:** Many Egyptian fish farmers, particularly those in rural or remote areas, have limited access to expert advice and resources, leading to inefficiencies and suboptimal practices.
- **Impact of AquaExpert App:** By providing a platform for expert consultations and solutions, the app democratizes access to valuable knowledge. This will empower farmers to implement best practices, improve fish health, and increase productivity, thereby boosting the overall efficiency of the industry.

5.2. Revolutionizing Disease Detection and Management:

- **Current Challenge:** Disease outbreaks are a major threat to fish farms, often resulting in significant losses due to delayed detection and inadequate management strategies.
- **Impact of AquaExpert App:** The AI AquaDoctor feature offers a game-changing solution for early disease detection using image recognition technology. This will enable farmers to quickly identify and address health issues, reducing mortality rates and improving fish welfare.

5.3. Streamlining Farm Management and Monitoring:

- **Current Challenge:** Efficient management of farm operations, including feeding, aeration, and water quality control, is crucial for maximizing yields but can be labor-intensive and challenging.
- **Impact of AquaExpert App:** With AquaConnect, farmers can remotely monitor and control key aspects of their operations, optimizing conditions and enhancing productivity. This technology will particularly benefit larger farms and those looking to scale their operations.

5.4. Improving Market Access and Economic Stability:

- **Current Challenge:** Fluctuating market prices and limited access to buyers pose challenges for Egyptian aquaculture producers, affecting profitability and growth.
- **Impact of AquaExpert App:** AquaPrice provides real-time market data, enabling farmers to make informed selling decisions. Additionally, AquaMarket facilitates direct transactions, improving market access and stability. This will lead to better economic outcomes for farmers and a more resilient industry.

5.5. Facilitating Resource Selection and Utilization:

- **Current Challenge:** Choosing the right equipment and feed is critical for successful aquaculture operations, yet many farmers struggle with this due to lack of information.
- **Impact of AquaExpert App:** AquaChoice offers comprehensive tools and guides to help farmers select the best resources, ensuring optimal growth and efficiency. This will lead to better utilization of resources and higher production rates.



Technical Overview

6. Technical Overview

6.1. Programming Languages and Platforms

The AquaExpert App is primarily developed using Dart, with the Flutter framework. Dart, a programming language developed by Google, is optimized for building fast applications on any platform. Flutter, also from Google, is an open-source UI software development kit that allows developers to create natively compiled applications for mobile, web, and desktop from a single codebase. This combination of Dart and Flutter offers several advantages:



- Cross-Platform Development: With Flutter, a single codebase can be used to build applications for both iOS and Android platforms, significantly reducing development time and effort.
- High Performance: Dart compiles to native machine code, ensuring that the app runs quickly and efficiently on all supported platforms. Flutter's widgets incorporate all critical platform differences, such as scrolling, navigation, icons, and fonts, to provide a full native performance on both iOS and Android.
- Hot Reload: Flutter's hot reload feature allows developers to see changes in real-time without restarting the app, speeding up the development process and improving productivity.

6.2. Target Platforms

The AquaExpert App is designed to be available on both Android and iOS platforms. The target platforms ensure that a wide range of users can access the app, regardless of their device preference. Additionally, considering the global reach of aquaculture, targeting both platforms is crucial for maximizing user engagement and adoption.



6.3. App Architecture and Design Principles

The architecture of the AquaExpert App is built to ensure that it is scalable, maintainable, and robust. Here are the core design principles that guide the app's architecture:

- Modularity: The app is divided into independent modules, each responsible for specific features such as AquaExpert, AquaChoice, AquaPhone, etc. This modular approach facilitates easier updates and maintenance, as individual modules can be improved or extended without impacting the overall system.
- Scalability: The app is designed to scale horizontally, allowing it to handle an increasing number of users and expanding feature sets. This is achieved through efficient data handling and performance optimization techniques that ensure the app remains responsive under varying loads.
- User-Centric Design: Emphasis on an intuitive and user-friendly interface ensures that users can navigate the app with ease. The design focuses on minimizing the learning curve for new users while providing a seamless experience for all users.
- Security: The app incorporates robust security measures to protect sensitive user data. This includes secure data storage, encrypted communication channels, and rigorous user authentication mechanisms.
- Performance Optimization: The app is optimized for quick load times and smooth operation. Performance optimization is critical for maintaining user engagement and ensuring the app performs well across various devices, including those with limited resources.

6.4. Backend Infrastructure

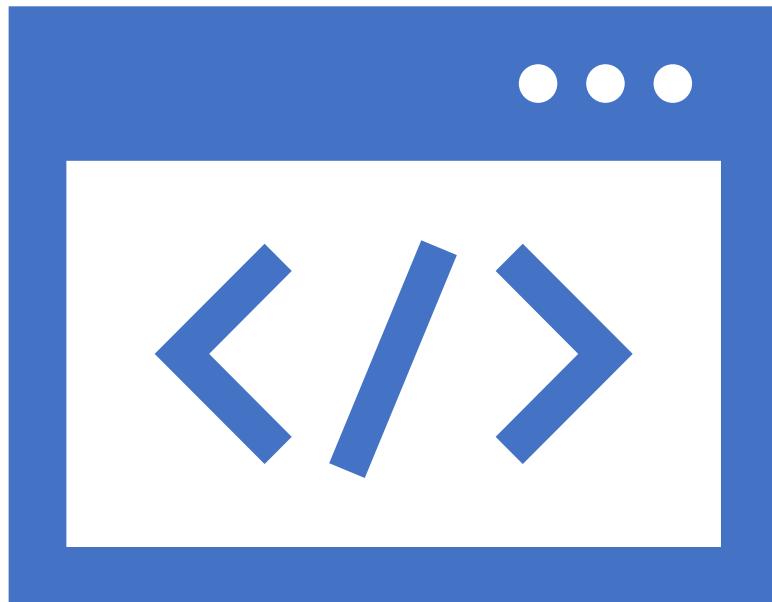
The backend infrastructure of the AquaExpert App is designed to support its various functionalities efficiently. Key components include:

- Cloud-Based Services: The app leverages cloud services for data storage, processing, and retrieval. This ensures high availability and scalability, allowing the app to handle large volumes of data and user requests efficiently.
- APIs and Integration: The app integrates with various third-party APIs to provide features such as AI-powered disease detection (AI AquaDoctor), market prices (AquaPrice), and communication tools (AquaPhone). These integrations are essential for delivering real-time data and enhancing the app's functionality.
- Database Management: A robust database management system is used to store user data, statistical information, and other relevant data. The database is optimized for quick read and write operations to ensure fast data access and updates.

6.5. Continuous Integration and Deployment (CI/CD)

The development process for the AquaExpert App incorporates CI/CD pipelines to ensure that new features and updates are delivered quickly and reliably. CI/CD practices include:

- Automated Testing: Automated tests are run on the codebase to catch bugs and ensure that new changes do not break existing functionality.
- Continuous Integration: Code changes are continuously integrated into the main codebase, allowing for early detection of integration issues.
- Continuous Deployment: New features and updates are automatically deployed to a staging environment for further testing before being released to production. This ensures that the app remains stable and reliable for end-users.



Steps to Implement the Creation of the AquaExpert App

7. Steps to Implement the Creation of the AquaExpert App

Creating a robust and effective application like AquaExpert involves a series of well-planned and executed steps. This process ensures that the final product meets the needs of its users and operates seamlessly across different platforms. Below is a detailed guide to the steps involved in the implementation of the AquaExpert App.

7.1. Step 1: Define Objectives and Requirements

- **Objective Setting:** Clearly define the goals of the AquaExpert App, focusing on how it will address key challenges in aquaculture.
- **Requirement Gathering:** Engage with stakeholders, including aquaculture experts, farmers, and potential users, to gather detailed requirements. This includes understanding the functionalities needed, user interface preferences, and technical specifications.

7.2. Step 2: Conduct Market Research and Feasibility Study

- **Market Analysis:** Research existing solutions and identify gaps that AquaExpert can fill. Analyze competitors and gather insights on user needs and preferences.
- **Feasibility Study:** Assess the technical and financial feasibility of the project. This includes evaluating the technology stack, estimating costs, and determining potential return on investment.

7.3. Step 3: Design the Application

- **Wireframing and Prototyping:** Create wireframes and prototypes to visualize the app's layout and user interface. Use tools like Sketch, Figma, or Adobe XD for this purpose.
- **User Experience (UX) Design:** Focus on creating an intuitive and user-friendly design. Conduct usability testing with a small group of users to refine the design.
- **User Interface (UI) Design:** Develop detailed UI designs, ensuring the app is visually appealing and consistent with the brand identity.

7.4. Step 4: Plan the Development Process

- **Technology Stack Selection:** Choose the appropriate technology stack. For AquaExpert, this includes Dart and the Flutter framework for cross-platform compatibility (Android and iOS).
- **Project Planning:** Define the development phases, set timelines, and allocate resources. Use project management tools like Jira or Trello to organize tasks and track progress.
- **Team Assembly:** Form a skilled development team, including front-end and back-end developers, UI/UX designers, and QA testers.

7.5. Step 5: Develop the Application

- **Backend Development:** Set up the server, database, and API integrations. Ensure robust security measures are in place to protect user data.
- **Frontend Development:** Implement the UI/UX designs using Flutter. Focus on creating a responsive and interactive user interface.
- **Integration of Features:** Develop and integrate key features such as AI AquaDoctor, AquaConnect, AquaMarket, and AquaStatics. Ensure seamless interaction between different modules.

7.6. Step 6: Testing and Quality Assurance

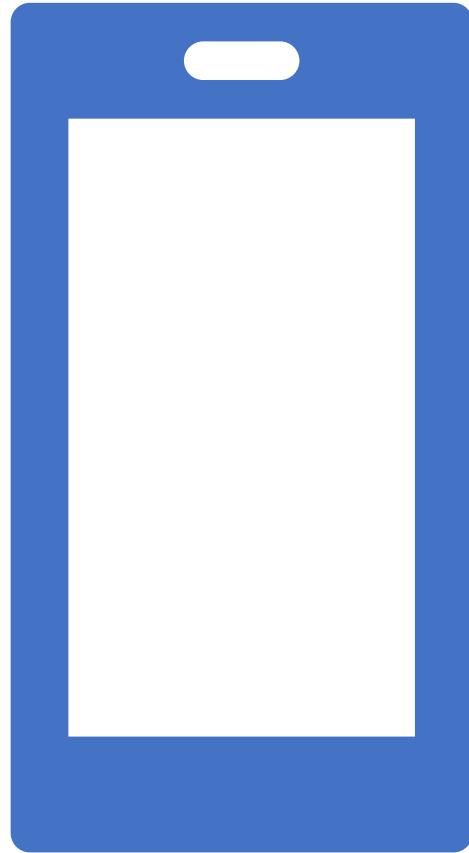
- **Unit Testing:** Test individual components and functions to ensure they work correctly.
- **Integration Testing:** Verify that different modules and services work together as intended.
- **User Acceptance Testing (UAT):** Conduct UAT with a group of end-users to identify any issues or areas for improvement. Collect feedback and make necessary adjustments.
- **Performance Testing:** Ensure the app performs well under different conditions and loads. Optimize performance to handle high user traffic and data processing.

7.7. Step 7: Deployment

- **Beta Release:** Launch a beta version to a limited audience. Monitor performance, gather user feedback, and address any issues that arise.
- **Final Deployment:** Release the app-on-app stores (Google Play and Apple App Store). Ensure all deployment requirements are met, including compliance with store guidelines.

7.8. Step 8: Post-Launch Support and Maintenance

- **Monitoring and Analytics:** Continuously monitor the app's performance using analytics tools. Track user engagement, identify issues, and measure success against predefined metrics.
- **Regular Updates:** Provide regular updates to add new features, improve performance, and fix bugs. Stay responsive to user feedback and evolving market trends.
- **Customer Support:** Offer robust customer support to assist users with any issues or questions. Maintain an open line of communication with the user community to foster engagement and satisfaction.



Application Features

8. Application Features

The AquaExpert App is designed to be a comprehensive tool for aquaculture professionals, providing a wide range of features to support various aspects of aquaculture operations. Below is an in-depth look at each feature:

8.1. AquaExpert

Detailed Information on Aquaculture: This section serves as an extensive resource, offering in-depth articles, guides, and research papers on various aspects of aquaculture. Topics include fish health management, water quality control, breeding techniques, and sustainable practices.

AI Search Functionality: The AI search tool leverages advanced algorithms to help users quickly find specific information within the app. Whether users are looking for topics or troubleshooting solutions, the AI search ensures efficient access to relevant content.



8.2. AquaChoice

Selection Tools for Equipment: Users can find detailed reviews, specifications, and recommendations for a wide range of aquaculture equipment. This includes water pumps, filtration systems, aeration devices, and more.

Feed Pellet Selection: AquaChoice provides a database of feed pellets, including nutritional information, suitability for different fish species, and cost-effectiveness. This helps users select the most appropriate feed for their specific needs.



8.3. AquaPhone

Direct Communication Channels: AquaPhone integrates communication tools that allow users to reach out to aquaculture companies, suppliers, and service providers directly from the app. This includes contact directories, email templates, and direct messaging capabilities.

Networking Opportunities: Users can connect with other aquaculture professionals to exchange ideas, seek advice, and collaborate on projects.



8.4. AquaStatics

Comprehensive Data Analytics: AquaStatics offers access to a wide range of statistical data, including production volumes, growth trends, and economic impact studies. Users can view data in various formats, such as graphs and charts, to analyze and interpret information effectively.

Regional Focus: The app provides specific data relevant to the region of Egypt, but it can also offer insights into global aquaculture trends and comparisons.



8.5. AquaPrice

Real-Time Market Prices: AquaPrice keeps users updated with the latest market prices for various fish species and aquaculture products. This includes historical data to help users track price trends and make informed selling or buying decisions.

Market Analysis: The section also provides market analysis reports, helping users understand the factors influencing price changes and market dynamics.



8.6. AquaCalculator

Advanced Calculation Tools: This section includes a suite of calculators designed to assist with various operational aspects of aquaculture. Key tools include:

Feed Conversion Ratio Calculator: Helps users determine the efficiency of feed utilization.

Growth Rate Calculator: Allows users to estimate the growth rates of their fish based on input data.

Water Quality Parameters Calculator: Assists in monitoring and managing water quality to ensure optimal conditions for fish health.



8.7. AquaQuest

Extensive FAQ Library: AquaQuest features a well-organized FAQ section covering a broad range of topics. Users can find answers to common questions related to fish diseases, optimal farming practices, regulatory compliance, and more.

User-Submitted Questions: The section allows users to submit their own questions, which can be answered by experts and added to the FAQ library for the benefit of the community.





Premium Features

9. Premium Features

The AquaExpert App offers a suite of premium features designed to provide advanced tools and insights for aquaculture professionals. These features aim to enhance the efficiency and productivity of aquaculture operations, offering specialized functionalities beyond the basic tools available in the free sections. Below are the key premium features detailed further:



9.1. AI AquaDoctor

AI AquaDoctor is a cutting-edge tool that leverages advanced image recognition technology to help Aquaculturist detect diseases in fish. By utilizing the camera on their mobile devices, users can capture images of their fish, which the app then analyzes to identify any signs of illness. This feature provides a quick and accurate diagnosis, which is crucial for maintaining the health of the fish population and preventing disease outbreaks. The AI AquaDoctor can recognize a variety of common fish diseases, providing detailed information about symptoms, causes, and recommended treatments.

Key Benefits:

- Rapid Diagnosis:** Quick identification of diseases to enable prompt treatment.
- Accuracy:** Advanced AI ensures high accuracy in disease detection.
- Guidance:** Provides detailed treatment recommendations to help users manage fish health effectively.

9.2. AquaConnect

AquaConnect is designed for modern aquaculture farms, allowing users to control and monitor various farm operations from their mobile devices. This feature includes tools for managing automatic feeders, aeration systems, and environmental measurement devices. By providing real-time data and control capabilities, AquaConnect helps users maintain optimal farming conditions, improving fish growth rates and overall productivity.



Key Benefits:

- Remote Management:** Control farm operations from anywhere.
- Efficiency:** Automate feeding and aeration to optimize conditions.
- Monitoring:** Real-time data on farm conditions for proactive management.

9.3. AquaMarket

AquaMarket serves as a marketplace where users can list, buy, and sell fish, feed, and other aquaculture products. This platform connects buyers and sellers directly, facilitating efficient transactions and expanding market access for aquaculture professionals. AquaMarket includes features such as product listings, search filters, and secure transaction options, making it easier for users to find what they need and complete purchases safely.



Key Benefits:

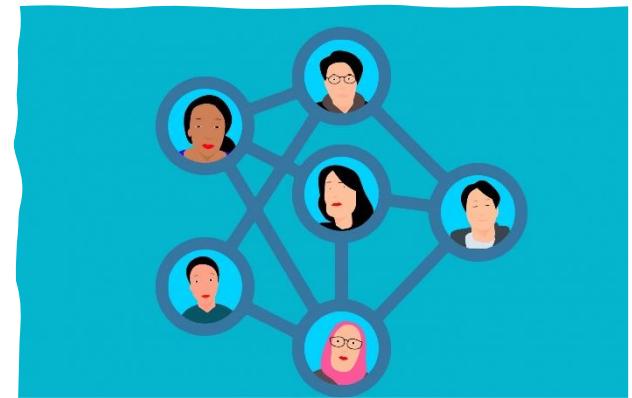
- Market Access:** Expanded opportunities for buying and selling.
- Convenience:** Easy-to-use interface for managing transactions.
- Security:** Safe and secure platform for financial transactions.

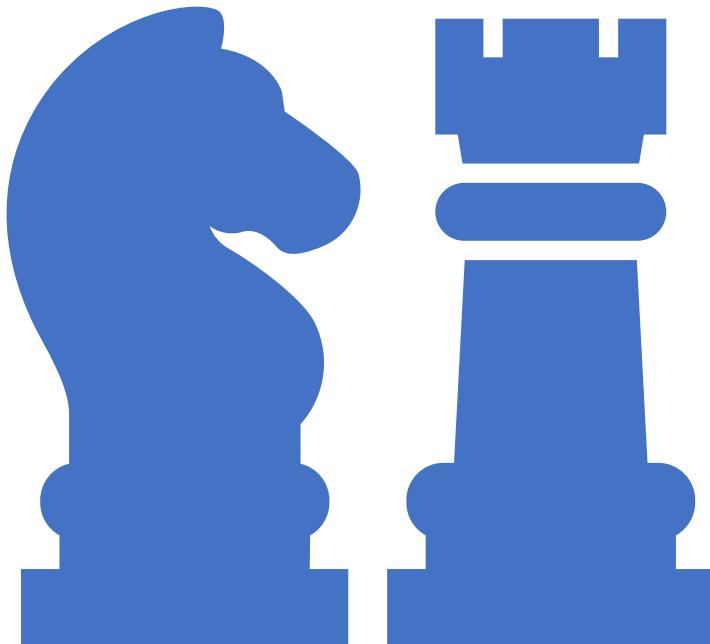
9.4. AquaMedia

AquaMap is a mapping tool that helps users locate various aquaculture facilities, such as fish farms, hatcheries, and related companies. This feature enhances the efficiency of networking and resource management by providing detailed maps and location data. AquaMap is essential for users who need to find specific facilities or establish connections within the aquaculture industry, offering navigation tools and contact information for listed facilities.

Key Benefits:

- **Location Services:** Find and navigate to aquaculture facilities.
- **Resource Management:** Efficiently manage and connect with industry resources.
- **Networking:** Enhance business connections through detailed maps and contact information.





Monetization and Growth Strategies

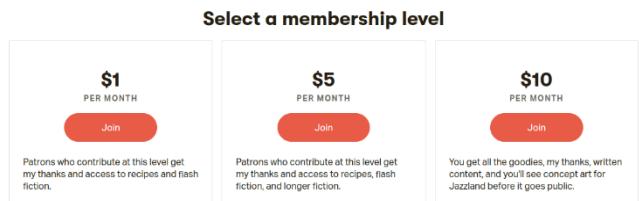
10. Monetization and Growth Strategies

10.1. Premium Subscription Model

AquaExpert App generates revenue through a comprehensive premium subscription model. This model grants users access to advanced features and services designed to enhance their aquaculture operations. Key premium features include:

- AI AquaDoctor:** Uses image recognition technology to detect diseases in fish. Users can take photos of their fish, and the app will analyze the images to diagnose any signs of illness, offering quick and accurate results.
- AquaConnect:** Allows users to control and monitor farm operations remotely, including managing automatic feeders, aeration systems, and other essential tools from their mobile devices, ensuring optimal conditions and productivity.
- AquaMarket:** A marketplace for users to buy and sell fish, feed, and other aquaculture products, facilitating direct connections between buyers and sellers.
- AquaMedia:** A social networking platform tailored for the aquaculture community, enabling users to share insights, stay updated on industry trends, and connect with other professionals.
- AquaMap:** Provides a mapping tool to locate aquaculture facilities, such as fish farms and hatcheries, making it easier for users to find and network with key resources in the industry.

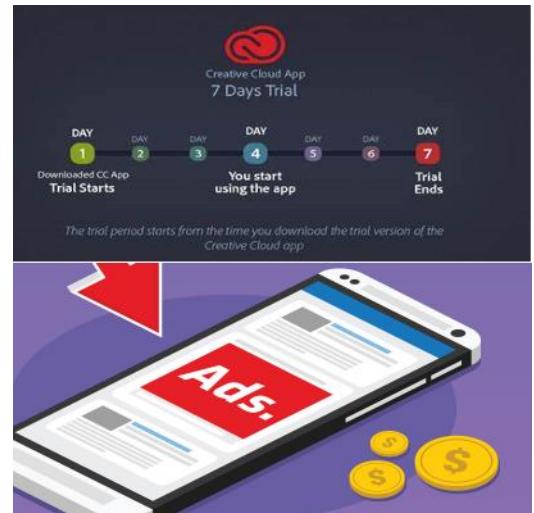
Users can access these premium features through a subscription fee, which offers them enhanced support and insights for their aquaculture practices.



10.2. Marketing and User Acquisition

AquaExpert App employs several marketing and user acquisition strategies to attract new users and retain existing ones:

- Free Sections as Value Demonstration:** The app includes several free sections (e.g., AquaExpert, AquaChoice, AquaPhone) that provide essential information and tools. These sections help demonstrate the app's value and utility, encouraging users to explore the premium features.
- In-App Advertisements and Limited-Time Trials:** Premium features are promoted through in-app advertisements and limited-time trial offers, which allow users to experience the benefits of the subscription model before committing.
- User Engagement and Retention:** Regular updates, user-friendly interfaces, and integration of user feedback help maintain high user engagement and retention rates. Continuous improvements and new features keep the app relevant and useful to its user base.



10.3. Partnerships and Collaborations

Strategic partnerships and collaborations play a crucial role in enhancing the app's credibility and attracting more premium subscribers:

- **Industry Experts and Institutions:** Partnering with renowned industry experts and academic institutions allows AquaExpert App to offer exclusive content and services, making it more appealing to users seeking authoritative and high-quality information.
- **Collaborative Content Creation:** Working with aquaculture professionals to create informative and relevant content helps build a strong reputation within the industry. This collaborative approach ensures the content is accurate, up-to-date, and valuable to users.
- **Joint Marketing Campaigns:** Collaborating with partners for joint marketing campaigns can expand the app's reach and visibility. These campaigns leverage the partner's audience and reputation, driving user growth and increasing premium subscriptions.



10.4. User Education and Community Building

AquaExpert App focuses on educating users and building a strong community to foster loyalty and long-term engagement:

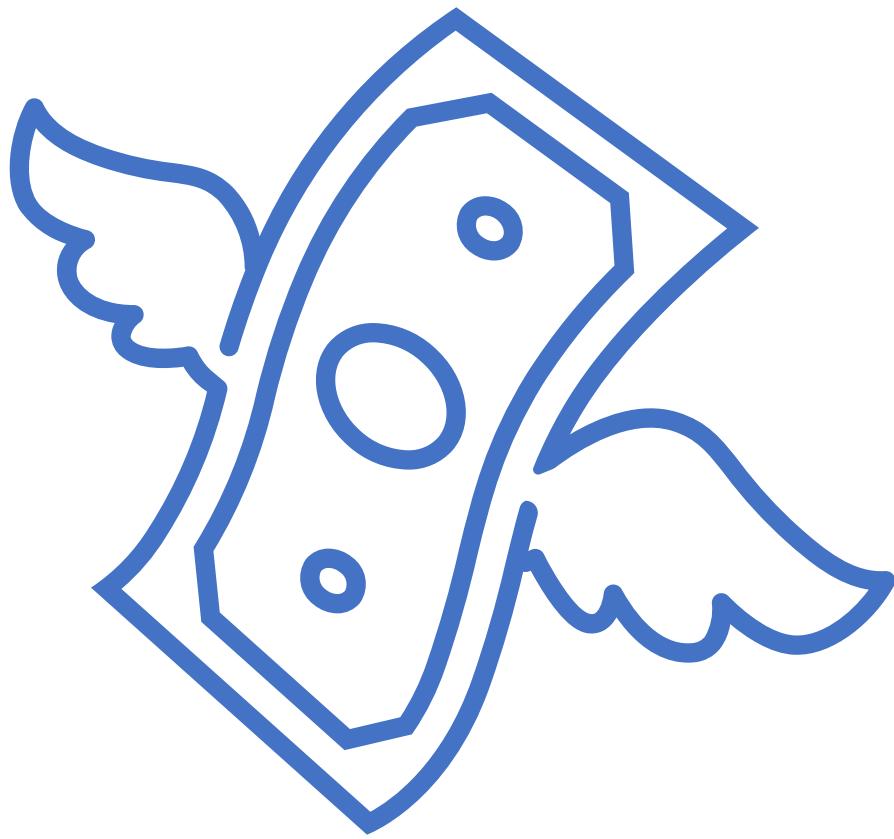
- **Educational Content:** The app provides educational resources, including articles, tutorials, and webinars, to help users improve their aquaculture practices. By offering valuable learning opportunities, AquaExpert App positions itself as an essential tool for both novice and experienced Aquaculturist.
- **Community Engagement:** AquaMedia, the app's social networking feature, encourages users to connect, share experiences, and learn from each other. Building a vibrant community helps users feel more connected and supported, increasing their likelihood of continuing to use the app and subscribing to premium features.

10.5. Analytics and User Feedback

Leveraging data analytics and user feedback is essential for continuous improvement and growth:

- **Data-Driven Insights:** By analyzing user behavior and engagement metrics, AquaExpert App can identify popular features and areas needing improvement. This data-driven approach helps prioritize feature updates and enhancements that align with user needs and preferences.
- **User Feedback Integration:** Regularly soliciting and integrating user feedback ensures that the app evolves in a way that meets the community's demands. Listening to users helps build trust and loyalty, as they feel their input is valued and acted upon.

By implementing these comprehensive monetization and growth strategies, AquaExpert App aims to establish itself as a leading platform in the aquaculture industry, providing invaluable tools and resources for fish farmers and related stakeholders.



Feasibility Study

11. Feasibility Study

11.1. Executive Summary

AquaExpert is a mobile app designed to support fish farmers and aquaculture professionals by providing essential tools and information to improve productivity and efficiency. This feasibility study aims to assess the viability of developing and launching the AquaExpert app, including fixed and variable costs.

11.2. Market Analysis

Target Audience: Fish farmers, aquaculture companies, industry professionals.

Market Potential: Large market of fish farmers looking to improve operations and increase efficiency. **Competitors:** Few direct competitors, making AquaExpert a unique offering in the market. **Unique Features:** AI-driven disease detection, operational calculators, and a networking platform for professionals.

11.3. Technical Feasibility

Development: Requires a development team skilled in mobile app development, AI, and machine learning.

AquaExpert: Information on fish quality and equipment.

AI AquaDoctor: AI for disease detection. **AquaCalculator:** Tools to optimize farming operations. **AquaConnect:** Remote farm management. **AquaMarket and AquaMedia:** Platforms for trading and sharing insights.

11.4. Operational Feasibility

Team: Developers, AI specialists, and support staff.

Development Plan:

- Phase 1: Design and initial development.
- Phase 2: Testing and refinement.
- Phase 3: Deployment and launch. **Support:** Continuous technical support and updates post-launch.

11.5. Financial Feasibility

Fixed Costs

Item	Cost
UI/UX and Logo Design	EGP 2,000
Application Programming	EGP 10,000
Application Publishing	EGP 3,000
Total Initial Costs	EGP 15,000

Variable Costs

Item	Cost
Server Hosting and Maintenance	EGP 500
Customer Support	EGP 1,000
Marketing and Advertising	EGP 1,000
Updates and Enhancements	EGP 1,000
Field visits for information gathering	EGP 1,000
Visits to relevant centers and companies	EGP 1,000
Total Monthly Costs	EGP 5,500
Inflation rate (5%)	EGP 275

Total Cost

Total cost = $15,000 + 5,500 + 275 = 20,775$ EGP

Revenue Model

- **Freemium Model:** Basic features available for free, with premium features accessible via subscription.
- **Subscription Fee:** EGP 50 per month for premium features.

Financial Projections

- **Year 1:**

- Users: 500
- Premium Subscribers: 100
- Monthly Revenue: $100 * \text{EGP } 50 = \text{EGP } 5,000$
- Annual Revenue: $\text{EGP } 5,000 * 12 = \text{EGP } 60,000$
- Annual Costs: Initial Cost + (Monthly Cost * 12) = $\text{EGP } 15,000 + (\text{EGP } 3,500 * 12) = \text{EGP } 57,000$
- **Profit:** $\text{EGP } 60,000 - \text{EGP } 57,000 = \text{EGP } 3,000$

- **Year 2:**

- Users: 1,000
- Premium Subscribers: 300
- Monthly Revenue: $300 * \text{EGP } 50 = \text{EGP } 15,000$
- Annual Revenue: $\text{EGP } 15,000 * 12 = \text{EGP } 180,000$
- Annual Costs: Monthly Cost * 12 = $\text{EGP } 3,500 * 12 = \text{EGP } 42,000$
- **Profit:** $\text{EGP } 180,000 - \text{EGP } 42,000 = \text{EGP } 138,000$

Capital Payback Period

- **Initial Investment:** EGP 20,775
- **Monthly Profit (Year 1):** $\text{EGP } 3,000 / 12 = \text{EGP } 250$ (this accounts for total annual profit divided by 12)
- **Months to Payback:** Initial Investment / Monthly Profit = $\text{EGP } 20,775 / \text{EGP } 250 = 84$ months
- **Years to Payback:** $84 \text{ months} / 12 = 7$ years

7. Risk Analysis

- **Technical Risks:** Potential challenges with AI integration and data security.
- **Market Risks:** User adoption rate and competitive response.
- **Mitigation Strategies:**
 - Technical: Robust testing and security measures.
 - Market: Strong marketing plan and user engagement strategies.



Summary

12. Summary

12.1. English Summary

The AquaExpert App represents a significant leap forward in the aquaculture industry, offering a comprehensive, user-friendly platform that caters to the diverse needs of fish farmers, aquaculture companies, and industry professionals. Born from a vision to make expert knowledge and resources easily accessible, this app has transformed from a concept into a powerful tool that is reshaping the landscape of aquatic farming.

At its core, AquaExpert App embodies the fusion of traditional aquaculture wisdom with cutting-edge technology. By providing a wealth of information on fish quality, equipment selection, and industry best practices through sections like AquaExpert and AquaChoice, the app empowers users with knowledge that was once the domain of seasoned experts. Furthermore, its integration of AI and machine learning in features like AI AquaDoctor showcases how technology can revolutionize age-old challenges, such as disease detection in fish. This convergence of tradition and innovation is a powerful reminder that progress often lies at the intersection of respecting established practices while boldly embracing new technologies.

The app's strength lies not only in its informational resources but also in its ability to foster connections. Through AquaPhone, AquaMarket, and AquaMedia, it has created a vibrant, interconnected community where professionals can communicate, trade, and share insights. This networked approach is particularly vital in an industry that often suffers from fragmentation and isolation. In many regions, fish farmers work in relative solitude, lacking easy access to peers, suppliers, or buyers. AquaExpert App breaks down these barriers, turning individual practitioners into members of a global aquaculture community. This shift from isolation to interconnection could have profound effects, accelerating the spread of innovations, supporting collaborative problem-solving, and even giving small-scale farmers more negotiating power in the marketplace.

Moreover, AquaExpert App's commitment to user empowerment is evident in its range of practical tools. From the AquaCalculator that helps farmers optimize their operations to AquaConnect that enables remote farm management, the app provides tangible solutions that enhance productivity and efficiency. These features reflect a deep understanding that in aquaculture, as in many agricultural sectors, small improvements can have outsized impacts. A slight increase in feed conversion ratios or a marginal improvement in disease prevention can significantly boost yields and profitability. By putting these optimization tools directly into farmers' hands, AquaExpert App democratizes access to techniques that can transform livelihoods.

The strategic approach to monetization, focusing on premium features while maintaining a robust free tier, ensures that the app remains accessible to all while generating the revenue needed for sustained growth and development. This model, combined with strategic partnerships and a strong marketing plan, positions AquaExpert App for long-term success. It also reflects a nuanced understanding of the aquaculture market. While some users, particularly large commercial operations, may readily pay for advanced features like AI-driven disease diagnosis, many smaller farmers operate on tight margins. The freemium model ensures that these users aren't left behind, aligning with the app's overarching mission to uplift the entire industry.

In conclusion, AquaExpert App is more than just a mobile application; it's a testament to how technology can empower communities, streamline industries, and tackle global challenges. By providing expert knowledge, fostering connections, and offering practical solutions, it's not only supporting individual fish farmers but also contributing to the broader goal of sustainable aquaculture. Its journey—from an idea born in academic study to a tool used by farmers across Egypt and beyond—reflects the transformative power of bridging theory and practice, tradition and innovation.

ملخص عربي .12.2

يتمثل تطبيق AquaExpert خطوة كبيرة إلى الأمام في صناعة الاستزراع المائي، حيث يوفر منصة شاملة وسهلة الاستخدام تلبي احتياجات المزارعين السككين وشركات الاستزراع المائي والمحترفين في هذه الصناعة. ولد هذا التطبيق من رؤية تهدف إلى جعل المعرفة والخبرات متاحة بسهولة، وقد تحول من مفهوم إلى أداة قوية تعيد تشكيل مشهد الزراعة المائية.

في جوهره، يجسد تطبيق AquaExpert دمج الحكم التقليدية للاستزراع المائي مع التكنولوجيا المتقدمة. من خلال توفير ثروة من المعلومات حول جودة الأسماك، واختيار المعدات، وأفضل الممارسات في الصناعة عبر أقسام مثل AquaChoice و AquaExpert، يمكن التطبيق المستخدمين من اكتساب المعرفة التي كانت في السابق حكراً على الخبراء المتمرسين. بالإضافة إلى ذلك، فإن دمج الذكاء الاصطناعي وتعلم الآلة في ميزات مثل AI AquaDoctor AI يوضح كيف يمكن للتكنولوجيا أن تحدث ثورة في التحديات القائمة مثل اكتشاف الأمراض في الأسماك. يمثل هذا القاطع بين التقاليد والابتكار تذكيراً قوياً بأن التقني يمكن غالباً في احترام الممارسات القائمة بينما نتبني بجراة التقنيات الجديدة.

تكمّن قوّة التطبيق ليس فقط في موارده المعلوماتية، ولكن أيضًا في قدرته على تعزيز الروابط. من خلال AquaPhone و AquaMarket و AquaMedia ، أنشأ مجتمعاً متصلًا حيوياً حيث يمكن للمحترفين التواصل والتجارة وتبادل الأفكار. هذا النهج الشبكي مهم بشكل خاص في صناعة تعاني غالباً من التفتت والعزلة. في العديد من المناطق، يعمل المزارعون السككين في عزلة نسبيّة، بدون الوصول السهل إلى الأقران أو الموردين أو المشترين. يكسر تطبيق AquaExpert هذه الحواجز، مما يجعل الممارسين الفرديين إلى أعضاء في مجتمع عالمي للاستزراع المائي. هذا التحول من العزلة إلى الترابط يمكن أن يكون له تأثيرات عميقه، مما يسرع انتشار الابتكارات، ويدعم حل المشكلات بشكل تعاوني، ويعطي حتى المزارعين الصغار قرّة تفاوضية أكبر في السوق.

علاوة على ذلك، فإن التزام تطبيق AquaExpert بتمكين المستخدمين يتجلّى في مجموعة أدواته العملية. من AquaCalculator الذي يساعد المزارعين على تحسين عملياتهم إلى AquaConnect الذي يمكنه إدارة المزارع عن بعد، يوفر التطبيق حلولاً ملموسة تعزّز الإنتاجية والكافأة. هذه الميزات تعكس فهماً عميقاً أنه في الاستزراع المائي، كما في العديد من القطاعات الزراعية، يمكن للتحسينات الصغيرة أن يكون لها تأثيرات كبيرة. زيادة طفيفة في نسب تحويل العلف، أو تحسين هامشي في الوقاية من الأمراض يمكن أن يعزّز العوائد والربحية بشكل كبير. من خلال وضع هذه الأدوات التحسينية مباشرةً في أيدي المزارعين، يقوم تطبيق AquaExpert بنشر الوصول إلى تقنيات يمكن أن تحول سبل العيش.

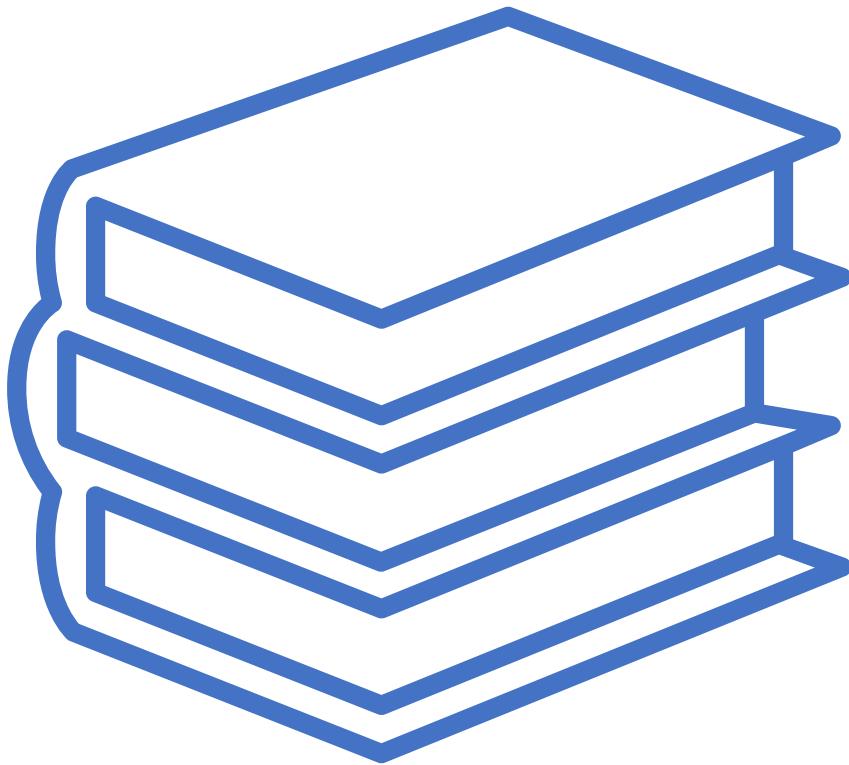
يعتمد النهج الاستراتيجي لتحقيق الأرباح على الميزات المتميزة مع الحفاظ على مستوى مجاني قوي، مما يضمنبقاء التطبيق متاحاً للجميع بينما يحقق الإيرادات اللازمة للنمو والتطوير المستدامين. هذا النموذج، مع الشركات الاستراتيجية وخططة التسويق القوية، يضع تطبيق AquaExpert في موقع لتحقيق النجاح طويل الأمد. كما يعكس فهماً متعمقاً لسوق الاستزراع المائي. في حين أن بعض المستخدمين، وخاصة العمليات التجارية الكبيرة، قد يكونون مستعدين لدفع ثمن الميزات المتقدمة مثل تشخيص الأمراض باستخدام الذكاء الاصطناعي، يعمل العديد من المزارعين الصغار بميزانيات محدودة. يضمن نموذج الفريميوم أن هؤلاء المستخدمين لن يتركوا خلف الركب، متناسياً مع مهمة التطبيق الشاملة لدعم الصناعة بأكملها.

بالنظر إلى المستقبل، فإن إمكانيات تطبيق AquaExpert هائلة. مع استمرار نمو الاستزراع المائي في الأهمية لتلبية الطلب العالمي المتزايد على المأكولات البحرية، ستكون الأدوات التي تعزز الاستدامة والكافأة والربحية مطلوبة بشدة. تتوقع منظمة الأغذية والزراعة للأمم المتحدة (الفاو) أن يوفر الاستزراع المائي أكثر من 60٪ من الأسماك للاستهلاك البشري بحلول عام 2030. لتلبية هذا الطلب بشكل مستدام - دون استنزاف المخزون البري أو تدهور النظم البيئية الساحلية - تحتاج الصناعة إلى ثورة تكنولوجية. مع ميزاته الشاملة وتصميمه الذي يركز على المستخدم واصدقاء المستخدم المبتكر للتكنولوجيا، يُتوقع تطبيق AquaExpert في مقدمة التحول الرقمي لهذه الصناعة.

علاوة على ذلك، مع إدخال تغير المناخ لمزيد من حالات عدم اليقين - من تغير درجات حرارة المياه إلى ظهور مسببات الأمراض الجديدة - ستكون الأفكار المدفوعة بالبيانات في الوقت الحقيقي التي يوفرها تطبيق AquaExpert أكثر أهمية. يمكن أن تتطور ميزات مثل AquaMap ، التي تساعد المستخدمين الآن في تحديد موقع المزارع والموردين، لتبني التحولات المتعلقة بالمناخ في المجتمعات الأسماك أو تحديد المناطق المعرضة لخطر ارتفاع مستوى البحر. وبالمثل، يمكن توسيع القرارات الذكية المستخدمة حالياً لاكتشاف الأمراض للتنبؤ بالمخاطر الصحية المتعلقة بالمناخ والتخفيف من حدتها. بهذه الطريقة، لا يملك التطبيق القدرة فقط على النمو مع الصناعة، بل أيضاً على مساعدتها في مواجهة التحديات المعقدة للقرن الحادي والعشرين.

كما يجدر التفكير في الرحلة الشخصية وراء تطبيق AquaExpert. كما تم تسلیط الضوء عليه في الفصول السابقة، نشأ هذا المشروع من سنوات من الدراسة الأكاديمية والخبرة العملية في استزراع الجمبري البحري. يعكس الانتقال من البحث العلمي إلى التطبيق العملي - من الدراسة تحت إشراف الأساتذة إلى بناء الأدوات للممارسين - تحولاً أوسع في كيفية نظرنا إلى الخبرة في العصر الرقمي. كانت النماذج التقليدية غالباً ما تحقق بالتعرف في الجامعات أو الشركات الكبيرة. اليوم، تجعل المبادرات مثل تطبيق AquaExpert المعرفة المتخصصة متاحة عالمياً، مما يحول مستهلكي المعلومات السليبيين إلى محللي مشكلات نشطين. إن هذا الديمقراطي في نقل الخبرة لها آثار تجاوز الاستزراع المائي، مثيرة إلى نماذج جديدة حول كيفية مشاركة وتطبيق المعرفة في عالم مترابط.

في الختام، يعد تطبيق AquaExpert أكثر من مجرد تطبيق محمول؛ إنه شهادة على كيفية تمكين التكنولوجيا للمجتمعات، وتيسير الصناعات، ومواجهة التحديات العالمية. من خلال تقديم المعرفة المتخصصة، وتعزيز الروابط، وتقييم حلول عملية، لا يدعم التطبيق المزارعين السككين الأفراد فحسب، بل يساهم أيضاً في الهدف الأوسع المتمثل في الاستزراع المائي المستدام. تعكس رحلته - من فكرة ولدت في الدراسة الأكاديمية إلى أداة يستخدمها المزارعون في مصر وخارجها - القوة التحويلية لدمج النظرية والممارسة، والتقاليد والابتكار.



References

13. References

1. Food and Agriculture Organization (FAO). (2020). "The State of World Fisheries and Aquaculture 2020." Rome. <https://doi.org/10.4060/ca9229en>
2. Bostock, J., et al. (2010). "Aquaculture: Global Status and Trends." Philosophical Transactions of the Royal Society B, 365(1554), 2897-2912.
3. Soto, D., et al. (2008). "Applying an Ecosystem-Based Approach to Aquaculture." In Building an Ecosystem Approach to Aquaculture. FAO.
4. Ottinger, M., et al. (2016). "Aquaculture: Relevance, Distribution, Impacts and Spatial Assessments." Ocean & Coastal Management, 119, 244-266.
5. Sadek, S. (2013). "Aquaculture in Egypt Under Changing Climate." Alexandria Research Center for Adaptation to Climate Change. [Specific to Egypt's challenges]
6. El-Sayed, A. F. M. (2017). "An Overview of Aquaculture in Egypt: Current Status, Constraints and Potential." Aquaculture International, 25(5), 1201-1214. [In-depth look at Egypt's industry]
7. Mehanna, S. F. (2020). "Sustainable Development of Egyptian Aquaculture: Opportunities and Constraints." Egyptian Journal of Aquatic Biology and Fisheries, 24(7), 517-529. [Aligns with your app's goals]
8. GAFRD & WorldFish. (2018). "Sustainable Transformation Aquaculture Project in Egypt." Project Report. [Key initiative your app could support]
9. Føre, M., et al. (2018). "Precision Fish Farming: A New Framework to Improve Production in Aquaculture." Biosystems Engineering, 173, 176-193. [Advanced tech in fish farming]
10. Jahan, I., et al. (2021). "Artificial Intelligence in Aquaculture: A Review." Reviews in Aquaculture, 13(4), 1870-1890. [Broad review of AI applications]
11. Nhu, V. C., et al. (2020). "The Potential Roles of Probiotics in Controlling Shrimp Diseases." Aquaculture, 521, 734990. [Relevant to AquaDoctor & disease management]
12. Martin, R. C. (2011). "Clean Code: A Handbook of Agile Software Craftsmanship." Prentice Hall.
13. Windmill, E. (2021). "Flutter in Action." Manning Publications.
14. Nielsen, J., & Budiu, R. (2012). "Mobile Usability." New Riders. [Critical for your app's user-centric design]
15. Hoober, S., & Berkman, E. (2011). "Designing Mobile Interfaces." O'Reilly Media. [Mobile-specific UX principles]
16. Li, D., et al. (2021). "Deep Learning for Plant Disease Detection." Plant Methods, 17(1), 1-18.
17. Saleem, S. H., et al. (2020). "Fish Species Classification and Counting in Underwater Videos Using Convolutional Neural Network." IEEE Access, 8, 181851-181861. [Relevant to expanding AI AquaDoctor]
18. Fernandes, J. A., et al. (2020). "Machine Learning Predicts Aquaculture Production." Nature, 579(7797), 33. [AI's predictive power in aquaculture]
19. Parra, L., et al. (2018). "Low-Cost Sensors for Aquaculture Tank Monitoring." Sensors, 18(3), 750.



SAMI ALAA SAMI

**AquaCulturist | Researcher
Programmer | Graphic Designer**



+20 1101129496



samibn3laa@gmail.com



KFR-El Sheikh

EDUCATION

Bachelor of Aquaculture and Biotechnology

Arish University

Faculty of Aquaculture and Marine Fisheries

Major: Mariculture

GPA: 3.38

2020 – 2024

ABOUT ME

I am an aquaculturist, programmer, and graphic designer with a **Bachelor's in Aquaculture and Biotechnology** from Arish University. I have interned at various aquaculture firms and researched garlic nanoparticles in fish feed. Proficient in Python, Dart, and graphic design, Sami blends technical skills with creative problem-solving. Recognized as the **Ideal Student in the Aquaculture faculty**, I actively participate in the Mediterranean Aquaculture Society, and I am fluent in English and Arabic.

WORK EXPERIENCE

Aquaculture Research Unit, Al-Arish University

Trainee and researcher in the field of aquaculture

2024 – 2023

Freshwater tilapia fish hatchery by Hajj Muhammad Ibrahim, Riyadh Centre, Kafr El-Sheikh

Trainee in aquaculture hatchery and production

2023

Engineer Ahmed Al-Hakim's farm in Al-Diba Triangle, Damietta

Aquaculture trainee

2022

AquTech Office, Port Said

Technical Support Trainee (Feed Additives, Tools and Other Aquaculture Materials)

2022

Unionaire Company, 6th of October City

Electronic equipment production line

2020

TRAININGS, VISITS AND WORKSHOPS

SOFT SKILLS

- Creativity
- Leadership
- Teamwork
- Critical Thinking
- Communication Skills
- Problem Solving

GAFRD – General Authority for Fish Resources Development

(Academic visit under the supervision of the Aquaculture Department, Faculty of Aquaculture and Marine Fisheries, Arish University – writing a book)

2023

GrandAqua Company, Industrial Zone - New Damietta

(Academic visit under the supervision of the Aquaculture Department, Faculty of Aquaculture and Marine Fisheries, Arish University – writing a book)

2023

Fish production farms (Haj Gharem farm, Haj Muhammad farm, fish sales), Al-Diba Triangle – New Damietta

(Academic visit under the supervision of the Aquaculture Department, Faculty of Aquaculture and Marine Fisheries, Arish University – writing a book)

2023

Shrimp Production and Management Training, SEC and WorldFish – Online

Workshop on using nanotechnology to support sustainable agricultural production and reduce greenhouse gas emissions, Faculty of Agriculture (Al-Shatby), Alexandria University

2023

A summer course on programming mobile applications using Flutter and the basics of freelancing, Ministry of Communications and Information Technology – online.

2023

Soft Skills Initiative for Youth 2030, EYouth – online.

2022

Computer science courses – online.

2021

National Institute of Oceanography and Fisheries (NIOF) and International Oceanic Institute (IOI) Workshop.

2021

LANGUAGE

- Arabic
- English
- French

HONORS AND MEMBERSHIPS:

Ideal Student, Faculty of Aquaculture and Marine Fisheries, Arish University, 2023 & 2024.

Graduates' representative at the Mediterranean Aquaculture Society, March 2024 to now.

Member, Mediterranean Aquaculture Society, since 2024.

SCIENTIFIC WRITINGS

- Sami, S.A., El-Dakar, A.Y., & Abdul-Aziz, M.F. (2024). "Growth performance, immune functions, and disease resistance of Nile tilapia (*Oreochromis niloticus*) fed on different levels of nano particles of Garlic (*Allium sativum*) as feed additives." Faculty of Aquaculture and Marine Fisheries, Arish University.
- Sami, S.A. (2024). "AQUAEXPERT APP Book: Revolutionizing Aquaculture." Faculty of Aquaculture and Marine Fisheries, Arish University.
- Sami, S.A., Ibrahim, O.M., & Mohamed, Y.T. (2024). **Ornamental Fish Farm Field Training Book**. Mariculture Program, Aquaculture and Biotechnology Department, Faculty of Marine Aquaculture and Fisheries, Arish University. Supervised by Prof. Ashraf Y. El-Dakar & Dr. Mohamed F. Abd-El Aziz. Arish, North Sinai, Egypt.



سامي علاء سامي

مهندس إستزراع سمكي | باحث علمي
مبرمج | مصمم جرافيك



+20 1101129496



samibn3laa@gmail.com



كفرالشيخ

التعليم

بكالوريوس في الإستزراع المائي والتكنولوجيا الحيوية

جامعة العريش

كلية الإستزراع المائي والمصايد البحرية

التخصص: الإستزراع المائي

المعدل التراكمي: 3.38

2024 - 2020

أنا مهندس إستزراع سمكي وباحث ومبرمج ومصمم جرافيك حاصل على درجة البكالوريوس في الإستزراع المائي والتكنولوجيا الحيوية من جامعة العريش. تدربت في العديد من الأماكن الخاصة بالإستزراع المائي وقمت بعمل بحث علمي حول جزيئات الثوم النانوية في أعلاف الأسماك. أتقن بعض لغات البرمجة مثل لغة بايثون ودارت والتصميم الجرافيكى، وأمزج المهارات التقنية مع حل المشكلات الإبداعي. أعرف بأنى الطالب المثالى في كلية الإستزراع، ولقد شاركت بدور ممثل الخريجين والطلاب والفئة الشابة في جمعية البحر المتوسط لـإستزراع وأنقذ اللغتين الإنجليزية والعربية.

نبذة عامة

خبرات العمل

وحدة بحوث الاستزراع المائي، جامعة العريش

متدربي وباحث في مجال تربية الأحياء المائية

المشاركة ببحث علمي في "بيانات الثوم النانوية في مقدمة إستزراع السمك والأسمدة الحيوية 2024" بالمركز الإقليمي للخلفية والابتكار، مركز البحوث الزراعية - وزارة الزراعة، الجيزة.

مفرخ المياه العذبة لسمكة البلطي للحاج محمد إبراهيم، مركز الرياض، كفر الشيخ

متدربي في تفريخ وأنقذ الأحياء المائية

مزارعة المهندس أحمد الحكيم بمثلث الدبيبة، دمياط

متدربي في تربية الأحياء المائية

مكتب أكواتيك، بورسعيد

متدربي دعم فني (اسفاف الأغذيف والأدوات ومواد تربية الأحياء المائية الأخرى)

شركة يورينيون اير مدينة 6 أكتوبر

خط إنذار للمعدات الإلكترونية

التدريبات والزيارات وورش العمل

جهاز حماية وتنمية البحيرات والثروة السمكية

(وزارة أكاديمية تحت إشراف قسم الإستزراع المائي كلية الإستزراع المائي والمصايد جامعة العريش - عمل كتاب لمقرر منظومة سمسكية)

شركة جراند، المنطقة الصناعية - دمياط الجديدة

(وزارة أكاديمية تحت إشراف قسم الإستزراع المائي كلية الإستزراع المائي والمصايد جامعة العريش - عمل كتاب لمقرر منظومة سمسكية)

مزارع إنتاج السمكي (مزارع الحاج غانم، مزارع الحاج محمد، مبيع أسماك)، مثلث الدبيبة - دمياط الجديدة

(وزارة أكاديمية تحت إشراف قسم الإستزراع المائي كلية الإستزراع المائي والمصايد جامعة العريش - عمل كتاب لمقرر منظومة سمسكية)

التدريب على إنتاج وإدارة إنتاج الجمبري، WorldFish, SEC - عبر الإنترنت

ورشة عمل استخدام تكنولوجيا النانو لدعم إنتاج الزراعي المستدام وتقليل انبعاثات الغازات المسببة للاحتباس الحراري، كلية الزراعة (الشاطئي)، جامعة الإسكندرية

دورة صيفية عن برمجة التطبيقات الموبайл باستخدام Flutter وأساسيات العمل الحر، وزارة الاتصالات وتكنولوجيا المعلومات - عبر الإنترنت.

مبادرة المهارات الشخصية للشباب 2030, EYouth - عبر الإنترنت.

دورات خاصة بعلوم الحاسوب - عبر الإنترنت.

ورشة عمل المعهد الوطني لعلوم المحيطات ومصانع الأسماك (NIOF) والمعهد الدولي للمحيطات (IOI)

العضويات والجوائز:

الطالب المثالى، كلية الإستزراع المائي والمصايد البحرية، جامعة العريش، 2023 & 2024.

ممثل الخريجين والطلاب بجمعية البحر المتوسط لـإستزراع المائي وحماية البيئة، مارس 2024 للان.

عضو، بجمعية البحر المتوسط لـإستزراع المائي وحماية البيئة، منذ 2024.

الكتابات العلمية

- Sami, S.A., El-Dakar, A.Y., & Abdul-Aziz, M.F. (2024). "Growth performance, immune functions, and disease resistance of Nile tilapia (*Oreochromis niloticus*) fed on different levels of nano particles of Garlic (*Allium sativum*) as feed additives." Faculty of Aquaculture and Marine Fisheries, Arish University.
- Sami, S.A. (2024). "AQUAEXPERT APP Book: Revolutionizing Aquaculture." Faculty of Aquaculture and Marine Fisheries, Arish University.
- Sami, S.A., Ibrahim, O.M., & Mohamed, Y.T. (2024). *Ornamental Fish Farm Field Training Book*. Mariculture Program, Aquaculture and Biotechnology Department, Faculty of Marine Aquaculture and Fisheries, Arish University. Supervised by Prof. Ashraf Y. El-Dakar & Dr. Mohamed F. Abd-El Aziz. Arish, North Sinai, Egypt.