

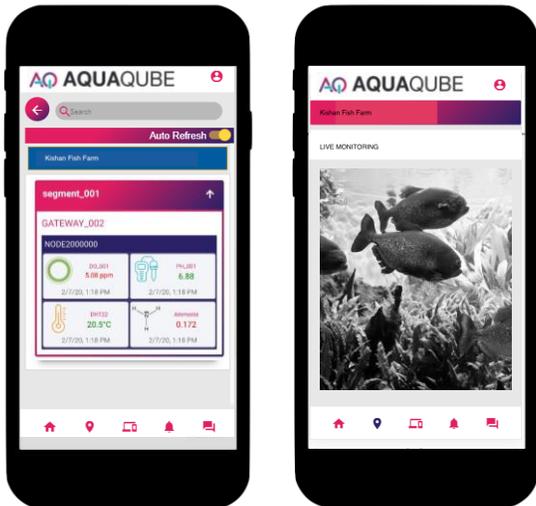
AQ AQUAQUBE

✓ Grow your fish 12-15% faster

✓ Reduce operation cost by 15-20%

✓ Mobile app with 24x7 water quality check

✓ Increase fish stocking up to 10-15%



AQUAQUBE® allows fish farmers to monitor water quality, predict the growth of their fish and adjust their feeding regimes appropriately. It leverages machine learning to turn valuable aquaculture data into powerful business insights.

Address production challenges such as fish illness or insufficient weight gain earlier on in the process and ultimately predict harvest times with greater certainty than ever before.

AQUAQUBE is equipped with multiple IoT based sensors that measure a dozen of the most relevant fish farming parameters. The parameters measured include pH, dissolved oxygen (DO) and temperature.

✓ Dissolved Oxygen (DO) ✓ pH ✓ Temperature

We at MSQUBE are proud to introduce highly accurate, all-in-one, low power **AQUAQUBE** that helps farmers and experts monitor their ponds with past, present and future water quality parameters.



Analytical Performance Report

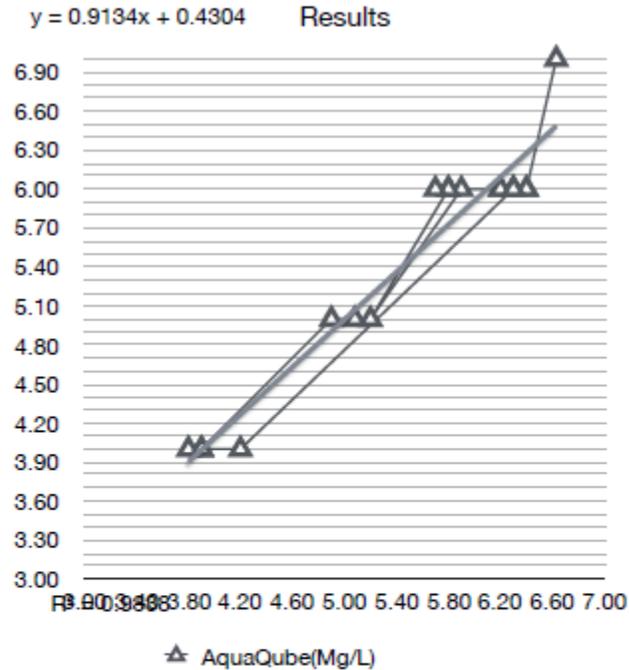
Dissolved Oxygen

Challenges	Every fish needs dissolved oxygen to survive. Oxygen depletion leads to slower growth and, in the worst case, can mean the death of fish.
Our PoV	Permanent oxygen measurement protects the fish against oxygen deficiency and reduces waste of money due to overdosing.
Our Innovation	AQUAQUBE collects real-time DO data seamlessly, sends alert if its lower than 4 (customizable). In addition, we automate the aerators if they run on electricity.

Performance summary:

DO

Date	AquaQube(Mg/L)	ICAR Test Kit(Mg/L)
29/01/2020	6.6	7.0
30/01/2020	6.4	6.0
31/01/2020	6.3	6.0
01/02/2020	6.4	6.0
02/02/2020	6.2	6.0
03/02/2020	5.8	6.0
04/02/2020	5.2	5.0
04/02/2020	5.9	6.0
05/02/2020	5.8	6.0
06/02/2020	5.7	6.0
07/02/2020	6.3	6.0
07/02/2020	6.2	6.0
08/02/2020	6.3	6.0
08/02/2020	4.2	4.0
09/02/2020	3.9	4.0
10/02/2020	3.8	4.0
11/02/2020	3.9	4.0
12/02/2020	4.9	5.0
13/02/2020	5.1	5.0



Range	Resolution	Accuracy	Waterproof
0~20mg/L or 0-200% Saturation	0.01 mg/L	± 0.3 mg/L	IP68

pH

Challenges	Natural bodies of water usually have a pH value between 6.5 and 8.5 scale. Too high or too low pH values can lead to illness or death of fish, plants and microorganisms
Our PoV	For instance, a pH value of <4 or >10.5 will lead to the death of all native fish species. If a too high pH value is registered, it needs to be checked whether natural or unnatural sources have caused the deviation.
Our Innovation	AQUAQUBE collects real-time pH data seamlessly, alerts on any abnormality and keep ponds in optimal conditions.

Performance summary:

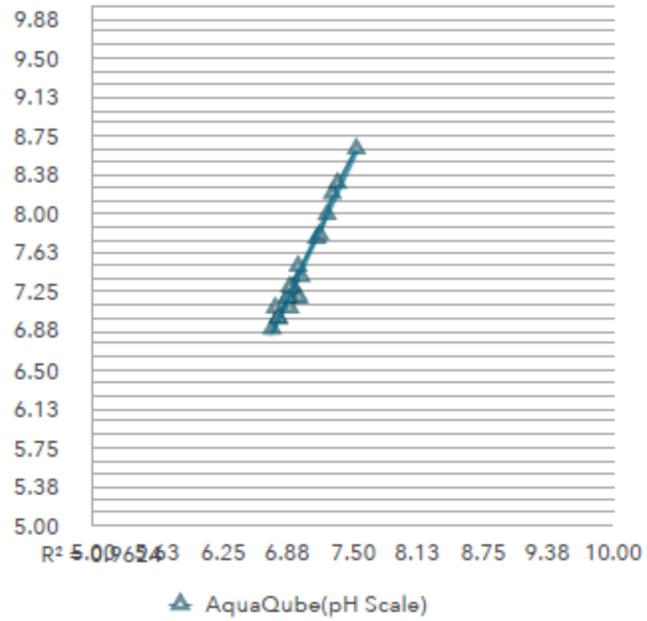


pH

Date	AquaQube(pH Scale)	ICAR pH Test Kit(pH Scale)
29/01/2020	7.0	7.2
30/01/2020	6.9	7.1
31/01/2020	7.0	7.2
01/02/2020	6.9	7.2
02/02/2020	6.8	7.0
03/02/2020	6.8	7.1
04/02/2020	6.7	6.9
04/02/2020	6.8	7.0
05/02/2020	6.9	7.2
06/02/2020	7.0	7.4
07/02/2020	7.0	7.5
07/02/2020	6.9	7.3
08/02/2020	6.9	7.3
08/02/2020	7.2	7.8
09/02/2020	7.2	7.8
10/02/2020	7.3	8.0
11/02/2020	7.3	8.2
12/02/2020	7.4	8.3
13/02/2020	7.5	8.6

$y = 2.1616x - 7.6681$

Results



Range	Resolution	Accuracy	Waterproof
0.0 - 14.0 units	0.01 units	±0.2 pH	IP68

Temperature

Challenges	Fish are "cold-blooded" or "warm-blooded" and therefore assume the temperature of the water they live in.
Our PoV	Body temperature, and thus the water temperature, has an effect on level of activity, behaviour, feeding, growth, and reproduction of the fish.
Our Innovation	AQUAQUBE collects real-time temperature data and display in the app

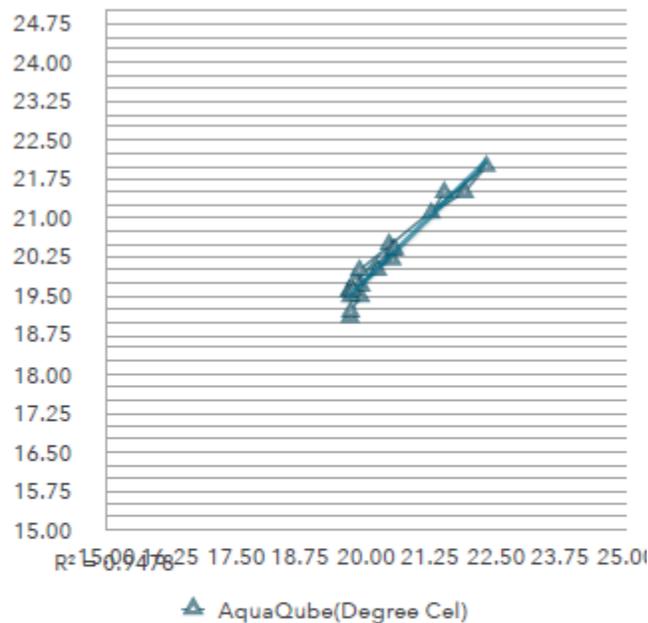
Performance summary:

Water Temperature

Date	AquaQube(Degree Cel)	ICAR Temp Monitor(Degree Cel)
29/01/2020	19.7	19.1
30/01/2020	19.7	19.2
31/01/2020	19.9	19.5
01/02/2020	19.7	19.6
02/02/2020	20.4	20.5
03/02/2020	20.5	20.2
04/02/2020	20.5	20.4
04/02/2020	19.7	19.5
05/02/2020	19.9	19.7
06/02/2020	19.7	19.6
07/02/2020	19.8	19.8
07/02/2020	20.6	20.4
08/02/2020	20.2	20.0
08/02/2020	19.8	19.6
09/02/2020	19.9	20.0
10/02/2020	22.3	22.0
11/02/2020	21.9	21.5
12/02/2020	21.3	21.1
13/02/2020	21.5	21.5

$$y = 0.9888x + 0.0382$$

Results



Range	Resolution	Accuracy	Waterproof
0 - 45 °C (32-113°F)	0.1°C	±0.2°C	IP68

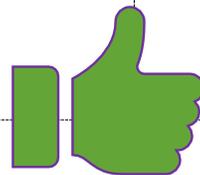
AQUAQUBE® smart pond value proposition and benefits

High Performance and Reliability

- ✓ The success lies on accuracy and consistent data in varied conditions.
- ✓ We partner with top world leaders in Sensor devices
- ✓ Our solution is cost effective to cater tight operating margin in Food industry
- ✓ Peace of mind for maintenance and future upgrades

Affordable and Easy-to-deploy Technology

- ✓ AQUAQUBE® is an Integrated Multi-Trophic Aquaculture (IMTA) creating an environment friendly aquaculture
- ✓ All Ponds and all devices are connected thru single central platform
- ✓ 360-degree view with historical learnings
- ✓ Realtime and wirelessly connected (LoRa Network)



Smart Systems for Smart Aquaculture

- ✓ Continuous 24x7 data flow identifying hazards for potential disease outbreak
- ✓ Monitor anywhere anytime on Smart phones
- ✓ Proactive alerts (Voice, SMS, Buzzer etc.)
- ✓ Analytics and intelligent insights models with learnings from past data

Achieve Better Yield and Efficiency

- ✓ Reduce Fish and seed casualties by 30-40%
- ✓ Reduce Power bill by automatic control of aerators based on DO level
- ✓ Better FCR (Feed Conversion Ratio)
- ✓ Operate with Low Energy
- ✓ Increase Yield by 30%

AQUAQUBE® Differentiator

AQUAQUBE® is a complete SaaS offering capable of real-time monitoring through IoT sensors. Some of the key highlights are mentioned below which can prove to be immensely beneficial for smart pond implementation.

- ✓ Absolutely zero hardware installation required for the end user
- ✓ Easy to integrate any new sensor as applicable in future course of action
- ✓ Valuable insights on optimum environment condition for a particular fish breed based on historical data analytics
- ✓ Future prediction for most profitable fishing trends

