Aquaculture Monitoring System

The Application :
Complete Monitoring and Supervision System for Aquaculture

1. **Buyer requirements:**

- A monitoring system for Aquaculture that allows remote supervision of the water & environmental conditions.
- Communication of data to GA server and presentation of current and historical data on password protected Website.
- Storage of data on GA server. Data accessible from any internet connected device. No effort from the end-user.
- Cost efficient system.
- Simple and robust system that requires no effort from end-user and minimal maintenance.
- Stand-alone offshore system (energy autonomous system) through solar energy.
- Core system extendable with multitude of sensors.

2. **Seller deliverables:**

- Supplying state of the art equipment on a restricted budget.
- Effort on setting up the custom made website and maintaining it.
- Solar energy system must be robust and provide adequate power based on environmental calculations.

3. **Results:**

The system, installed in South America, has been operational since 2013. Together with the TidePredictor software, the LOG_aLevel system is providing reliable information for waves and tides. The client has 24/7 access to data through a website that is hosted by General Acoustics. All data all locally saved on the data-logger as backup and are transmitted through GPRS to a Server in Germany where they are stored and managed. The client therefore has a simple and user friendly access to information. The 2D current meter is deployed about 20 meters away from the LOG_aLevel system. The solar power system and wind sensor are marine grade systems with a solid track record. The system is optimized for very low maintenance thanks to remote-sensing technology, durable, high-grade materials, , special corrosion protection and extended temperature range of all electronic components. Minimal maintenance is required from the client.

Hydrological Monitoring

This system is easily extendable to include hydrological sensors including:

- oxygen level
- pH level
- CTD Multi-parameter sensors
- ADCPs

The system was installed by a local partner company with pre- and during installation remote support from General Acoustics. The partner company also provided the client with a suitable SIM card for the GPRS.

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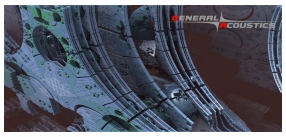
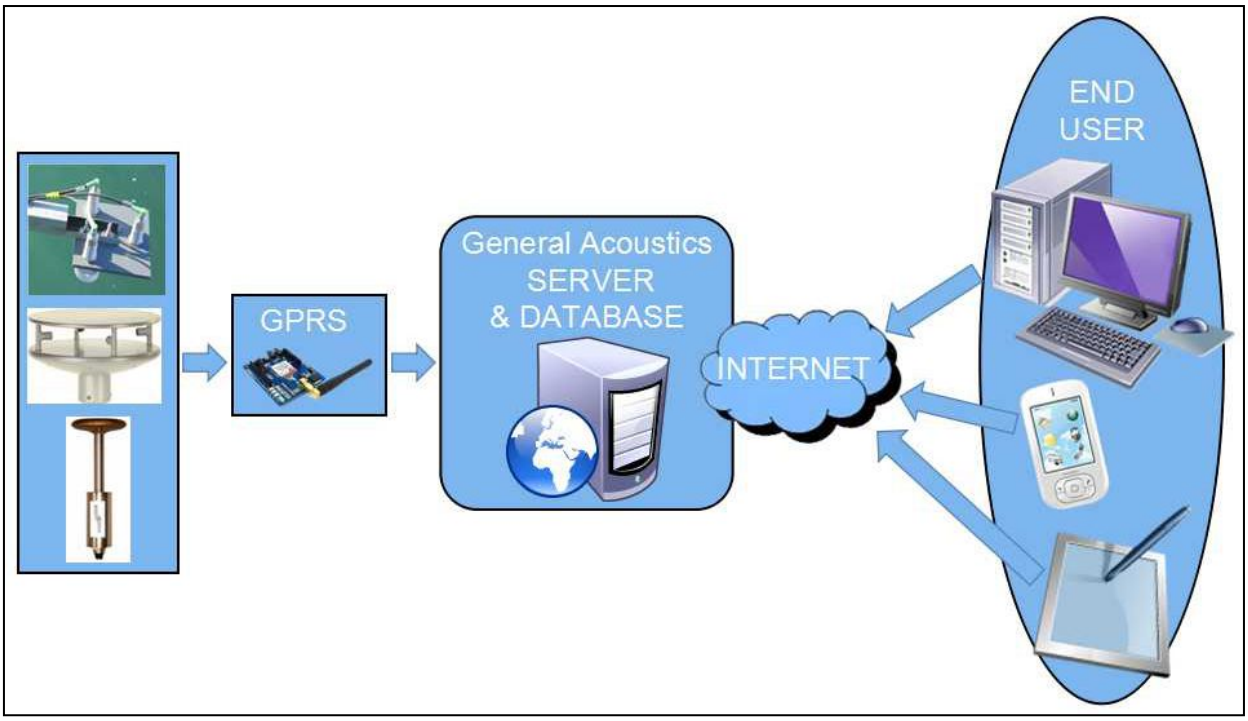
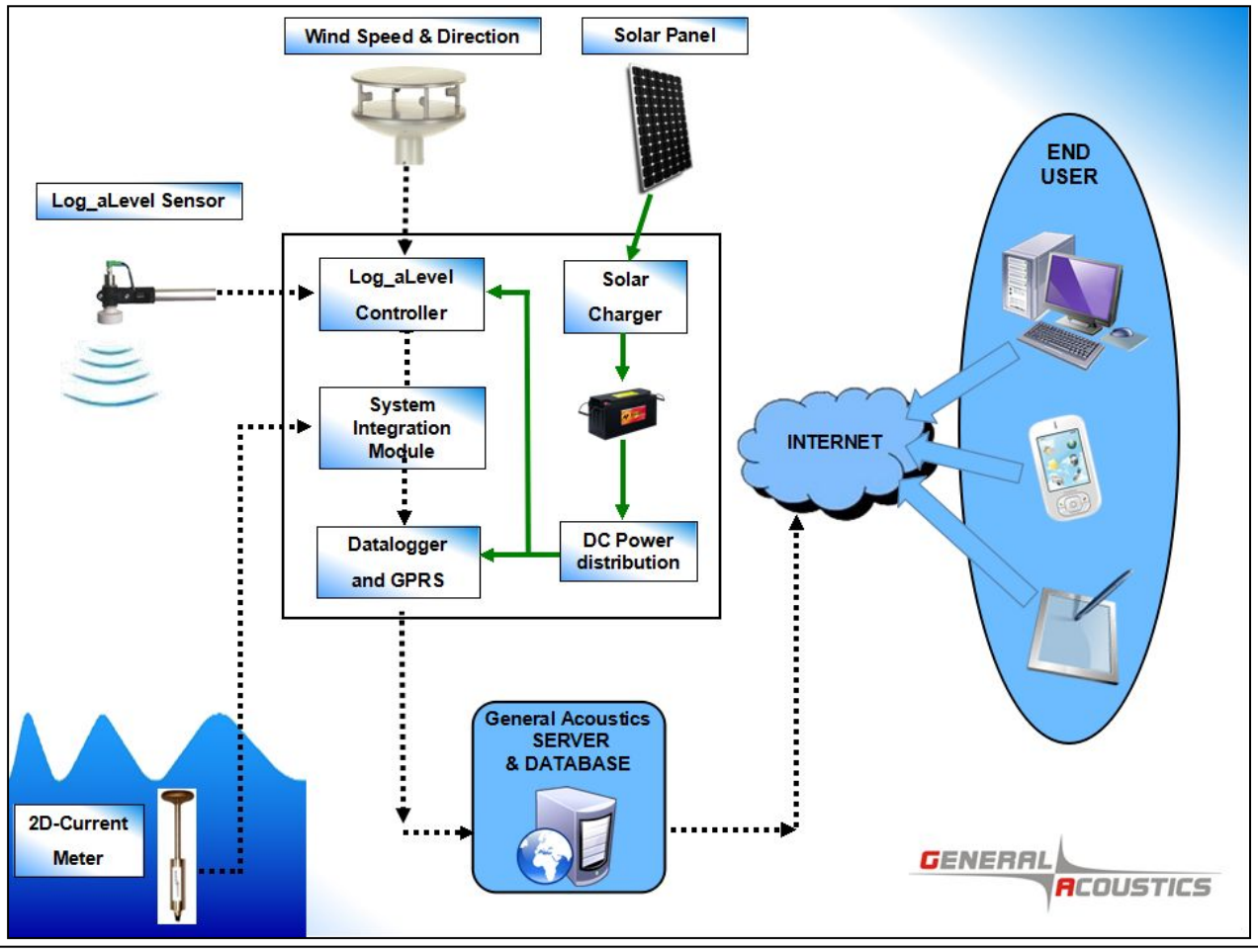
The system components were the following:

Ultrasound LOG_aLevel sensor  • Wave • Water Level • Tide	**Mechanical Anemometer**  • Wind speed • Wind direction	**Inductive 2D Current Meter**  • Flow
GPRS module  • Data Communication from LOG_aLevel station to GA Server	**Solar Power System** - 2 x 100Wp Solar Panels - MPT charge regulation - 2 x 110 Ah AGM Batteries  • Adequate power and power regulation for the offshore platform	**Data logger** - SD 4 Gbyte  • Data backup for 12 months of recordings
Electronics Housing  • Housing for the electronic components on the platform that provides adequate protection	**TidePredictor software**  • Tide Analysis • Tide Prediction	**Water Temperature** 
Chlorophyll 	**Fluorescein** 	**Turbidity** 





Meteorological Monitoring

Individual sensors for barometric pressure, etc as well as complete meteorological stations can be also easily integrated.