

The GPAC System®

Industry

Aquaculture Life Support System Automation

Proposed Business

Reliable, inexpensive, non proprietary aquaculture automation system using web based technology.

Contact

ETCorp Pty Ltd

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Overview

The GPAC System® is an Internet (IP) based software application which has been developed to enable a low cost, user friendly automation of processes including remote monitoring and control of sensors, devices and cameras. The technology is a superior solution for a range of traditional PLC applications, offering greater reliability, ease of use and flexibility at a significantly lower cost of installation and ownership.

Benefits Summary

Key savings in the cost of ownership include significantly reduced programming time, minimised engineering fees, installation costs, site acceptance and commissioning effort when compared to traditional PLC technology. The system has been designed to be installed by qualified electricians who have network cabling experience rather than specialised electronic engineers.

Users are easily trained to reprogram their own devices, via menus on the friendly browser interface. As the system is web based, no client side software is required to access the system making it very portable.

Development Summary

The software is in its 3rd generation and has been used for three years automating nearly 100 devices, sensors and pumps in the Aquarium at the WA Department of Fisheries, Research and Education Facility at Hillarys.

Novelty

Technology Benefits Description

- Open Standards (client not locked into one proprietary vendor)
- Integration of video cameras
- Web based & user friendly
- Infinitely scalable, flexible & easy to install
- Real time data access and SMS alarms
- Significantly lower total cost of ownership
- Significantly lower maintenance costs
- Remote management from any browser (no client software) means after hours staff can check alarms via any browser (even mobile)

Technology Differentiation/Uniqueness

The Hillarys site was a comprehensive and detailed project which comprised the design, manufacture, testing, delivery, installation and commissioning of the control system for the aquariums life support system. In addition to the internal sensors and solenoids, large seawater pumps were automatically controlled to fill reservoirs, and these systems included sand release valves, backwash filters and various high pressure switches. In general the GPAC System® was similar in capability and function to a traditional PLC system but is more easily scaled, is very simple for users to communicate with and has infinitely more programming flexibility.

A custom interface was designed for this project to visually display instrumentation status which included: pumps, alarms, magnetic flow meters, pulse flow meters, temperature transmitters, pressure transmitters, salinity gauges, level transmitters and salinity gauges. It will be possible with future software upgrades to access this data via mobile phone.

The client is able to securely log onto the GPAC System® server at any time to reconfigure devices or just to monitor the system. More importantly, this device reconfiguration or reprogramming is software driven and is done by the user via easy to use menus, negating the need and expense of specialty PLC engineers and maintenance contracts. For example, environmental tolerances and alarm thresholds for this system could be reprogrammed from any browser in the world.

Students and Scientists have access via the internet to real time data logs making research less labour intensive. Device reconfiguration does not affect the ongoing access or running of the system.

Development Status and Potential Applications

Development Status Summary

The product is in a continuous state of development and the technology roadmap includes the addition of features such as:

- Analogue filtering to normalise data and exclude errors from the data set.
- Pulsed and timed digital outputs which could be used with scheduling to discretely moderate tank water temperatures.
- Interface improvements to enable users to easily customise their own GUI by uploading floorplans/diagrams or pictures. Additionally the users will also be able to drag and drop devices onto the interface to visually represent the physical system, complete with alarm states and device status.
- Complex triggers which accept input from many devices.

Despite our own technology roadmap, we are focussed on being responsive to client requirements and of their domain expertise which helps us to improve the technology for the industry in general.

Development Stage

Whilst the technology has been successfully implemented in large international, Homeland Security projects, the environmental monitoring market has been identified as an area which has been slower to adopt new technologies. IP technology currently used for automation in other industries has very strong advantages over the incumbent PLC technology in aquaculture.

Despite the obvious initial cost benefits over PLC technology, the system has been shown to offer much more flexibility with regard to automation and scalability. The system has been designed to integrate a large number of systems over a wide area and thus it would be possible to manage several remotely located systems from any location in the world.

Presently we are developing a WAP interface which will allow users to monitor and access data remotely from a mobile phone using 3G technology.

Intellectual Property Status

The core technology is patented internationally and is based on 10 years of research which has been supported by the Australian Government.

Source Company Demographics

Region

Perth, WA, Australia

Years in Business

Seven years

Company Type

ETCorp Pty Ltd, is a proprietary company but is not listed on the Australian Stock Exchange. www.etcorp.com

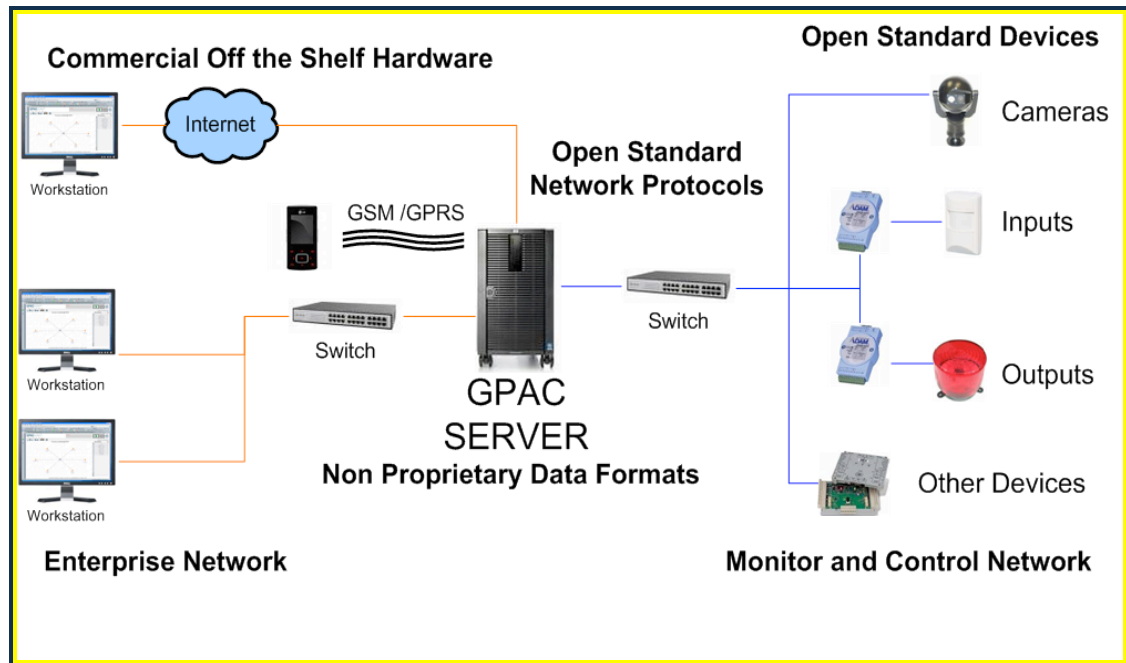
Related Competencies

Environmental Monitoring, Sensor Network control, Mobile device access and control - Platform to integrate, control and automate remotely located sensors, cameras and networks of devices onto one simple to use platform. Integration of disparate security and building management systems. Remote command and control systems retrofitted into emergency services vehicles.

Provider Tech Transfer Transaction Experience

Extensive local and international experience in supporting technology training and transfer transactions, which simplified by the web based technology platform (everyone can use a browser) and the fact that the system uses open standards.

Technical Details



Next Step

We are seeking opportunities & partners to make web based automation in aquaculture systems commonplace, and would like to further develop our product specifically within this field.

The company possesses a superior technical knowledge and product for automation, but limited specialist domain expertise. We would like to partner with a reseller or client who has the personnel, reputation and domain knowledge to offer a turnkey solution to users, based on our unique technology platform.

Available Technology Assistance

For qualified projects we can supply technical assistance in the form of personnel, system training for users and installers, detailed specifications and technical documentation.