SmartAcq – SmartBay Data Acquisition System

Institution/Company name	SmartAcq – SmartBay Data Acquisition System
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☐ **Key words**

Communications - Data management - Sensors / instruments / electronics - Software engineering / development

☐ **Description**

SmartAcq is a **next generation communications solution providing resilient and reliable networked communication to and from buoys in all weather conditions**. Adding on buoy services and replacing the current power hungry solution. SmartAcq Architecture comprises of 5 core services;

1. Buoy Client
2. Sensor Data Server
3. Database service
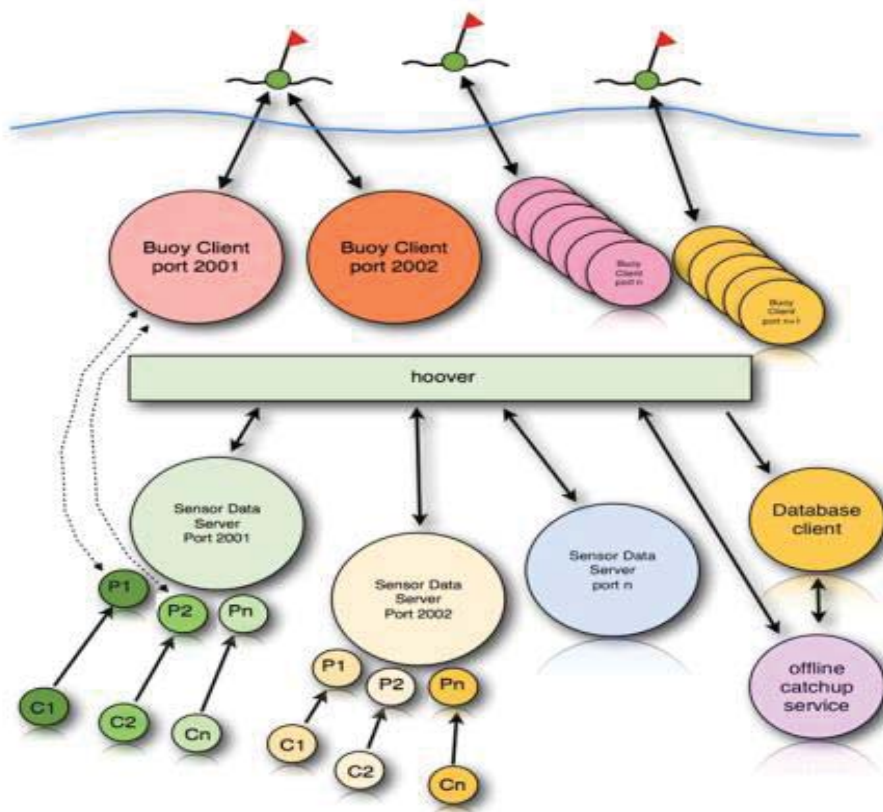4. Catchup service
5. Off mooring tracker service

- Highly parallelised architecture

- Easily configured and scales automatically

The SmartBay SmartAcq Architecture incorporates features to maximise use of available communications bandwidth and secure delivery of data using compression and VPN connectivity. A key feature of SmartAcq is its resilient data communications module. This facilitates maintaining multiple data links in a harsh marine environment at sea where there are potential interruptions to data flow particularly in adverse weather conditions.

The Software on the SmartAcq base station receives the data from the remote Hoover platform controller and stores it internally. In addition to this, it can also write the data in a number of different formats as follows:

- To a file on the local disk
- To a file on a share on the local network
- To a SQL based server, such as MS SQL server, Oracle....

- Remotely to an FTP server

☐ **Applicability of Technology to Maritime SMES**

SmartAcq is a data telemetry system developed in-house by SmartBay. It supports multiple communications channels to shore, with variable bandwidth up to about 30mbps including Wi-Fi, 3G, UHF/VHF or satellite (on-demand). SmartAcq can receive data in analog or digital form from over 30 sensors simultaneously, pre-process this data and send it to shore in a secure way, featuring a no data-loss scheme to preserve data collection when the links to shore break. The system is configurable and monitorable over the air.

The software on the base station allows the rapid visualisation and management of the remote platforms, including remote access to vital systems on health information as well as details on power status. The user friendly interface allows simple administration of metadata related to the systems, as well as updating of calibration information for instruments and managing general data collection issues. The frequency and format of the data messages can be controlled by the end user depending on operational requirements.

SmartAcq could be used by a variety of users for reliable data transfer e.g. in Aquaculture, Environmental monitoring, Fisheries, Marine renewable energy, Oil and gas, Transport and shipping.