

Subsea Software

Software Solutions for the Underwater Space

As the chosen tool for a succession of underwater applications, unmanned underwater vehicles (UUV's) are rapidly becoming an imperative requirement in subsea operations for the military, coastal security and oil and gas industries.

Though such vehicles are built to withstand some of the world's most harsh environments, the quality and accuracy of the mission, inspection or survey is often dependent upon many external factors, such as the experience and ability of the operator, the quality of hardware and the capacity to interpret and present multiple layers of data.

SeeByte, an Edinburgh-based software company, specialises in creating the most advanced smart software systems for unmanned vehicles, providing a higher level of awareness, autonomy and control that is less operator dependant and is centred upon transforming data into actionable information for imminent decision-making and planning.

SeeByte's SeeTrack Military software is the de facto tool for mission planning and mine countermeasures for twelve of the world's navies, whilst SeeTrack CoPilot and SeeTrack AutoTracker have seen the company partner with leading oil and gas corporations such as BP, Chevron and Subsea 7 to provide unsurpassed control for remotely operated vehicle (ROV) and AUV (Autonomous Underwater Vehicle (AUV) duties.

Why Use Smart Software?

Fast, safe and reliable operations are key to producing cost-effective and productive missions – a fundamental requirement for sub-sea industries. SeeByte's smart software has led the way in providing these capabilities, saving customers money and valuable man-hours.

Such technology lessens the risk of human error by providing a level of autonomy and control to UUV's, allowing accurate and responsive

operations and data. Using SeeByte's smart software technology, inspections can be achieved in 20% of the time taken for a manual inspection, data is clearer and surveys and missions can be pre-planned and stored for future use and reference.

Not only will these technologies improve current operations, they can support performance evaluation of personnel and other assets, monitor changes to the subsea environment over time and integrate with the industry's most recognised vehicles and hardware.

Within the oil and gas industry, current requirements placed upon UUVs for tasks such as pipeline surveys, underwater structure inspection and salvage missions are becoming increasingly demanding, meaning that the vehicles and operator's abilities are pushed to their limits.

In order to lessen the demands placed upon operators, smart technology, such as SeeByte's SeeTrack Copilot which can be easily retro-fitted to a wide selection of commercial ROV's, offers vehicle control for changing and holding position and heading, moving relative to a target and cruising at a constant speed and heading.

By providing these capabilities, operators can focus on the task at hand with a higher level of confidence in the

vehicle control, which has been proven to take half the time of many subsea tasks.

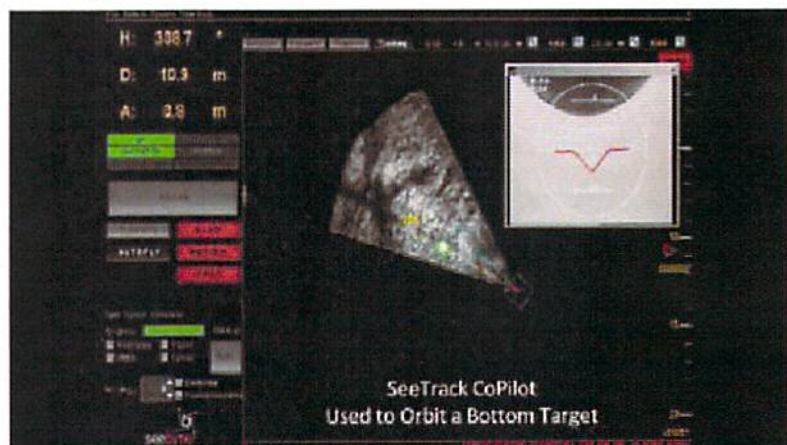
Emmanuel Ekpeyong, CEO of Geodetic Offshore Services Limited, has recently chosen to use smart software for offshore pipeline surveys, inspection surveys and tooling capabilities.

Ekpeyong said, "The concentration and skill required to manually manoeuvre the vehicle shows what a difficult task pilots are faced with, and by simply adding smart software, the mission becomes a much simpler and efficient act."

Smart software is also a regularly used solution by the world's militaries, specifically for identification and classification of objects. The need for situational awareness within the underwater battle space is imperative for creating a safe environment for human operators.

Prior to the development of this technology, missions were conducted by a series of assets from which data was gathered, manually assessed and pieced together before any further action could be taken. This resulted in time-consuming processing, putting front-line operators at risk.

SeeTrack Military, SeeByte's smart software solution for the military, provides users with the capability to



SeeTrack CoPilot used to orbit a bottom target



Easytrak Nexus is the second generation USBL tracking system from Applied Acoustics.

With Broadband Spread Spectrum technology at its heart, Nexus has the ability to transfer digital data from subsea to surface, all the while continuing to provide secure and stable positioning information in challenging environments. Versatile, flexible and simple to install and operate, Easytrak Nexus is tracking, made easy.

rapidly plan a mission, gather data and integrate it into one layered image of the underwater space in a significantly reduced time with fewer errors or false alarms.

Announcements made at the end of last year by the US Department of Defense show continued support for smart software solutions through on-going funding of control software for navy explosive ordnance disposal teams.

Todd Webber of Space and Naval Warfare Systems Center, PACIFIC, commented, "Speedier and smarter decisions, enabled by the intuitive assistance provided by SeeByte's smart software solutions, will significantly enhance the timeliness and effectiveness of our operations."

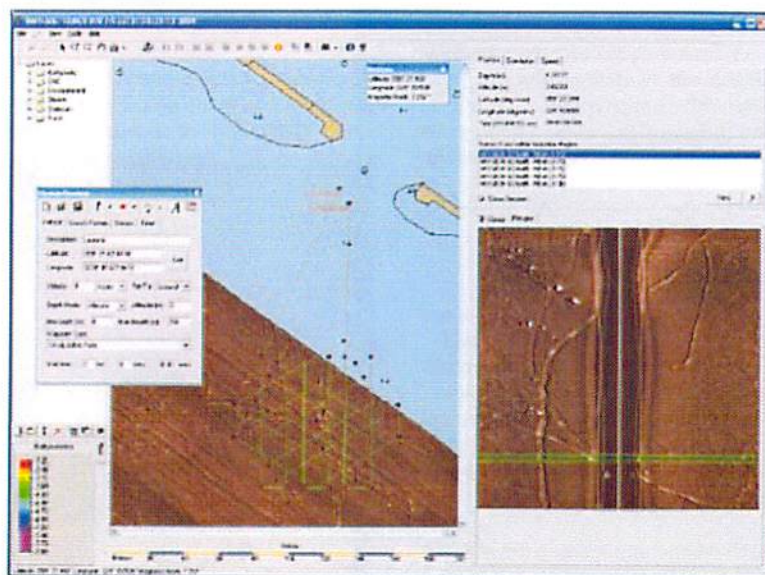
Bob Black, SeeByte CEO, commented, "It is clear that the future of smart software will see UUVs used for fully autonomous inspections, for deeper operations and in harsher environments. SeeByte intend to lead the way through our innovative smart technologies to continue to make subsea operations more efficient and cost effective."

Most recently, SeeByte has shown the significance of smart software solutions through working in a combined project

team with leading seabed-to-surface engineering, construction and services company Subsea 7. Supporting the development of Subsea 7's first commercially autonomous inspection vehicle (AIV), SeeByte has designed and implemented the software required to dynamically control this hover-capable vehicle, which is to be used routinely in life-of-field projects. Following completion of extensive trials and further development over the

coming months, Subsea 7 look forward to bringing the first commercial AIV into operations towards the end of 2011.

Neil Milne, Subsea 7's Vice President also commented about AIV: "With the arrival of the AIV, subsea structures such as manifolds, wellheads and risers will be able to be inspected by this tether-less technology, significantly increasing flexibility and efficiencies throughout the life-of field cycle."



SeeTrack AUV mission planning