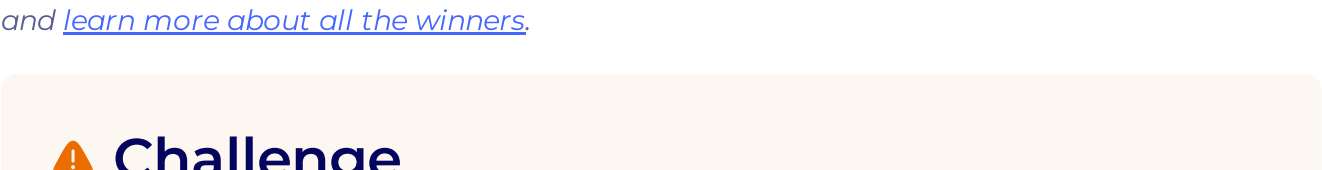




Advanced vessel fleet monitoring and fuel management system for offshore oil and gas operations



This project won the Grand Prix at the IoT project of the year 2024 contest. Explore the article and [learn more about all the winners](#).

Challenge

A marine transportation and logistics company from Nigeria, Dewayles International Group, leases vessels and marine jack-up barges to Chevron, one of the world's leading energy companies, for use on offshore oil and gas work locations.

Dewayles needed to implement real-time vessel GPS tracking and a fuel monitoring solution to meet Chevron's specific requirements. Both companies were interested in gaining control over the fleet, reducing potential fraud, and improving the efficiency of the vessels.

Solution

[ActiveGuard Telematics](#), a Wialon partner through its subsidiary company Hypercom Network, took on the project to help Dewayles optimize its fleet operations and comply with the key client's requirements.

Project components

ActiveGuard offers vessel fleet monitoring and GPS tracking of boats, barges, and other related services to many clients. With 25 years of expertise, they were able to select tried-and-tested components for the project, namely:

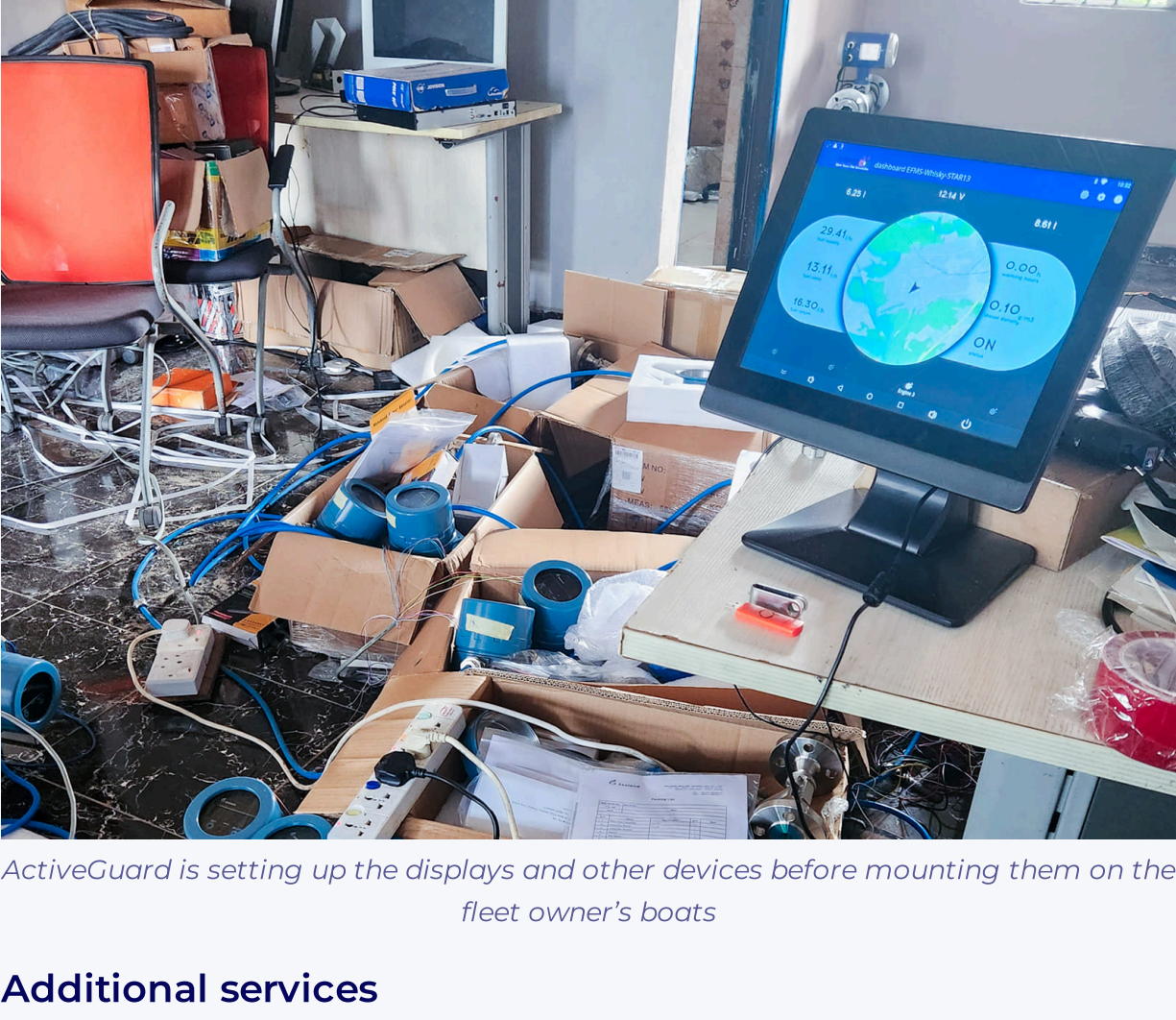
- Coriolis flow meters** were installed on the fuel lines of the main engines, auxiliary engines, diesel generators, and boilers/heaters. They were chosen for this project due to the client's demand for a high level of accuracy and reliability.

- Mechatronics fuel level sensors** were installed in the fuel tanks to deliver real-time data on the fuel levels in the starboard and portside tanks.
- GPS tracking devices** from [Galileosky](#) collect information from the fuel tracking equipment and send it to **Wialon**, the [fleet management platform](#), together with information about location, speed, and data from other sensors. In Wialon, the fleet owner and their client can monitor vessels in real-time and build reports on vessel movements, fuel usage, carbon emissions, etc.

The screenshot shows the Wialon dashboard with a map of the Gulf of Guinea. On the left, a sidebar lists vessels and their status. A detailed view of a vessel shows sensor values: Speed: 0.00 Knot, GHub External Power: 12.15 V (24 s ago), Portside Fuel Tank: 6217.80 l (26 s ago), Starboard Engine Diesel Temp: 29.63 °C, Starboard Engine Diesel Return Flow Rate: 0.00 L/min, Starboard Engine Return line flowmeter status: On, GHub Power: 3.75 V (24 s ago), Starboard Fuel Tank: 7678.52 l (24 s ago), Starboard Engine Status: Off, Starboard Engine Diesel Supply Flow Rate: 0.00 L/min, Starboard Engine Supply line flowmeter status: On, Starboard Engine Total Hours: 55.85 h, Total Starboard Engine Diesel Supply.

The system provides real-time alerts on the engine status, ensuring the team is informed of issues without running a detailed health check

- Starlink Internet** was deployed on the vessels to provide Wi-Fi connectivity throughout the ship and enable remote viewing of the onboard CCTV/IP cameras.
- 21-inch Android-based displays were installed in the boat wheelhouses. In partnership with Geoservice, a custom Android application for onboard displays was developed. The app shows all vessel engine data and real-time tank and bunker information to ensure the crew is also on top of the current situation. This live engine fuel data helps the crew operate the vessel more efficiently, optimizing performance and reducing emissions.



ActiveGuard is setting up the displays and other devices before mounting them on the fleet owner's boats

Additional services

ActiveGuard provided the client with a formal **onboarding process** and **trained** all the boat crews on how to generate daily fuel reports and use the system and Wialon in general.

The crew was also provided with **documentation** explaining the various components, enabling them to understand and operate the systems effectively.

Results

The Wialon-based Hypercom EFMS system received Chevron's approval after three months of live trials on one vessel. Additional vessels have since been equipped and deployed for Chevron's offshore operations.

The vessel monitoring system allowed both the marine transportation company and Chevron to track vessels 24/7, manage fuel expenditures, and reduce fuel theft through daily engine fuel consumption reports. Besides, the system generated [CO2 emission reports](#) that provided valuable insights into the company's environmental impact.

The screenshot shows the Wialon dashboard with a map of the Gulf of Guinea. On the left, a sidebar lists report templates. A detailed view of a report shows consumption summary and CO2 emission data.

NP	Grouping	Mileage	Consumed	CO2	FL (Starboard ROB)	FL (Portside ROB)	Filled		
1	08.02.2024	12.27 NM	132 l	353.52 kg	5103	4966	0 l		
Total				12.27 NM	132 l	353.52 kg	5103	4966	0 l

Carbon emission reports deliver actionable insights into a company's environmental footprint

- Compliance**
The real-time vessel tracking and fuel management solution allows Dewayles to meet the requirements and strengthen its relationship with a key client.
- Reduction of fuel theft**
The end client and Chevron can monitor fuel spending on each vessel, reducing cases of fuel theft. Plus, accounting for fuel spent has become easier.
- Real-time marine vessel tracking**
The end client and Chevron can now monitor vessels' location, speed, the direction of movement, and engine status in real-time.
- Improved work ethics**
The project also significantly improved crew discipline, which contributed to the overall efficiency of the vessels.

Company profile

IoT project of the year nomination: Compact fleets

Country: Nigeria

Industry: Water transportation

Solutions

- Wialon
- Fuel monitoring system

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