

SetiBT Long-Distance Fueling Project

SetiBT solution consisted of an Advantech TREK-723 RISC-based mobile data terminal equipped with software designed specifically for managing the fuel flow and delivery process. Additionally, the solution hardware needed to be extremely robust and reliable. Advantech successfully fulfilled their request and expectation as well.

By Martin Marshall with images provided by Advantech
Interview with Vinicius Olivero, Software Development Manager of SETI Business Technology



To date, sugarcane ethanol is considered the most successful alternative fuel, with Brazil ranking among the world's largest producers and exporters. By leveraging the most efficient agricultural technology for sugarcane cultivation, Brazil successfully established the world's first sustainable biofuel economy. The sustainability of Brazil's ethanol biofuel industry is attributable to its advanced agro-industrial technology and massive amounts of arable land. However, because biofuel plants are typically situated in remote areas, fuel tanker trucks are necessary for supplying the fuel and lubricants required to maintain operations.

Besides sugarcane processing plants, many other industries, such as construction and mining, also operate in remote locations, and rely on diesel-powered equipment. Because of their distance from fuel stations, equipment refueling onsite is substantially more efficient and economical. To facilitate this, fuel trucks are required to carry diesel and lubricants to each site. And a specialist fuel delivery fleet solution was required to carefully manage fuel loading and increase delivery efficiency. However, because of the numerous options available, choosing the most appropriate solution provider proved challenging.

SetiBT is a specialist IT services provider based in Brazil. Established in 2002, the company has recently focused on developing in-vehicle solutions for fleet management in an effort to provide customers with cost-effective, reliable, and adaptable IT solutions. Recently, a large, well-established bulk fuel and lubricant transportation company with a substantial fleet of tankers approached SetiBT for an in-vehicle fuel transportation solution specifically targeted to managing the fuel loading processes for specialist equipment in the field. The system requirements were to inhibit fraud and fuel theft as well as to increase the accuracy of data acquisition in order to better control costs. In order to minimize errors by reducing manual operations, the system also needed to be capable of automatically identifying the equipment being fueled, including tank size and type of fuel required, as well as synchronizing with the vehicle's horometer, odometer, and GPS. These functions would offer a clear breakdown of each vehicle's productivity, status, and risk, thereby providing customers with accurate data to increase efficiency and reduce costs.

The SetiBT solution consisted of an Advantech TREK-723 RISC-based mobile data terminal equipped with software designed specifically for managing the fuel flow and delivery process. Additionally, because of Brazil's tremendous size and the vast distances between remote sugarcane processing plants, the solution hardware needed to be extremely robust and reliable.

Regarding the actual refueling operation, upon reaching a delivery destination, the driver attaches a hose from the tanker truck to the equipment needing to be refueled. The system automatically recognizes the equipment and authorizes the transfer of a specific amount of fuel according to pre-established equipment requirements. This not only saves unnecessary wastage, but also reduces pilferage by preventing unauthorized fuel transfers.

The flow control meter affixed to each truck records the volume of fuel transferred, enabling the operator to review the exact quantities and types of fuel and lubricant delivered. The fuel flow meter communicates directly with the Advantech TREK-723 in-vehicle terminal, using on-board RFID technology to identify the



category of equipment being refueled, and the type and volume of fuel dispensed. Through communication with the back-office server, fuel transfers are successfully restricted to sanctioned equipment only.

SetiBT designed the user interface and management software to be integrated with TREK-723 and the end-customer's own ERP software to ensure accurate enterprise asset management, business intelligence, and data reporting. Regarding the delicate integration of SetiBT's software and Advantech's hardware, General Manager Vinicius Olivero of SetiBT Brazil stated, "Because this was the first time we had worked with Advantech, appropriate support was crucial in helping us integrate our custom UI with the OS on their hardware. They supported us all the way, which was very important. Our fuel transportation solution allows customers to effectively save up to 2% of the millions of liters of fuel typically used per year. This means that the system pays for itself in a fairly short amount of time—something customers really appreciate."

Because large fleets require solutions that address several areas of need, such solutions must comprise robust systems that can be configured in multiple ways. SetiBT's fuel flow management system is built around an Advantech TREK-722/723 all-in-one RISC-based mobile data terminal with 5"/7" display. TREK-722/723 is designed to operate on vehicle power that complies with ISO7637-2 and SAE J1113 specifications, ensuring system stability despite power fluctuations. With digital input, periodic, and WWAN suspend/wakeup features, TREK-722/723 supports 24/7 monitoring. This, combined with radio frequency options and programmable function keys, make TREK-722/723 a particularly ideal platform for SetiBT's fuel transportation solution. ■