

# Towards hybrid GPS/RTLS Positioning

## Container terminal automation can benefit from hybrid solutions leveraging the advantages of GPS and RFID

**IDENTEC SOLUTIONS**, Lustenau, Austria & Dallas, Texas, USA

The question for terminal operators is which technologies will best address the need of their operations today and at what cost/benefit tradeoffs? Until now the choice was either GPS- or RFID-based systems.

Historically, GPS offered low infrastructure tracking but suffered in accuracy where equipment interfered with satellite reception. RTLS is a newer technology based on multiple RFID readers 'reading' RFID-tagged equipment and a software engine calculating position. An accurate location requires a tag to be 'visible' to three to four readers. In GPS, the mobile units are more expensive but infrastructure costs are very low. In traditional RTLS, the tag cost is very low but requires a network of readers throughout the facility.

Recently a range of hybrid solutions have emerged to overcome some of the challenges associated with a single technology approach. 'Localized' RFID/RTLS can provide a solution in areas where GPS has visibility problems, without the infrastructure cost of full-scale RTLS. The result is a robust, easy to install, flexible solution that offers unsurpassed reliability and value immediately upon deployment.

Austria-based company IDENTEC SOLUTIONS has developed two new hybrid systems; a new quay RTLS for operation in standalone mode or with crane OCR and IntelliFIND, a 'no-infrastructure' RTLS for chassis, general cargo and roll-on-roll-off applications.

### RTLS: a new direction in quay automation

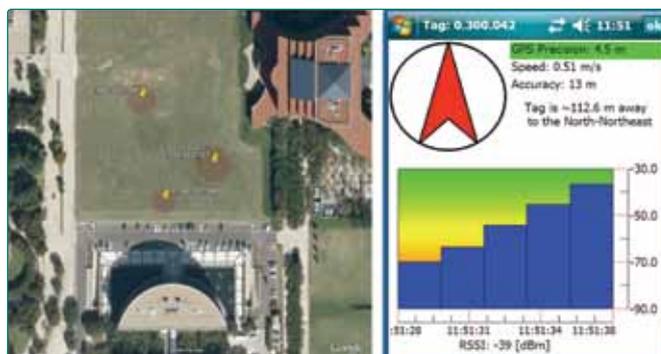
Using pure GPS to locate container handling equipment under quay cranes is difficult as the signal is lost or 'fuzzy', and lane discrimination is difficult. Until recently, RTLS deployed across the terminal was also problematic, as readers located on the landside of the quay could not produce the accuracy needed under the hook.

IDENTEC SOLUTIONS has introduced a new concept of RTLS within the STS 'crane box', effectively creating a mini-RTLS coverage area under each crane. Each ITV or other CHE is tagged with a low cost RTLS tag and positional sensors are placed on each leg of the STS Crane. A DGPS unit is placed on the crane itself. A RFID reader positioned in the crane area polls tags, and a purpose-built software engine determines the lane and position of the ITV based on tag and crane position. This calculated position data can be sent to the TOS or matched with an OCR system for total STS hands-off automation. The solution offers seamless data collection, increases productivity and improves safety.

### 'No infrastructure' RTLS for RoRo and general cargo

Terminals that handle general cargo and/or RoRo deal with high quantities of assets to be tracked, often in large unorganized areas. Traditional RTLS has been the answer to date but high infrastructure cost has held back its large-scale deployment.

IntelliFIND is a low-cost mobile system combining RFID, GPS and radio data terminals or RDTs. Assets are tagged with a low-cost active tag at the gate or in the yard. When the asset is placed in the yard, the tag is scanned and associated with a GPS position from an RDT terminal equipped with a GPS card. The assets' positions automatically mapped to a geo-spatial location by the IntelliFIND application. Alternatively, a yard vehicle can be equipped with an RFID reader and GPS device. The exact geospatial position of each tracked unit is then sent to the TOS. Deployment can occur in hours and requires no infrastructure.



Screenshot of the IntelliFIND system, used to accurately pinpoint the geo-spatial positions of tagged assets.



With the IntelliFIND application, assets such as containers are fitted with an active tag, which enables their positions to be automatically mapped to a geo-spatial location.

#### ABOUT THE COMPANY

IDENTEC SOLUTIONS is a leading, global supplier of long-range wireless sensor-based systems. Their SensorSMART Technology Platform offers a broad range of RFID, GPS and wireless sensors, edge software and applications, enabling process automation at the gate, in the yard and at the quay.

#### ENQUIRIES

Email: [portsales@identecsolution.com](mailto:portsales@identecsolution.com) Web: [www.identecsolutions.com](http://www.identecsolutions.com)