

Mobile Data Terminal Based Automatic Vehicle Location

Overview

Mobile Data Terminals (MDT) within vehicles are becoming more commonplace providing proof of delivery (POD) and proof of collection (POC) data capture solutions.

The other significant component that customers often consider when implementing in-vehicle solutions is the addition of a GPS satellite tracking "Black Box".

By the addition of a GPS (Global Positioning System) receiver to a mobile data terminal, a customer can achieve the business benefits of automatic vehicle location (AVL) for little added expense whilst reducing operating cost and better utilising the processing power of the mobile data terminal.

Using basic position, speed, direction and time information from the satellite, the MDT AVL application can provide many functions and information back to a host system, such as:

- Location reporting - updating ETA figures, perhaps for CRM functions, for example triggered to report back every 5, 15 or 30 minutes
- Geo-Fence evaluation returning a status when the vehicle arrives or departs a location, e.g. customer site
- Speed threshold reporting, for example, vehicle over speed, or stationary when it should not be, or idle for too long
- Mileage reports (journey and inter-drop)
- Harsh braking/harsh acceleration reporting
- Engine idling (when an interface is provided to the ignition switch)

Software has been developed for the terminal that performs most functions of AVL tracking in the background, with the application that the driver uses to capture proof of delivery information running in the foreground.

Whilst the added functionality delivers significant benefit, the costs of providing GPS satellite tracking capabilities to existing MDT installations are minimal compared to separate automatic vehicle location (AVL) hardware.

Significant value can be added to mobile data solutions with the option of low cost satellite tracking.

Business Benefits

With these improvements in mind, the sort of business benefits the implementation of AVL, of which mobile data terminal based tracking is one approach, has delivered to customers, through increased driver and vehicle visibility and control, include:

- Delivery time reduced from 40 mins to 25 mins
- 30% reduction in night outs / stop overs



- ▲ CUSTOMER VISIBILITY
- ▲ SLA/KPI VISIBILITY
- ▲ DRIVER/LOAD SECURITY
- ▲ PLANNING ACCURACY
- ▲ UTILISATION
- ▼ FUEL
- ▼ LABOUR COSTS
- ▼ TURN AROUND TIME
- ▼ FLEET SIZE

Business Benefits (cont)

- An average of 2.2 hours out of 10 hour shift identified as excessive idling
- Between 7% and 12% reduction in fuel consumption. (In the former instance, this was achieved in the first 8 weeks of the project - forecast as a £900,000 saving in first year across a 900 vehicle fleet)
- 30% productivity improvement in the transport process - through the compression of turn around times, leg times and more drops per vehicle per day through better visibility leading to better fixed route planning
- Route adherence - projected saving of approximately 2.7 million miles of road usage by vehicles (for the period of the 5 year contract)
- Security - reduction to 0% delivery shrinkage in 3 months
- Improved customer service with greater visibility of the supply chain, allowing queries to be answered promptly with up to date information. 85% reduction in lead time to answer queries

The power of MDT AVL can deliver a quicker return on investment than Black Box AVL due to reduced capital outlay.

Naturally, where automatic vehicle location is a primary business requirement - mobile data terminal based AVL would not be the first approach. Rather, it is focused on customers extracting much more operational benefit and savings through putting their terminal based investment to further use.

MDT AVL Software - Key Features

- Low-cost GPS receiver required. Can be temporarily fitted to the dashboard, or “hard-fitted” into the vehicle
- Local business rule-based control and monitoring; remote updates of rule-sets supported
- Uses the GPRS/GSM communications of the MDT for low running costs and roaming capabilities
- “Soft” telematics (over speed, harsh braking, excessive idling, unscheduled stops, etc) supported
- Logging of events for download and display later. Can be used for driver de-brief, performance tables, etc
- Driver feedback function. The software can alert a driver when a parameter is exceeded (e.g. over speed)
- Works in conjunction with the optional MDT satellite navigation software (the GPS receiver is used for both functions in this case)

Functional Summary

The unit uses the GPRS/GSM communications of the MDT, and with the addition of an external GPS receiver, provides a complete AVL solution. The software on the MDT provides monitoring of the GPS receiver and business rule evaluation.

Business rules determine how often the vehicle is tracked and how certain events are evaluated by the AVL software.

Tracking data is displayed via street level mapping or the Transport Management Centre which allows the business to monitor in real-time vehicle performance against plan.

As with the more traditional “Black Box” AVL tracking unit it can be supplied with over 20 standard web-based reports, customers then have the option to develop custom reports.

All of the Opus Fleet & Distribution portfolio is modular. For example, this solution can be further augmented with the MDT based satellite navigation system, which provides integrated turn-by-turn directions directly from the POD/POC application.