



ElysiumTech Falcon AVL

Overview

ElysiumTech Falcon is a world class AVL system, This document contains a brief overview of the technical and licensing details about the system.

T. Vamshi Krishna
tvk@elysiumtech.net
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Introduction

ElysiumTech was founded in 2004 by a group of students from the Indian Institute of Technology, Delhi to develop customized applications for private agencies. It comprises of students from backgrounds as diverse as Computer Science and Biochemical Engineering. Over the past three years, we have provided solutions for the state Governments as well as companies from the private sector, both in India and abroad. We specialize in providing complete end-to-end IT solutions ranging from assessment of a client's computing and communicating needs to development of customized software and hardware incorporating the latest in connectivity technology.

We bring with us three years of experience in the GPS (Global Positioning System) arena, having worked in industries ranging from Fleet Management to Personnel Tracking. Our clients include municipalities such as the Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB), Nagaland Police, HomeMart chain of Departmental stores, Lifeline Ambulance Services etc.

Clients Overview

- Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB),
 - Detailed daily trip sheets
 - Comprehensive billing information
 - Summary and speeding reports
- Nagaland Police
 - Covert surveillance
 - Personnel tracking
- HomeMart Chain of stores
 - Supply chain management
- Lifeline Ambulance Services
 - Call center support
 - Enabling Rapid response to emergencies

About GPS

Automatic vehicle location is a powerful tool for managing fleets of vehicles, from service vehicles, emergency vehicles, and construction equipment, to public transport vehicles (buses and trains). It also is used to track mobile remote assets, such as construction equipment, trailers, and portable power generators.

The vehicle's location is determined using GPS and the tracking data is then transmitted using cellular or radio connection from the vehicle to a radio receiver, satellite or nearby cell tower.

Falcon AVL System

ElysiumTech Falcon AVL System is a world class AVL suite from ElysiumTech Pvt. Ltd. that offers real time tracking , secure storage and retrieval for your location data

There are four Components of Falcon AVL:

1. **GPS Satellites:** There are many GPS Satellites orbiting the entire globe, transmitting, positioning and timing data day and night in all weather conditions.
2. **Mobile GPS Hardware Unit:** The vehicles need to be installed with a GPS device to track satellites and calculate its position. Our hardware unit consists of a tried-and-tested robust GPS receiver with connections to the car battery and an internal backup battery, a GPS antenna and a GPRS enabled SIM card.
3. **Communications Network:** We use inexpensive communication through the cellular network (GPRS), so that the vehicle can transmit at frequencies as often as once every 5 seconds, with provision for SMS based transmission in areas where GPRS is not available.
4. **AVL Maps:** Falcon AVL software can automatically display vehicles as an overlay on Google Maps along with all the details and landmarks available on Google Maps as well as any custom landmarks you might want such as your offices, client sites, pick up points etc. The maps can be viewed online through any browser from any OS as well as on your GPRS enabled mobile phones using the Falcon AVL Mobile application.

Uses of the Falcon AVL System

The Falcon AVL System can benefit your company in the many scenarios:

- **Asset tracking:** Companies needing to track valuable assets for insurance or other monitoring purposes can now plot the real-time asset location on a map and closely monitor movement and operating status. Combining vehicle location with inventory management, companies can reconcile which item is currently on which vehicle along with identifying the physical location down to the level of individual packages
- **Fleet management:** When managing a fleet of vehicles, knowing the real-time location of all drivers allows management to meet customer needs more efficiently. Vehicle location information can also be used to verify that legal requirements are being met: for example, that drivers are following proper routes and obeying speed limits.
- **Employee Security:** Real-time Passenger information can be obtained using the Falcon AVL system along with Employee Smart Card IDs. ETA info can be sent to employees via SMS and their pickups, logged into the system. Predictions based on AVL input and time logs of passengers can be used to show the expected arrival and departure times. Any deviation in these timings can raise an alarm thus providing an added measure of security especially to female employees.
- **Speeding & Geofencing :** one can easily identify speeding vehicles in your fleet, also with our geofencing features alerts can be logged as soon as a vehicle deviates from the set path.
- **Field worker management:** Companies with a field service or sales workforce can use information from vehicle tracking systems to plan field workers' time, schedule subsequent customer visits and be able to operate these departments efficiently
- **Covert surveillance:** Vehicle location devices attached covertly can be used to track journeys made by individuals who are under surveillance
- **Automated Trip Reports:** If your company needs or has an existing report format for logging trips, Falcon AVL System incorporates a comprehensive Reporting engine that can generate reports in your format online in real time and the downloaded in PDF, MS-WORD, MS-EXCEL or Crystal Report (RPT) format. Daily, Weekly, Monthly reports, Vehicle-Wise Reports or Summary Mileage reports can all be generated and downloaded.

- **Automated Notifications:** The Company can be instantly notified of any alarms raised due to vehicle mismanagement, employee threat etc via e-mail, SMS or online notification. You can also receive summary reports at any pre-specified intervals via email.
- **Stolen vehicle recovery:** Both consumer and commercial vehicles can be outfitted with GPS units to allow police to do tracking and recovery.

Performance and Scalability of Falcon AVL System

Falcon AVL System is an ASP.NET 2.0 based multi-tiered application, using PostgreSQL+PostGIS , the world's most advanced Open Source Database specifically designed for spatial databases. A few milliseconds is all it takes to retrieve any data you request. The number of vehicles Falcon AVL can handle is limited only by communication infrastructure constraints and we follow a strict load balancing system where a dedicated server is setup for every 100 vehicles.

The following are some of the steps we have taken to guarantee performance and scalability:

- 8Mbit Servers based in USA with 99.99% Uptime guaranteed
- Load balancing measures to ensure servers don't get flooded
- Mirror servers in different geographical locations incase main server is unreachable
- Real-time alarm system to alert ElysiumTech in case of any communication problems
- Falcon web application compatible across all OS' and browsers
- Only three months data kept online to ensure database performance. Earlier data is archived and stored securely

Security of Falcon AVL System

The Falcon AVL System has been developed on a role-based encrypted access model to ensure that the system and information collected is not compromised by unauthorized access. We provide multiple levels of access to our clients viz. an administrator who can have control over vehicle details, etc, a user who can view and print reports and a guest who can view but not print any reports. The client is given access only to a control panel via https protocol where the vehicle/ driver information can be accessed. Direct access to the server and database is restricted only to ElysiumTech Pvt. Ltd. Administrators and all the information logged.

The following are some of the steps we have taken to ensure data security:

- 128bit encrypted data on the database to ensure maximal security
- Regular offline backups stored on DVDs
- HTTPS access to control panel only for client administrators

Licensing options

In all licensing options the client purchases the hardware either from ElysiumTech or client side. While other AVL hardware can be customized for use, its features set might not be as comprehensive as an ElysiumTech Falcon GPS unit. The licensing options are

- **Basic:**
 - Server and database hosted by ElysiumTech
 - Client gets access to the web application and mobile application
 - The payment scheme is per vehicle/year

- **Server on Client side:**
 - The server and database is hosted on the clients side
 - GPS Data routed through ElysiumTech servers
 - The payment scheme is per server/year
- **Reseller:**
 - All software components are hosted on the clients side
 - Source code provided on demand
 - The payment scheme is one time with an AMC