



Navayuga Infotech

A CMMI Level 5 & ISO 9001 Company



Vehicle
Tracking System

Vehicle Tracking System

NIT's Vehicle Tracking System is a web based solution which is developed and deployed using state of art technology with appropriate Authentication & Authorization methodologies & open standards. Oracle 10g or higher will be back end Database,

Vehicle Tracking System allows the Department to track, trace and monitor their vehicles in real time using GSM / GPRS technology. It sends the location address to a central server at a pre defined interval. It also sends alerts to the computer or to a mobile phone whenever an exceptional event has occurred such as erratic vehicle movements, excessive speeding etc.

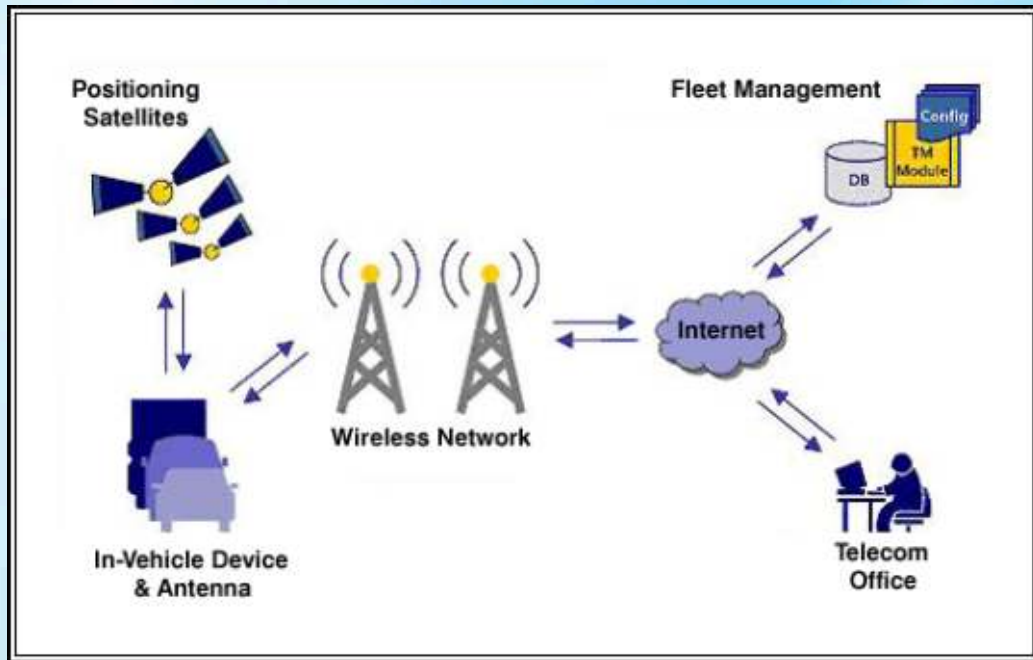
Features

- Vehicle Tracking system combines Internet technology, GPS and terrestrial networks such as GSM / GPRS
- The device fitted in the vehicle has a built in GPS receiver determines the vehicle location, traveling speed, direction etc.,
- The device sends the data via GSM / GPRS wireless network to the Vehicle Tracking Application
- If there is no network coverage, the data is stored locally and sends when the network is established
- The GPS data sent by the device is stored in a secured database of Vehicle Tracking application
- The data stored in the application is disseminated to all the stake holders depending their roles
- Managers can generate reports, analyze data, replay the route travelled by the vehicle on a map for efficient management of vehicles
- VTS is capable of using either GPRS or SMS communication modes. GPRS is primary communication mode, but in case is if GPRS connectivity is lost, then there will be automatic fall back on GSM based SMS

GPS Tracking Device



Schematic Representation



Technical Specification

- The dual processor architecture necessary to handle complex requirements from the user
- Live Tracking of the vehicle all the time
- Reports in different formats
 - Trip Log
 - Route Playback
 - Speed Exception
 - Stoppage Report
 - Geo fence Violation
- Built-in battery backup for 6 hours of operation without main vehicle battery
- Tamper announcement by Battery Removal alert messages
- Fault Tolerance to handle absence of GPS Signals as well as GSM signals automatically
- Auto Switch over to the alternate service provider while roaming if enabled much the same as a regular cell phone
- Back up memory to hold months of data if traveling in GSM Shadow region
- Fully automatic handling of storage and retrieval of data
- Remote Immobilization of Vehicle using password protected SMS or command from server and a whole lot of advanced features

Front Panel Indicators:

DATA: Indicates that GPRS Connection is established

GPS: Indicates that a valid GPS fix has been obtained

Call: Indicates that a call is in progress Power & Battery LEDs

SOS Button: Used to initiate an Emergency call along with Emergency SMS to a set of numbers

Rear Panel Connectors:

GPS Antenna

GSM Antenna

Vehicle Connector

Audio Box Connector

Technical Specification

GPS Specifications

General

Frequency: L1, 1575.42 MHz
C/A code: 1.023 MHz chip rate
Channels: 20

Accuracy (Open Sky)

Position: 10 meters, 2D RMS.
Time: 10 is synchronized to GPS time.
Velocity: 0.1 meters/second

Datum number

Default: WGS-84.

Acquisition Rate (Open sky, stationary requirements)

Reacquisition: 0.1 sec., average.
Hot start: 1 sec., average.

Dynamic Conditions

Altitude: 18,000 meters (60,000 feet) max
Velocity 515 m/s (1000 knots) max
Acceleration: 4 G, max
Jerk: 20 meters/second, max

RF interface

Minimum signal tracked: -159dBm

GSM Modem Specifications:

Power Supply Power supply Single supply voltage 3.4V 4.5V
Power saving typical power consumption in SLEEP mode to 3mA

Frequency bands

Quad-band: GSM-850, EGSM 900, DCS 1800, PCS 1900

Class

Class 4 (2W) at GSM 850 and EGSM 900
Class 1 (1W) at DCS 1800 and PCS 1900
Compliant to GSM Phase 2/2+

GPRS

GPRS connectivity
GPRS multi-slot class 10 / class 8 (Optional)
GPRS mobile station class B
GPRS coding schemes CS-1, CS-2, CS-3 and CS-4
GPRS data downlink transfer: max. 85.6 kbps
GPRS data uplink transfer: max. 42.8 kbp
Supports the protocols PAP
(Password Authentication Protocol)
Integrates the TCP/IP protocol



Technical Specification

Audio Features

Call function both incoming and outgoing Auto accept for Incoming Call
Outgoing call to a preprogrammed number by switch on the front panel

SOS Features

When the Emergency switch is pressed, an SMS message s sent to the normal destination and a set of alternate numbers. .A call is also issued to a predefined

CAN Capability

The device has built-in CAN Controller

LCD Display

The Device has an LCD Interface that can drive and Alpha Numeric LCD Display. Messages can be sent to be displayed on the LCD through SMS.

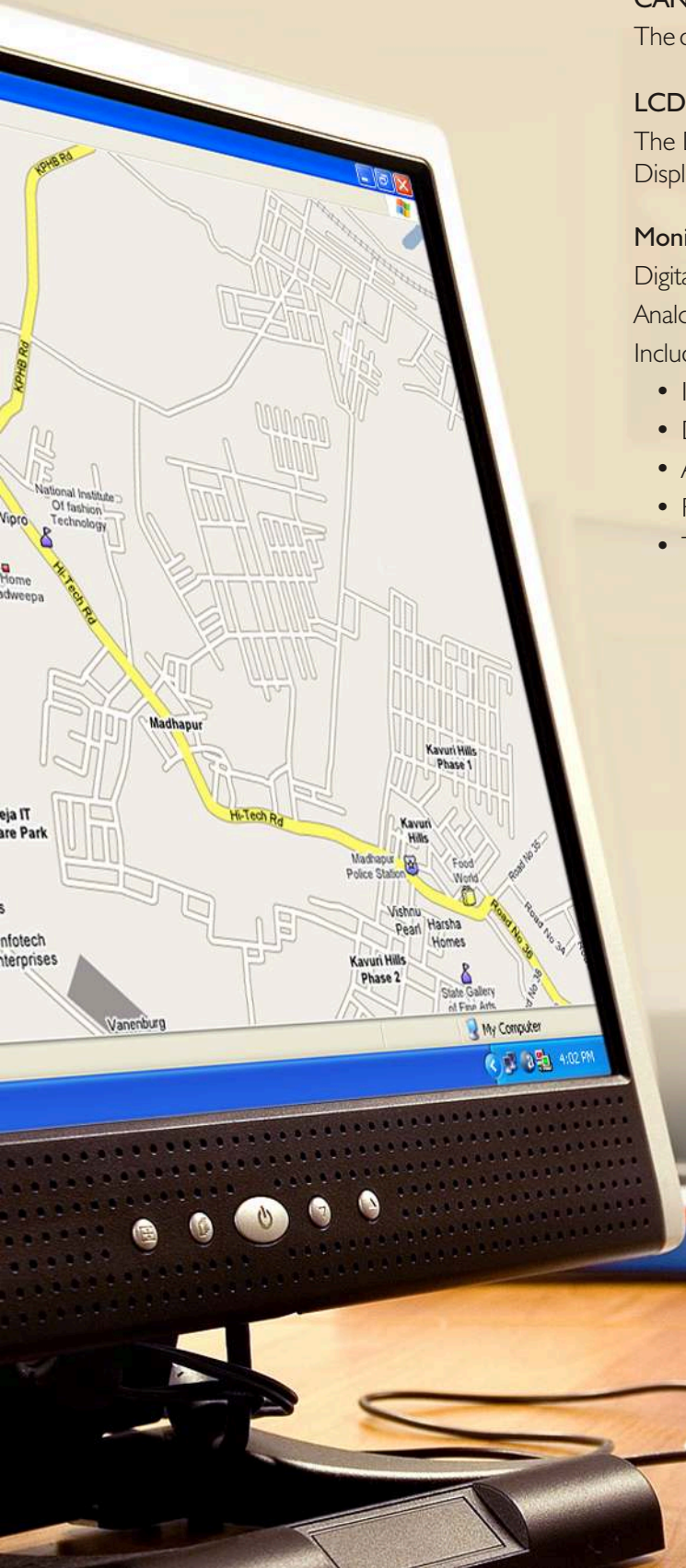
Monitor Inputs

Digital Inputs: 8

Analog Inputs: 4

Including the following

- Ignition ON/OFF
- Door OPEN
- ACON/OFF
- Fuel Cell
- Temperature



Technical Specification

Memory Backup

Flash Memory -2 Mbytes Data retention 20 Years.

Electrical Characteristics:

Input Voltage: +9~37 Volt DC regulated

Current: 2A-MAX (GSM Transmit)

Power Consumption: 1.5 Watts

Backup Power: Li-Ion Battery 1850 mAH with Built-in charger

Temp Range:

Operating temp. : -25°C to +65°C

Storage temp. : -40°C to +85°C

Dimension: 100 mm X 100mm X 30 mm

Cabinet: IP-56 Compliant

Weight: 250 Grams

Audio Connector: DB-9

Vehicle Connector: Automotive Grade 16 Pin Connector

Software Features

Configurable Features

1. Period of GPRS Packets
2. Destination Numbers
3. over Speed Limit
4. IP Address and Alternate IP Address
5. Different Alert Messages

Auto Switch and Storage

Auto Switching to SMS Mode in the absence of GPRS / Auto Message Storage and retrieval when in GSM Shadow region

Alert messages

1. Over Speed Alerts
2. SOS Alert
3. Power ON /OFF Alert
4. Door Open /Close Alert
5. A/C ON /OFF Alert
6. GPS Shadow Alert
7. Geo Fence Violation Alerts

Packet Info

1. Latitude and Longitude of Position
2. Date and Time in IST
3. Fuel Level
4. Ignition Status
5. Door Status
6. A/C Status
7. Speed
8. Total Distance
9. Total Engine Time
10. Total Idle Time
11. Total Over-speed Time



Key Benefits

- 24/7 continuous accurate monitoring
- Automated real-time notifications capability
- Higher service quality and increased customer satisfaction
- Monitor key performance indicators
- Improve operational efficiency
- Reduce labor costs
- Evidence to support insurance claims
- Increase fleet productivity by monitoring in real time and immediate access to drivers
- Allows complete transparency in operations
- Ensure Safety of People and goods
- Improve safety and security of vehicles, drivers and cargo
- Eliminate unauthorized vehicle use
- Increase compliance with government rules and regulations
- Enhance Customer with the up-to-the minute information



Solution Architecture



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