Navayuga Spatial Technologies
ITS-T3
NST
NST ITS-T3

Vehicle Tracking System

NST ITS-T3 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.

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

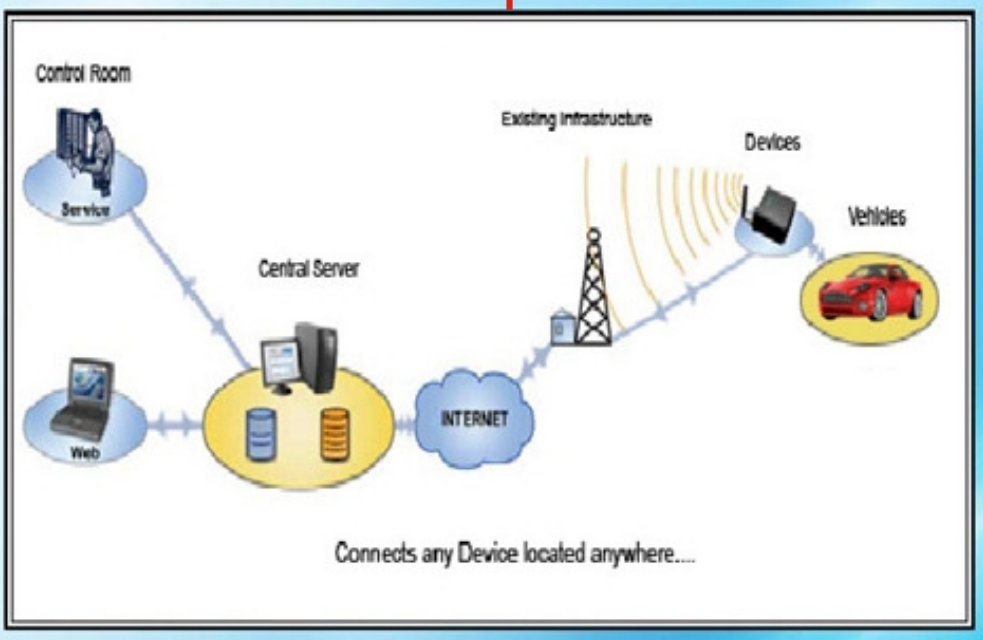
Managers can generate reports, analyze data, replay the route travelled by the vehicle on a map for efficient management of vehicles

ITS-T3 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

ITS-T3 is capable of sending Serving and Adjacent Cell ID as well as Network Measurement Report (NMR)

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 16 hours of operation without main vehicle battery

Tamper announcement by Built-in Tamper switch and 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 or 15000 positional logs 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: Less than 10 meters, 2dRMS.
Time: 10 s synchronized to GPS time.
Velocity: 0.1 meters/second

Datum number
Default: WGS-84.

Output
As per NMEA 0183

Acquisition Rate (Open sky)
Acquisition Sensitivity: -148 dBm
Reacquisition: 0.1 sec., average.
Hot start: <10 s
Warm start: < 40 s
Cold start: <60 s

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

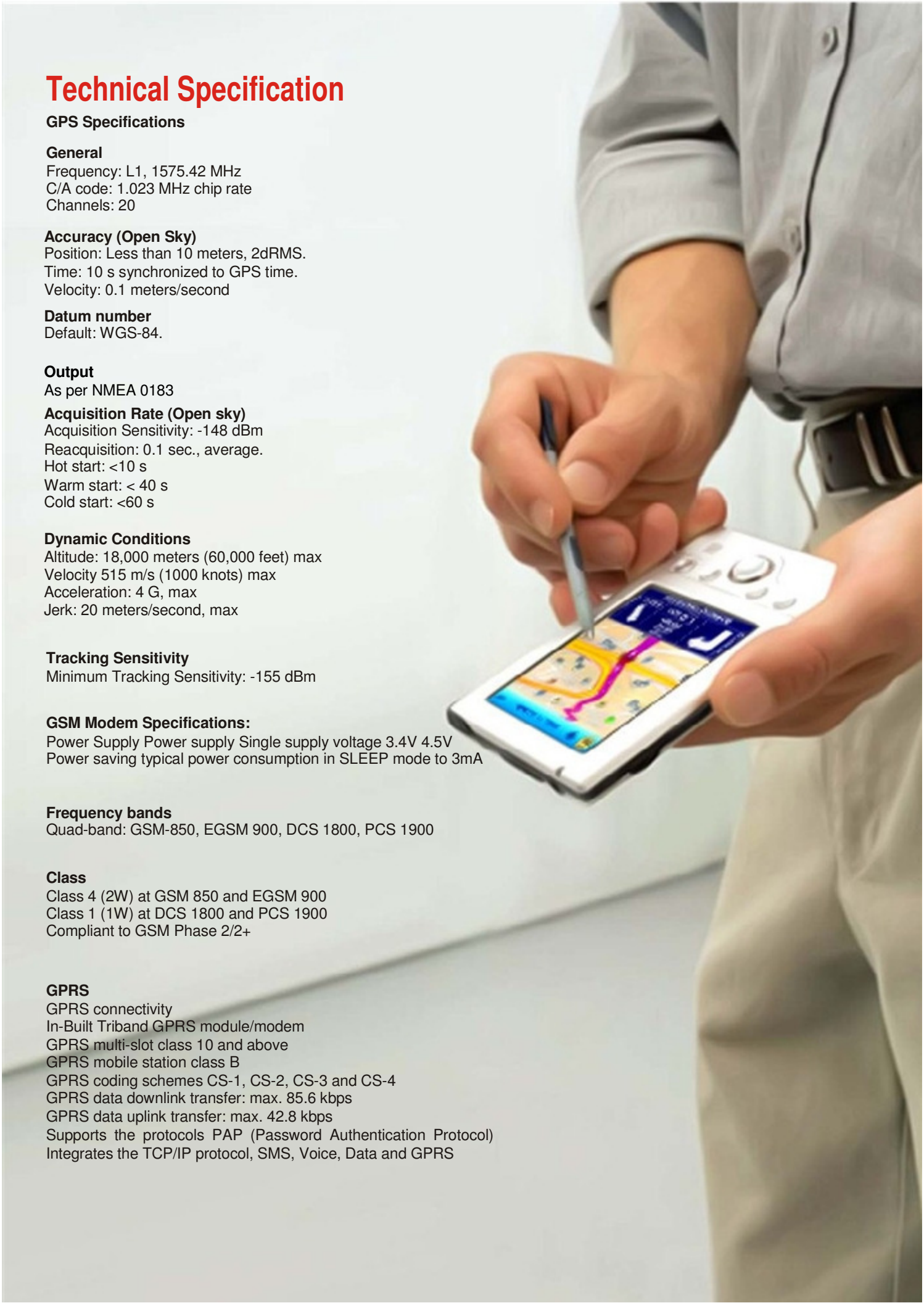
Tracking Sensitivity
Minimum Tracking Sensitivity: -155 dBm

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
In-Built Triband GPRS module/modem
GPRS multi-slot class 10 and above
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 kbps
Supports the protocols PAP (Password Authentication Protocol)
Integrates the TCP/IP protocol, SMS, Voice, Data and GPRS



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 for integration with Bus CAN port as per ISO 11898, SAE 11979

LCD Display
The Device has a LCD Interface with Graphical / Alpha Numeric LCD Display options.SMS, caller id and other alerts messages will be displayed on the LCD.

Keypad Interface
The Device has an Alpha-Numeric keypad to give inputs to the device

Monitor Inputs / Outputs
Digital Inputs 8
Digital Outputs 4
Analog Inputs 4

Including the following
- Ignition ON/OFF sensing
- Door OPEN sensing
- AC ON/OFF sensing
- Fuel Level monitoring
- Temperature monitoring

Serial Bus Interface
2 Nos RS232 ports
- RS232/GPS out for LED display board
- RS232 for Ticket Validator/RFID

Antenna
Internal and External GPRS Antenna
Internal and External GPS Antenna

Technical Specification

Memory Backup
Flash Memory -2 Mbytes Data retention 20 Years.
15,000 positional logs

Electrical Characteristics:
Input Voltage: + 8~37 Volt DC regulated
Active mode Peak Current: < 1.0 A-MAX (GSM Transmit)
Active mode Avg. Current: < 200 mA
Sleep mode: < 25 mA
Power Consumption: 1.5 Watts
Backup Power: Li-Ion Battery 1850 mAH with Built-in charger

Temp Range:
Operating temp.: -10℃ to +85℃
Storage temp.: -40℃ to +85℃
Humidity level: 5% to 95% non-condensing

Dimension: 100 mm X 75 mm X 25 mm

Cabinet: IP-56 Compliant, Dust, Temperature, Vibration and Water Splash resistant

Weight: 250 Grams

Audio Connector: DB -9

Vehicle Connector: 36 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. AC 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

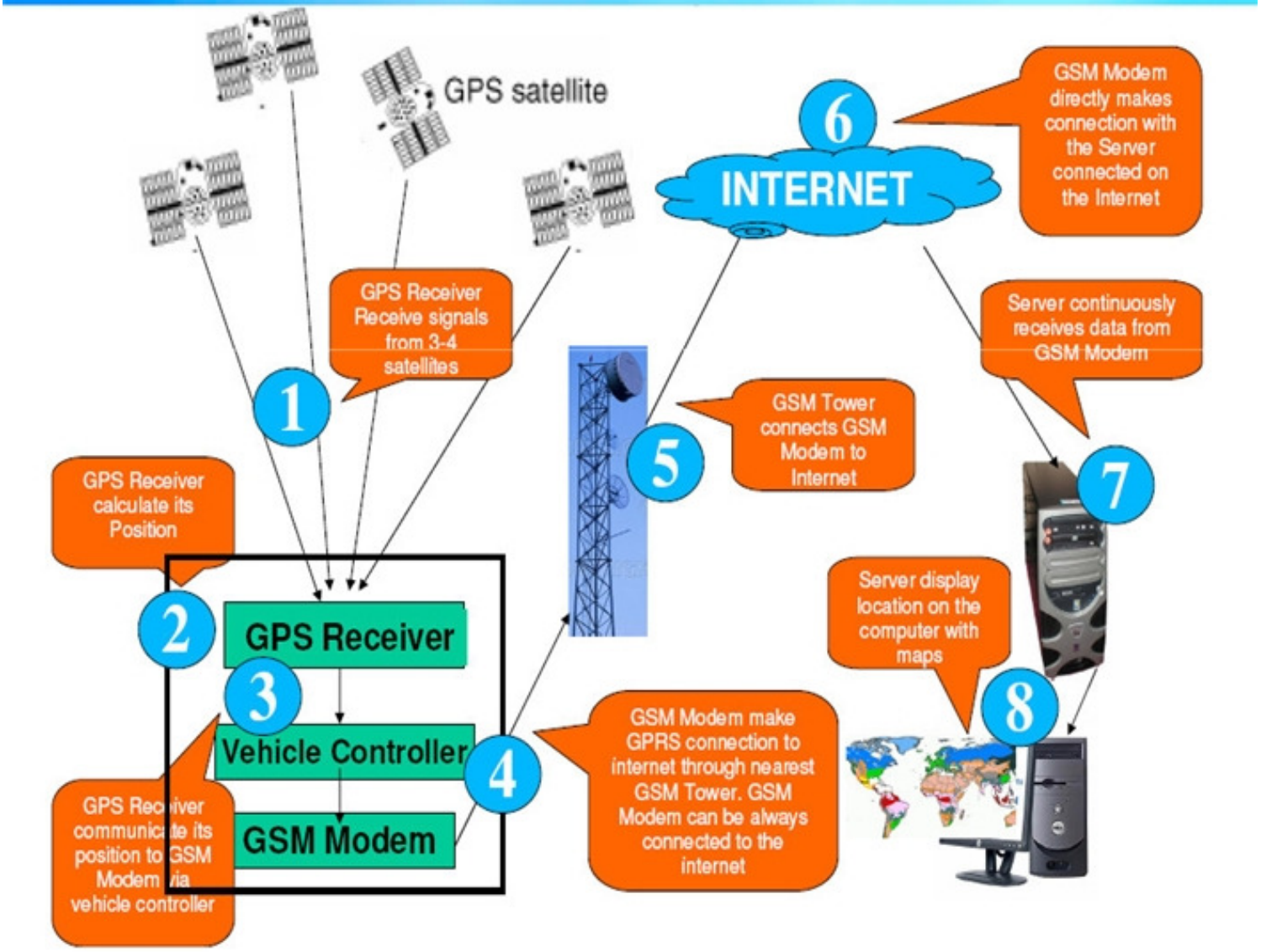
Geofencing
1. Capable of storing 150 or more route geofences
2. Capable of updating route geofence master in the device over the air

Over The Air (OTA)
1. Capable of configuring the parameters over the air
2. Capable of updating the firmware and remote administration

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



Navayuga Spatial Technologies Pvt. Ltd.

CHENNAI:

T2/12, Dr. V.S.I Estate,
Near NIFT on IT Corridor,
Thiruvanmiyur,
Chennai - 600 041.

Tel : +91-44-2254 2320
Mob : +91-98410 37663

NEW DELHI:

H-42D, SAKET,
New Delhi - 110 017.

Mob : +91-99990 20937

HYDERABAD:

6-2-984, III & IV Floor, Pavani Plaza,
Khairatabad, Hyderabad - 500 016.

Tel : +91-40-6684 8460, 6684 8470
Fax : +91-40-2330 4556

BANGALORE:

#124, 3rd Floor, Surya Chambers,
Murugesh Palya, Airport Road,
Bangalore - 560 017.

Tel : +91-80-2522 6111/2, 4126 6881
Fax : +91-80-4126 6882