

## A. TECHNICAL OVERVIEW

"The GPS integration with RFID would allow users to track individual packages, their vehicles, as well as their drivers no matter where they happen to be in the world".

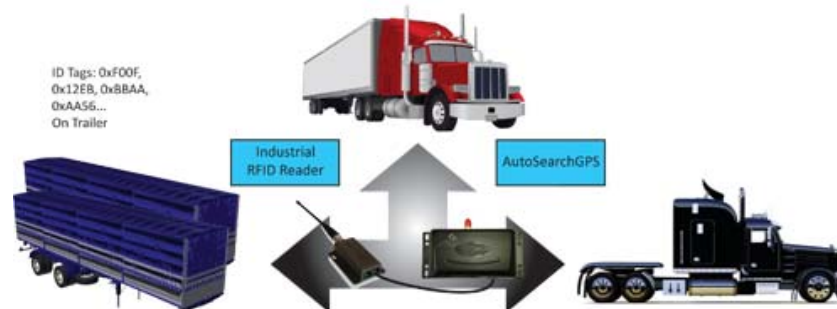
The VegaTrak has an attached RFID reader that picks up information being stored by the RFID chip located on the packages, materials and/or inventory in the vehicle. The reader receives activity information on each individual package and sends the stored information about the package, materials and/or the inventory to the VegaTrak unit. The unit then transmits the information, including location and time of the activity to our server, in real time for the customers to view or download. The application can also be applied for trailer tracking.

### Container ID & Tracking:

An Industrial Tagging System to all trailers

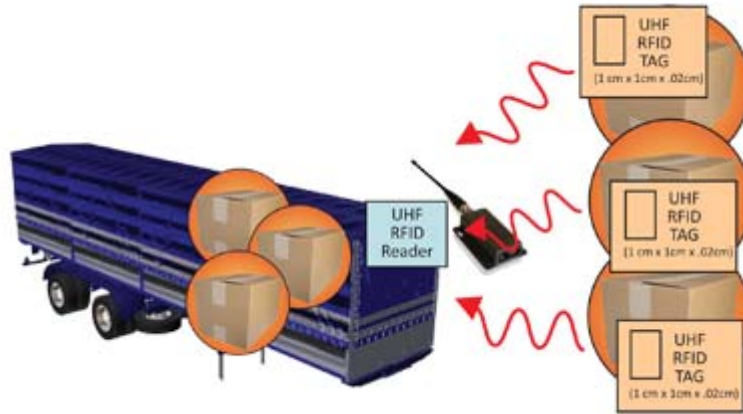
- KNOW WHAT YOU ARE HAULING

It's a simple continuously polling system from a RFID reader. The reader states whether the cargo is mating/ authorized/ non-mating/ illegal haulage.



Used in conjunction with our driver ID technology, employers are able to identify drivers in a particular vehicle and connect activities of the vehicle such as mileage, number of stops, removal or addition of inventory, package and material to a particular driver with time and location information. The advanced integrated GPS and RFID application can monitor inventory for improved operations, identification of the drivers, as well as providing location, speed and time information.

**Asset Tracking within Container.  
Check-in & Check-out basis.**



Long Range Active UHF RFID Reader. Communicates up to 5 meters away from all Tags, bidirectional. Very Common UHF RFID Tags

Used in conjunction with driver ID, employers will be able to identify drivers in a particular vehicle and connect activities of the vehicle such as mileage, number of stops, removal or addition of inventory, package and material to a particular driver with time and location information. The advanced integrated GPS and RFID application will monitor inventory for improved operations, identification of the drivers, as well as providing location, speed and time information.

We developed this application based on demand by the transportation and service industry for not only enabling them with more secure operations and inventory control, but also for preventing loss or theft as well as creating efficiency by monitoring variables in detail. Even more critical is the need to improve security and efficiency in some industries such as the airline industry. We are able to identify and track the activities of the baggage handlers, assuring the right baggage are loaded on the right truck at the right time and into the right plane on the tarmac. Furthermore, we can also determine if a driver has loaded the right number of baggage on the plane and provide alerts to appropriate personnel at the airport. Using our technology, airlines are also able to identify drivers and location of the trolleys and trucks working at the airport.



## B - FAQ

### **Why do you need VegaTrak as your complete Fleet Management Solution?**

VegaTrak is the most advanced fleet management solutions tool for both commercial assets and personnel. Armed with information that is available in real time, managers of fleet operation can improve productivity of assets and personnel with greater impact on organizational success and profitability more than ever before.

### **Avoid the mobile asset blind spot.**

Mobile assets are the only blind spot business decision makers have; once the asset is mobile you loose control. Our Fleet Management Solutions put you back in control.

### **Why Zayle Fleet Management Solutions?**

Unlike most other products on the market VegaTrak offers customizable fleet solutions with unrestricted flexibility for modifications and changes.

**"The tracking possibilities are infinite, if our customers own it, we can locate it, track it and protect it, 24/7!"**

Zayle gives you the peace of mind about your mobile assets, along with saving you money.

### **How does the Zayle Fleet Management Solutions improve your operation and save you money?**

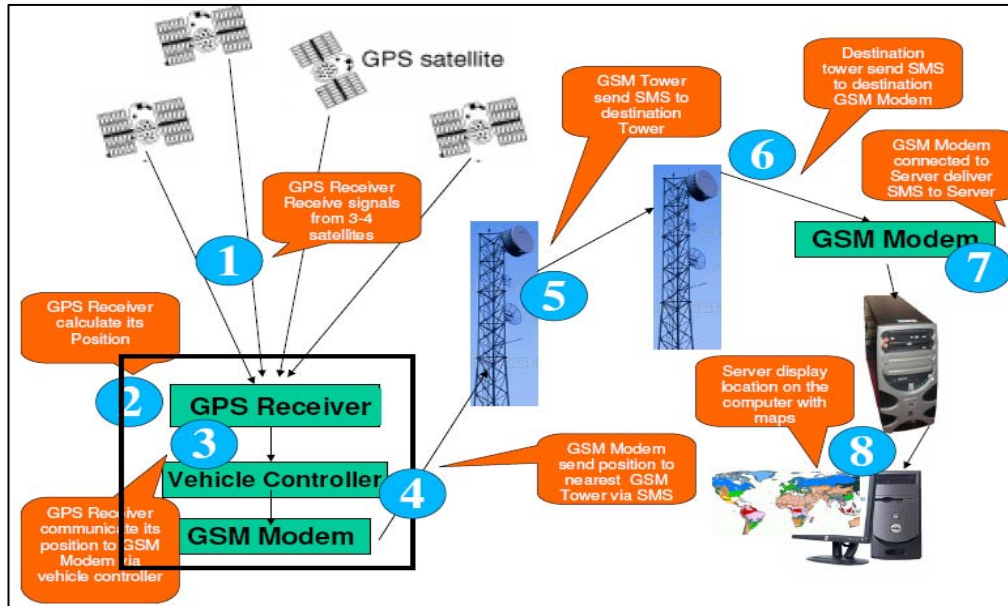
Organizations that rely on mobile asset whether employees or other assets are benefiting from GPS and telemetry technology; through the use of VegaTrak and Fleet Management Solution they:

- ✓ Improve productivity
- ✓ Increase opportunity for more profitable operation
- ✓ Improve customer relation
- ✓ Increase life of mobile asset
- ✓ Create a more honest workforce
- ✓ Reduce theft and pilferage
- ✓ Reduce insurance cost

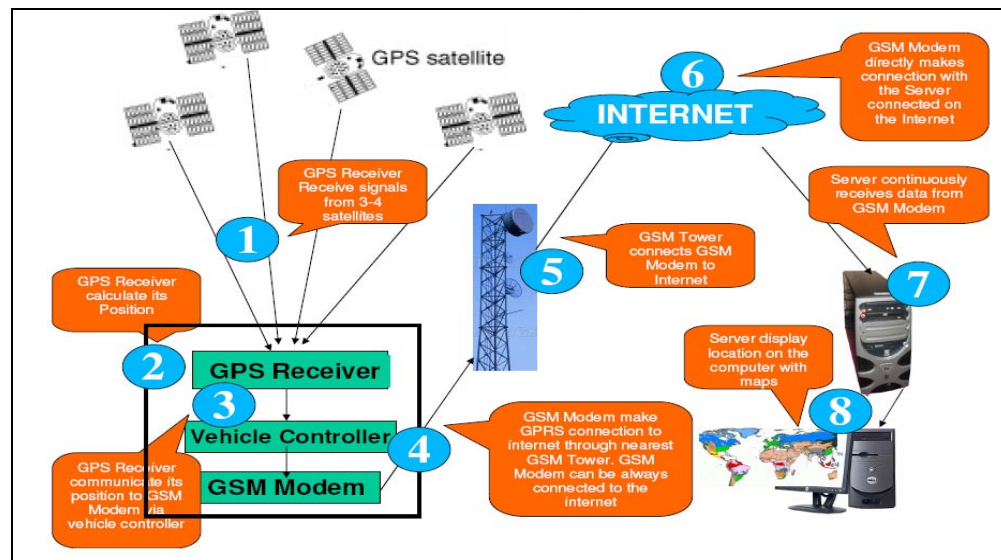
### **Zayle offering:**

- ✓ Customizable solution, designed to suit individual customer requirement
- ✓ Highly scalable (small, medium and large operations)
- ✓ An evolving product with continuing research and development
- ✓ Can be integrated with other products on the market
- ✓ Available with integrated navigation system with in-vehicle screen.
- ✓ One of the most advanced customer and technical support service in the LBS industry
- ✓ Highly cost effective, with competitive pricing model customized for each individual customer
- ✓ Zayle is a direct manufacturer of its tracking device, with cost savings passed on to its customers.
- ✓ Zayle offers the most reliable and advanced tracking device in the LBS market, offering both data and voice capabilities.

Pictorial representation of the High Level Solution to the Vehicle Tracking system using SMS and GPRS.



SMS Based Vehicle Tracking System



GPRS Based Vehicle Tracking System

## C - KEY HIGH LEVEL FEATURES

**VegaTrack** coupled with the superb management system enables a wide array of functions to be preformed. Some of these include:

### *GIS*

- Integrate MAP (ESRI) with the application
- Show Vehicle on Map
- Landmarks
- Auto Refresh map
- Zoom-in and Zoom Out
- Pan

### *Vehicle/User Management*

- Creating/modifying/adding User groups
- Adding/modifying vehicles to the User groups
- Creating/modifying/adding Vehicles
- User Roles/types
- Creating/modifying/Deleting Vehicle Group and type
- Creating/modifying/Deleting GSM/GPRS Base, operators

### *Device Management*

- Adding/modifying/deleting/viewing Device
- Assignment of Device to vehicle
- Modify Device settings/Parameters
- Send commands - start stop Tracking, configure, poll

### *Tracking and alarm management*

- Tracking data, including over speed, alerts, SOS, stoppage, events data like A/c on/off, fuel level, door open/close
- View new alarms
- View the alarms related to a particular vehicle at given date range

### *MIS*

- Tracking report
- Over speed report
- Alert report

## D - FIRMWARE FEATURES

- **Tracking**

Time based tracking - This will send out updates at periodic configurable intervals. These updates will not be sent in case the vehicle is in stop condition. However, in case mandatory tracking is required, the updates are sent even when a vehicle is in stop condition.

- **Stoppage**

Monitoring of stops and starts of the vehicle is available. Only valid stops (stops that satisfy the stop threshold) and valid starts (starts that satisfy the start distance threshold and start time threshold) are reported

- **Overspeeding**

A speed limit is set for the driver, and a grace time is also given. Once the driver exceeds the speed limit and drives beyond the grace time, the overspeed tracking starts. If configured, the device can also send alerts for Overspeeding.

- **Acceleration / Deceleration**

Acceleration (or Deceleration) is calculated as the rate of change of speed. If this exceeds the specified limit, then the data is captured. The device can also be configured to send the same as alerts.

- **SOS**

An emergency / panic button is provided. The driver will press this button during times of emergency. This sends out an SOS record, which in turn will generate alerts on the software as well as broadcast this to the supervisor (if configured)

- **Voice call**

Two way voice communications is provided between the driver and the supervisor. The driver will able to make calls / receive calls only to / from one predefined number, which is configurable from the application.

- **GPRS/GSM**

All communication between the device and the server will be on TCP/IP via GPRS or through SMS based on the requirement.

- **Events**

The device can send the event signal from the sensors as a record to the application and the application can take the required action.

- **Fallback mechanism**

Fallback mechanism is the business rule that applies when the device is unable to connect via GPRS to the application server. This could happen when the vehicle leaves the city area and travels outside. If the customer opts to get the data via SMS, then the tracking interval records (at a less frequent rate), Overspeeding records, acceleration / deceleration records, SOS records shall all be sent via SMS. The customer must have the option to choose feature wise the fallback behavior. In case of SMS fall back the customer will have provision to specify the SMS messaging interval.

- ***Black box***

Black box recording of data is available. Black box data is recorded in the device once every second. When the vehicle is involved in some incident, the data needs to be retrieved for further analysis.

- ***Geofence (for special zones)***

Geofence allows tracking the vehicle entering and leaving “special fare” zones. Geofence is defined as a geographical area marked on the map either as a polygon or as a circle

### ***APPLICATION FEATURE - TRACKING***

- ***User Group Management***

Every company or Fleet is associated with a user group in the system. The User Groups option displays the list of user groups and allows the administrator to add/create the user groups to the system. The user group forms the highest level. Multiple asset groups are created and added to the user group appropriately. The purpose of user groups is to ensure that each customer secures his/her fleet of assets from viewing by other customers. The user group configuration for customers may differ accordingly. The user groups’ option allows the configurations to be customized for each customer.

The user group option offers the administrator to,

- Specify time zone
- Assign maps
- View user groups in the system
- Create new user group(s)
- Delete existing user group(s)
- Edit the user group in the system
- View individual user group details
- User logo can be added
- Specify date and time formats
- Start of a week or month is configurable

- ***Mobile Operator Management***

Mobile operators are the service providers operating GSM networks across the country. A SIM card sends or receives SMS via the mobile operator’s SMS Centre. You can add the mobile operators in the system with their specific SMS centre numbers. This option allows the Admin to do the following:

- Add Mobile Operators
- Edit Mobile Operators
- View Mobile Operators Details
- List Mobile Operators

- ***Home Number Management***

The home number configures the HTTP and GSM modem settings attached to the server's COM ports. You can assign the corresponding mobile numbers of the modems attached to the COM port. The option allows the administrator to do the following:



- Add Home Number
- Edit Home Number
- View Home Number Details
- List Home Number

● **User Type Management**

The client administrator will define the roles or access control list (ACL) as user type in the application software. The administrator can restrict or authorize the features to the users using the user type. The predefined user type supporting the application software will have the following predefined user types

- Enterprise administrator

The user types govern the user access levels. The system defines access levels for enterprise administrator. The administrators for the site could configure the further levels of access by specifying the user types.

● **User Management**

Users are the ones who use the application. Each user can log on using their user name and password. Different levels of administrators have been introduced due to the levels of administration required. A large organization may prefer to have an Enterprise Administrator who would administer their fleet, while small organization may not prefer an administrator at all, and would probably rely on the dealers/partners who would administer on their behalf.

The user will see vehicles only from asset groups which the user has permission. Example in a Fleet if there are 3 Asset groups and a user has access to only one of the 3 asset groups, when the user logs in, he can see only assets which belongs to that asset group.

The user management involves the following options:-

- Create/Add user(s)
- Delete existing user(s)
- Edit user details in the system
- View individual user details

The table below lists the types of user and identifies roles specific to each user

User Type	Role
Enterprise Administrator	The enterprise administrator is an administrator belonging to the corporate customer. Large fleet owners may prefer to have an administrator who manages the fleet. This is also referred to as a user group manager.
User defined	Any user who has permission to create user types can create various user types based on their specific requirement.

- ***User Login-Logout***

The login-logout options allow the users to log in or log out from the application. The administrator creates and issues the login name and password, for example, the user login name for Enterprise Administrator is created and issued by the Super Administrator. Further, the Enterprise Administrator creates Users based on user access levels as specified by the user types.

- ***Password Change***

The password maintains the integrity of a user. Any user can log on by using the user name, password that is assigned by the administrators and change the password later. Administrators can change the password of any user based on their privileges.

- ***User Preferences***

The application offers the users the flexibility to set the preferences of his/her choice. The user can perform the following:

- Customize the look and feel of lists
- Set number of records to be displayed per page
- Auto refresh time for list page
- Select language. (currently only English)
- Size and position of popup window
- Date and time format
- Default sorting based on user selected field for all list.
- Image of vehicles/ assets to show on map and in other places.

- ***Preventive Maintenance***

The application offers an option to the user to track the maintenance schedule of the vehicles registered in the system. The module keeps track of the previous maintenance and also alerts the users for an upcoming maintenance

- ***Tracking Management***

The application offers various options to track the assets based on the tracking type. The access rights for tracking the asset may differ for each user levels. The application is capable of sending/Receiving the messages to/from the device through SMS/GPRS The users can perform the following:

- Start tracking the untracked asset(s)
- Change track settings for the asset
- Stop tracking the tracked asset(s)
- Poll asset for current position

- ***Tracking Parameters***

The tracking parameters allow the administrator to specify the tracking parameters required and save as a default template. The user can assess the tracking parameters for each asset that is being tracked and change the parameters for the selected assets. The device records location information and alerts based on the tracking parameters. The tracking parameter can be applied to the asset in a hierarchical way, i.e. the one set of tracking parameter can be applied to a asset group and by default the same tracking parameter will be applied to each asset, which can individually modified.

- **Position Monitoring:**
- **Mandatory Tracking:** The device will continue to send the records on position intervals in case of stops and bad GPS also if the option is enabled by the user.
- **SMS Tracking:** This option enables the device to send out data by means of SMS when the devices are not in GPRS coverage. This will be a different tracking interval and will not be linked to GPRS tracking interval.
- **GPRS Tracking:** This option is used to enable the device to send data through the GPRS network. In any case GPRS is not available there is a fall back option which enables the SMS to be used as a medium of data transfer.
  
- **Over-speed Monitoring:** The device will monitor the speed of an asset and alerts are sent.
- **Over-speed Tracking:** This option enables the device to track the speeding limits of the vehicle. Reports could be generated based on the over speeding data available at the server.
- **Over-speed Buzzer:** This option enables the buzzer to go on / off on the device. This could be used as a warning mechanism to the driver.
- **Over-speed Alert:** The device will send an alert in case of over speed.

It should be possible to configure only over speed alert or Over speed tracking and over speed alert or only over speed tracking etc.

- **Rash-drive Monitoring:**  
The device will monitor the rash driving by the driver for an asset.
  
- **Acceleration Declaration:** The device will record every excessive acceleration (speeding) / deceleration (harsh braking) above a pre-defined limit by the operations manager.

## F - OTHER FEATURES:

- **Black-box Tracking:** The device receives a feed from the GPS satellite every second and the same is recorded on the device. The user can send a command to the device to get the entire data from the device (Minimum 1 hour is guaranteed if the vehicle was moving for more then one hour). In case of accidents the device will detect the accident based on the separate deceleration parameter and stop delay specified by the user and will send the last 5 minutes of data to the back end. This enables the manager to analyse the driving pattern, engine / asset condition before the incident.
- **SOS:** This feature enables the driver to send an urgent message to the operations manager by pressing the SOS button.
- **Voice Calls:** This feature helps the driver to call the designated numbers and also receive the calls from the respective managers.
- **Broadcast via SMS:** This option enables the operations manager to set the broadcast mobile numbers for alerts and position updates. The application software on receiving the alerts or position updates from the device will send the same in the form of an SMS to the mobile numbers listed against the asset for that type of device. Similarly Email option enables to set the broadcast

emails for the respective alerts. Number of broadcast number supported for each type of records is not fixed.

- ***Alert Management***

The alerts are device generated records based on the tracking parameters through GSM service. Only if the user sets the threshold for over speed, SOS etc. the device will send alert. The alert messages originated from the device are sent to the server and then broadcasted to any specified mobile numbers. The messages will be broadcasted only if broadcast option is configured in the system. Broadcasts can be made to the mobile phones, If the device is not in GSM coverage, the alerts are stored and sent once the device comes to GSM coverage area. All alert types will be stored in the system. The user can perform the following:

- List all the alerts in the system
- Categorize the Alert type
- View each alert in detail
- Get cautioned on Red Alerts

- ***Messages***

The messages send from the system to the device/mobiles can be viewed through this module. This module display the date and time when the messages passed through the GPRS/SMS plug-in, the acknowledgement date and time and device response received date and time.

- ***Driver Management***

Drivers are persons who drive the asset. The allocation of the drivers to the asset can be done and the details of the driver such as driver id, name and shifts could be added to the system. The driver can mark the presence in the asset by using an ID card. The details of the driver are captured and transmitted to the server, which maintains the history of the driver who drives the asset.

- ***Shift Management***

Shift management enables the system to store times of working. Shifts could be defined by providing break hours. Each shift can be associated with a driver and multiple drivers can be associated with multiple shifts.

- ***Landmark Management***

The Landmark Management provides the user with the global landmarks. The global landmarks are the points of interest which are defined by the service partner administrator. These landmarks are applicable to all the user groups belonging to the service partner. The Landmark Management provides the user to add landmarks into the system. The landmarks added by one user will not be available for other users. If all the users belong to single user group, every user in the user group can view the landmarks. The source of creating a landmark can be from either a map or entry of latitude and longitude values. The add landmark functionality allows the user to specify a landmark name, latitude and longitude. The landmark can be added by clicking on a point in the map. The users can perform the following:

- Add landmark(s) to the system
- Add landmark(s) to the system from Alerts, maps etc.
- Edit existing landmark in the system

- Delete selected landmark(s) from the system
- View list of all landmarks that are added to the system
- View individuals landmark details
- Multiple landmarks can be added at a time

- ***Search Option***

The search criteria allow the user to search the assets especially if the database is huge. The user can search the list with any parameter which is displayed on the list. If the list has 6 columns then the list can be searched by any of the 6 columns. Example asset details such as asset name, asset group, driver name, serial key, mobile number, parked assets, moving assets based on search criteria such as trip status, asset name, and driver name. In addition, the user can look at all assets of all groups in the list based on the asset groups the user can access. The search option also allows the user to search based on alert type and asset name.

**Search Criteria Applicable to Assets List:** The user can search based on asset name, asset group, driver name, serial key, mobile number. In addition to the above search criteria, the user can look at all assets of all groups in the list based on the asset groups the user can access. The user can search for the particular asset near the current location of another asset.

**Search Criteria Applicable to Landmark/ Map based Search:** The user can search an asset near a landmark already defined in the system or can search the asset on the map for the given specific time.

- ***Asset Management***

The application must allow the user to view asset list and also to add / edit / delete assets. Each asset will be associated with one device. The asset module typically contains fields such as asset name, description, asset group, asset type, serial key, mobile number, tracking parameters, driver etc.

- ***Asset Group Management***

The application must allow the user to group his assets. This module allows the user to add / edit / delete asset groups. Asset may belong to only one asset group at any point of time

- ***Asset Type Management***

The application must allow the user to categorize the assets based on type. This module allows the users to add / edit / delete.

- ***Tracking***

The application must allow the user to start / stop / change tracking and also to Poll (On demand) the device.

- ***Geofence***

The application must allow the user to create geofences and manage them (list/add / edit / delete). Geo fences are assigned with the respective fare rates applicable. The Geofences can be created as polygon or circle. Multiple geofences can be created.

- **Black box**

The application must allow the user to create incidents, download black box data from the device and also analyze the same. Black box data is the past tracking data stored in the devices.

- **Reports**

The application must provide the user with basic tracking reports such as:

- Detailed tracking report
- Summary tracking report
- Stoppage report
- Overspeeding report
- Acceleration / Deceleration report

- **Maps and Replay**

The application provides the user with various map features like zoom in-out, pan, initial extend etc. The alerts and the assets can be viewed on the map at any point of time. The application also shows various replays like tracking Replays and Black box replays. Tracking/Black box replays shows one or more asset on map with periodic position updates. On tool tip of the vehicle, the application displays, vehicle name, speed, date and time, location, direction (in case of replay), Flagged status etc. The customer has provision to select the image required for any asset, to be displayed on the map.

## G - APPLICATION FEATURE - BOOKING AND DISPATCH

- **Current and advance Booking**

The user can use this module to do the vehicle booking through telephone calls. The telephone calls are routed through IVRS menu. The user can do advance as well as current booking. Configuration is provided to clearly demarcate between current and advance booking.

- **Night Time Booking**

The application automatically handles night time booking and dispatch. When the customers calls for a vehicle, the IVRS provides various menu options to collect the source and destination, the system then finds the best available taxi and reads out the selected taxi driver's mobile number to the customer.

- **Customer Management**

The application allows for the management of the customer. The application stores the information of the customer, including the dialed number, whoever calls in order to facilitate the booking procedure when the same customers calls next time. The module supports add/edit/search/delete customers. The module also helps the operator to track the actual pickup point of the customer with the help of a detailed map of that location.

- **Complaint management**

The application is capable of managing complaints. The module can take complaints against a booking, jobs, or other general complaints like dispatch, drivers, services etc.

- ***Vehicle Dispatch***

Once the booking is done, the application can do the dispatch with the help of the user. Once user selects a booking to be dispatched, system selects the best available taxi based on various search factors - like nearest location of the vehicle to the customers pick-up point, longest idle time of the drivers, drivers total earning till that time - which are prioritized with a weight-age. The weight-age can be configured for the various search factors.

- ***Two-way Text Messaging***

The application communicates with the device using two way text messaging. The application sends the booking details to the device through SMS /GPRS and the device/driver in the vehicle replies back using the buttons on the display unit, which is preconfigured to send the specific message.