# Printing of Training material (Introduction to GIS, CRM,CAD and CSS) booklet

## ERSS, HARYANA

Emergency response support system (ERSS) Haryana, Training material (Introduction to GIS, CRM,CAD and CSS) booklet (Hard Copy) is the need of the project and is to be distributed to the ERSS, Haryana staff members for ready reference.

Further as per the new expenditure control instruction from Department of Expenditure for curtailing administrative expenditure regarding **printing / publishing of books, publications, documents etc. on imported paper is not allowed, except where printing is done abroad by Indian missions etc.**

As the Training material (Introduction to GIS, CRM,CAD and CSS) booklets are not to be printed on **imported paper**, so printing can be done

# EMERGENCY RESPONSE SUPPORT SYSTEM (ERSS)

112

TRAINING MATERIAL

## Introduction to GIS, CRM, CAD and CCS

सी डैक
CDAC
प्रगत संगणन विकास केंद्र
CENTRE FOR DEVELOPMENT OF ADVANCED COMPUTING
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# Acronyms

| | |
|---|---|
| ACD | Automatic Call Distribution |

| | |
|---|---|
| API | Application Program Interface |
| AVLS | Automated Vehicle Location System |
| CO | Communication Officer |
| DCR | District Control Room |
| DO | Dispatch Officer |
| DRC | Disaster Recovery Centre |
| EAI | Enterprise Application Integration |
| ERC | Emergency Response Centre |
| GIS | Geographic Information System |
| GPRS | General Packet Radio Service |
| GPS | Global Positioning System |
| IM | Incident Manager |
| LBS | Location Based Services |
| MeitY | Ministry of Electronics and Information Technology |
| MERC | Mirror Emergency Response Centre |
| MHA | Ministry of Home Affairs |
| ERSS | Emergency Response Support System |
| ePSS | electronic Personal Safety System |
| ERV | Emergency Response Vehicle |
| MoU | Memorandum of Understanding |
| PFT | Portable Field Tablet |
| PRI | Primary Rate Interface |
| PSAP | Public Safety Answering Point |
| SIM | Subscriber Identity Module |
| SMS | Short Message Service |
| SIP | Session Initiation Protocol |
| SOP | Standard Operating Procedure |
| SOS | Save Our Souls |
| TSP | Telecom Service Provider |
| VoIP | Voice Over IP |
| WDT | Web Dispatch Terminal |

# Introduction

Emergency Response Support System (ERSS) is the vision of Govt. of India to designate an integrated emergency response system with a Pan-India single emergency number 112 for handling all emergency requests from citizens.

**"One India One Emergency Number - 112"**

**An Initiative of the Ministry of Home Affairs (MHA), Govt. of India (GoI)**

Presently, in India, citizens have to dial different emergency numbers viz., 100 for Police, 101 for Fire, 102 and 108 for Medical emergencies, 181 for Woman's Helpline, etc., to solicit emergency response/support for citizens under distress. This process in the normal form is a tedious task for the citizens, as they have to remember and use different emergency support numbers respectively while undergoing extreme crisis situations. Besides, this requires setting up separate and segregated infrastructure for each type of emergency which is very expensive and inefficient in resource utilization.

# Centre for Development of Advanced Computing

Centre for Development of Advanced Computing (C-DAC) is a Scientific Society under Ministry of Electronics and Information Technology (MeitY), Government of India. C-DAC had always demonstrated a benchmark for developing indigenous state-of-the art technologies, skills and systems in various domains in line with Government's Make in India program.

Over a decade, C-DAC has been working closely with various Police departments across the country in creating standards for system capability and features that are essential for carrying out Crime monitoring and control services efficiently.

C-DAC has successfully rolled out its Distress Call Response Management System (DCRMS), "Dial-100 System" in 10 major cities including Thiruvananthapuram, Kochi, Bhopal and Kolkata city. C-DAC's DCRMS / Dial-100 system is a Gold Standard for adoption by police across the country to deliver Dial-100 services. C-DAC has also implemented electronic Personal Safety System (ePSS), first of its kind in the country at Jaipur city, which is predominantly intended to provide assistance to women and children in distress. Considering the long term association with Police departments, in the development and rollout of DCRMS across the country, C-DAC has been undoubtedly the natural choice for MHA to develop the complete solution for ERSS. Subsequently, a MoU was signed between MHA and C-DAC for the indigenous development of ERSS solution as per the guidelines of MHA, making C-DAC the 'Total Service Provider' for ERSS-112.

Under this mission, C-DAC has architected and developed the entire software solution and customized the product as per the stipulated norms of pre-defined SOP. A total indigenous, Make-In-India product, has been carefully designed and developed following the guidelines of MHA with pre-requisite security mechanisms. Since its inception, thousands of success stories have emerged from across the country, due to the timely assistance provided by this technology-based system with effective use of GIS map of the State.

In this regard as explained above in the premise, Ministry of Home Affairs (MHA), Govt. of India (GoI) has initiated the development of an integrated Emergency Response Support System (ERSS), using a single and unique emergency number '112' to address all types of emergencies on a common platform.

The Ministry plays the lead role in the nationwide implementation of ERSS and ensures development, deployment and support by entrusting the assignment to CDAC considering their technical competency, skill and experience in implementation of numerous projects of similar portfolios. MHA fund the states to conceptualize the noble idea of implementation of

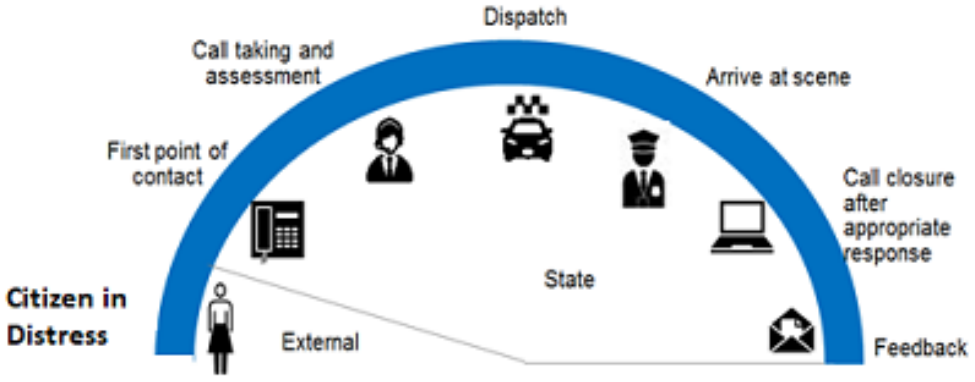
state-wide Emergency Response Systems (ERSS) and has recommended states to formulate apex committees to coordinate the rollout of ERSS. MHA has devised the core features of the solution in adherence to a unique Standard Operating Procedure (SOP) to ensure uniformity of operations across the country. However, States are allowed adequate relaxation to upgrade for customizations and implementation based on state-specific requirements if any.

Accordingly, a State-level Emergency Response Centre (ERC), also known as the Public Safety Answering Point (PSAP) will be established at a central location/capital city of the State. The ERC / PSAP is responsible for handling all types of emergency signals originating and landing at the emergency number- '112', across the State. The system is integrated to all types of configured emergency support services that primarily include Police, Fire and Health. This services/facility is also extended to critical services, Railways, Disaster etc.

Following emergency signals originating from a State are received at the ERC / PSAP :

| | |
|---|---|
| Voice Call | Dial-112 |
| SOS Messaging | SMS-112 |
| SOS Mailing | 112@gov.in |
| Web Alerts | 112.gov.in |
| Panic Messaging | 112 India App |
| Social Media | WhatsApp, Twitter |
| Chatbot | 112 Chat Links |

# How does ERSS 112 work?




When any of the signal (as illustrated in the above diagram) is received at the Emergency Response Centre (ERC), it is diverted to a skilled Call-Taker. The call taker will capture the limited information from the caller including the location of the service requester. The Call-Taker then assesses the criticality of the incident and decides on the action to be taken. The information is then transferred to Dispatcher(s) of support service(s) for further action. The Call-Taker has the capability to receive all emergency and non-emergency signals on his/her workstation that displays a detailed GIS-enabled digital map of the State.

The Dispatcher may belong to one of the following emergency support services

- Police
- Medical
- Fire and Rescue
- Women and Child
- Disaster Management
- Railway Protection Force
- Help-Line Services

Once a challan is received from Call-Taker for action, a dispatcher makes an action plan and communicates to the associated Emergency Response Units, electronically. He is also responsible for assigning a task and guiding/monitoring the units, until the required assistance is provided to the service requester. The entire mission of supporting a person in distress is monitored and controlled by Supervisors of ERC. They ensure that the requester gets assistance within the golden-hours.

The next in this sequence of chronological actions/events are the Service vehicles (known as Emergency Response Units, ERVs). They are fitted with **"GPS enabled Portable Field Tab (PFT)"** and equipped with other communication means. Locations of these vehicles are tracked continuously by the ERSS backend system and made available on dispatcher terminals in ERC in real time.

"**Web Dispatchers**" run on web browsers over internet, which can serve most of the functions of normal dispatcher terminals. These dispatchers allow extension of ERC's serving arms to local emergency service point, which may not have high speed data connectivity (Police Station, Medical Station, Fire Station etc.).

# Salient Features of ERSS

➢ Providing an unique Pan-India Single Emergency Response Number “112” for public to deal with the emergency / distress situations and get assistance from agencies such as Police, Fire, Medical and Disaster Management departments.

➢ Handling Emergency and non-Emergency SOS/Panic Signals with suitable priority and triggering responses with Computer Aided Dispatch Mechanism

➢ Providing 24x7 efficient, effective and scalable response systems which receive inputs from various voice and data services such as Call, SMS, email and SOS signals, process & dispatch the required services/ emergency resources at the incident location as fast as possible with the help of Computer Aided Dispatch mechanisms.

➢ Identification of location of the person in distress, connecting and coordinating to attend him/her/them and close the emergency incident

➢ Timely dispatch of the services to handle the emergency at the location of the incident by location based services or data collected manually or GPS Enabled resources whichever is applicable in the incident site.

➢ Monitoring and tracking the actions taken by the various officers involved and escalation of events to higher officials if required

➢ Provision to collect feedback from the officers to improve the system and provide better service to the person in panic / emergency

➢ Provision to generate Reports of various categories which are multipurpose in nature with permission of senior officials of various states and central authorities

With the vast experience gathered through successful rollout of Distress Call Response Management System (DCRMS), "Dial-100 System" in 10 major cities including Thiruvananthapuram, Kochi, Bhopal and Kolkata city. C-DAC's DCRMS / Dial-100 system is a Gold Standard for adoption by police across the country to deliver Dial-100 services.

C-DAC has also implemented the first electronic Personal Safety System (ePSS) in the country at Jaipur city, which is primarily intended to assist women and children in distress to send an emergency message seeking help of Police at ease.

Long association with Police departments, in DCRMS development and rollout activities across the country, has made C-DAC the natural choice for MHA to be entrusted with the responsibility of developing the complete software for ERSS. An MoU was signed between MHA and C-DAC for the indigenous development of ERSS software as per the guidelines of MHA, eventually C-DAC was declared as the 'Total Service Provider' for ERSS-112.

## ERSS-112 for Haryana

In the state of Haryana, ERSS -112 will be implemented as a modernized, sophisticated and state-of-art world-class system. The infrastructure envisaged for Haryana includes an Emergency Response Centre (ERC), Mirror Emergency Response Centre (MERC) and a Disaster Recovery Centre (DRC). They will be connected by strong, dedicated network lines. The ERC may be located at a suitable central place (Panchkula, Haryana) along with MERC, DRC and DCRs in other districts. The first phase of the solution constitutes police emergency services and the second phase will extend to medical and fire emergency services. The three units will form the robust backend ecosystem for Haryana ERSS-112, providing uninterrupted, timely services for the citizen seeking emergency help in the state.

## Emergency Response Centre (ERC)

Emergency Response Centre (ERC) is an important communication link in ERSS which connects the service requesters to the emergency service providers. ERC processes all types distress calls and messages (SOS signals) which are sent to 112.

## Overview of ERC

ERC stationed at Panchkula, Haryana will be able to receive all emergency signals through specialized hardware and software, process them and deliver to selected support services for prompt action. It also acts as a monitoring and control station.

## Functionalities of ERC

The ERC setup in designated central location referred to as Control and Command Centre and

- Ensures 24X7 operations.
- serves as the first contact point for the public seeking information and assistance.
- provides immediate responses to emergency situations and telephone enquiries.

## Mirror Emergency Response Centre (MERC)

It will be a hot-site to recover and restore ERSS technology infrastructure and operations conceptualized with the objective of a proportionated 100% functionality and 20% of capability of ERC to achieve redundancy. It can also be configured as an overflow unit for ERC. Hence, the MERC can function independently or in collaboration with ERC / DRC.

## Disaster Recovery Centre (DRC)

It is a warm-site to recover and restore ERSS technology infrastructure and operations when the server operations are interrupted to ensure redundancy and retain full operational cycle of the envisaged system (ERC).

# ERC Organizational Structure

ERC is equipped and operational with following workstations. An user role is identified and defined by the type of workstation that he/she uses.

## I. Communication Officer (CO) or Call Taker

Communication Officer/Call Taker will use a desktop application which is built around a personal computer with an IP phone and map-based software. There will be a number of CO workstations within one ERC. CO will be grouped based on their skills of the likes of General Call Taker, Enquiry Call Taker, and Women Call Taker etc. Henceforth, the skilled CO is expected to have sufficient knowledge of the type of service to be offered. CO at ERC shall be responsible for collecting primary information from the citizen/caller such as name, address, contact details and the type of emergency. The CO will then forward the screen and voice to the dispatcher unit.

## II. Dispatch Officer (DO) or Dispatcher

Dispatch Officer/Dispatcher will use a desktop application which is built around a personal computer with IP phone, running specialized software for dispatching tasks. DOs are categorized based on the service (Police, Fire, Medical and others) supported by them. DO should gain good knowledge of the system so that quick actions can be taken to provide

timely service to the service requester. Based on the call assessment, DO shall dispatch the Emergency Response Vehicle (ERV) to the incident site.

### III. Incident Manager (IM) or Supervisor

The IM application is also built around a PC and IP Phone, with monitoring and control software running. As per the state SOP, the designated IM user should be a senior officer who will have supervisory and administrative powers over other agents of ERC. The IM has been granted privilege of the final closure of the signals received.

CO, DO, IM and PFT users have login credentials to their respective systems. In order to achieve high availability, all workstations and PFT should be always up and running with a valid and authenticated user logged in.

## Zones, DCR and Rescue Point

A **Zone** represents a group of districts (Southern districts, Central districts, etc.). Zonal dispatchers are placed in the ERC itself.

A **District Control Room (DCR)** is setup at the district level. Dispatch Officers in a DCR are responsible for handling events pertaining to the respective districts.

The Zones / Districts are setup with one or more **Dispatch Officer (DO)** workstations. Depending on the role assigned to the Dispatch Officer, DCR can communicate with ERC and ERVs.

Moreover, **Rescue Points** (local Police Stations, Health Centres, Fire Station etc.) in a district can have **Web Dispatch Terminals (WDT**), which is a GIS-enabled web application that can handle various service requests dispatched through internet.

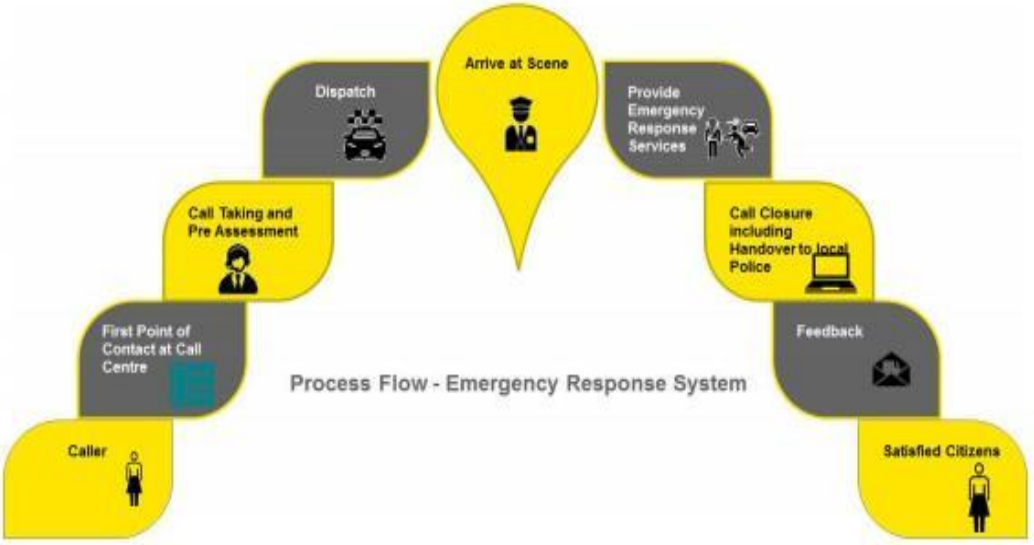
## Purpose of Zones, DCR and Rescue Point

A zone represents a group of districts (Ex. Southern districts, Central districts). Zonal dispatchers are placed in the ERC itself.

A District Control Room (DCR) is setup in district level, Dispatch Officers in a DCR are responsible for handling events pertaining to the respective district only.

The Zones / Districts are setup with one or more Dispatch Officers (DO) workstations. Depending on the role assigned to the Dispatch Officer, DCR can communicate with ERC and ERVs.

In addition to this, Rescue Points (local Police Stations, Health Centers, Fire Station etc.) in a district can have Web Dispatch Terminals (WDT), which is a GIS-enabled web application that can handle various service requests dispatched through internet.




The process for Emergency Response System has 9 major steps:

1. A citizen (caller) would be able to connect ERC by leveraging input from various sources such as phone, SMS, email, mobile applications etc.
2. Incoming calls at ERC would be taken by Communication Officer (CO). COs shall be the first point of contact in ERC to receive the calls. They are responsible for collecting basic information from the citizen/caller viz. name, address, contact details and the type of emergency.
3. The voice and screen details are then forwarded to dispatcher.
4. The calls and screen from COs are received by Dispatch Offices (DO). Additional information, if required, can be collected by DO.
5. DO locates the nearest vehicle, shortest route and nearest police station to the incident site.
6. Dispatch Officer (DO) shall dispatch the Emergency Response Vehicle (ERV) to incident site.
7. A designated Incident Manager (IM) from the police department will be responsible for monitoring all incidents.
8. A feedback will be collected from the citizens after the service is completed.

# ERSS Overview

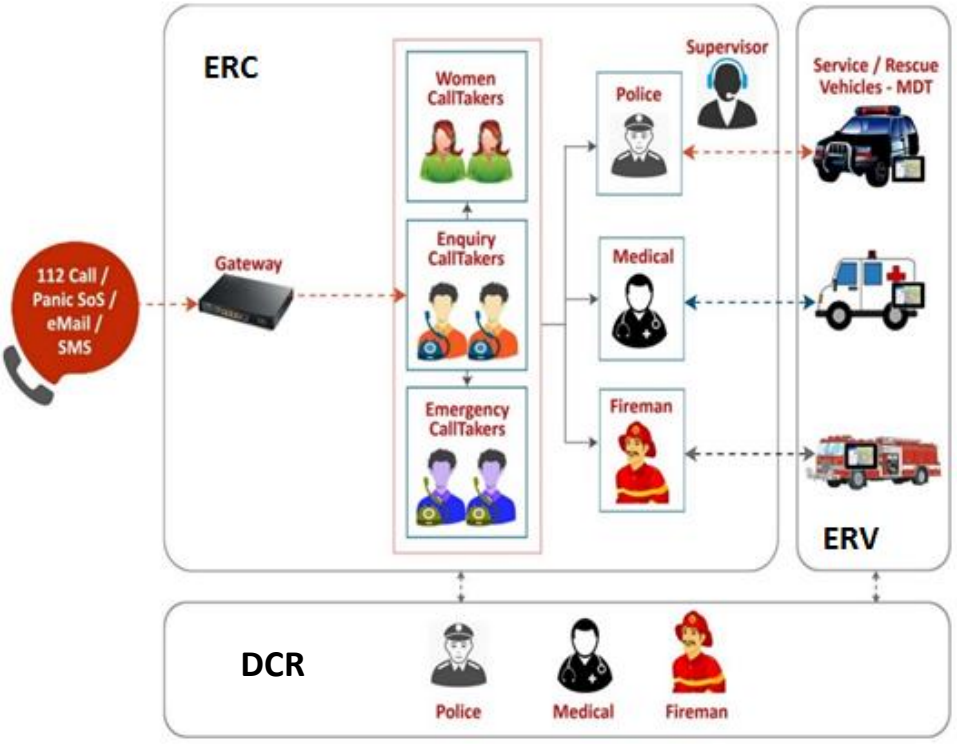



**Figure 1: ERSS Block Diagram**

The working of ERSS constitutes three processes namely:

**Call taking Process**

ERSS deals the Call taking process by receiving the calls in Call Centres/ERCs. The Call takers are the representatives from the departments providing respective services in adherence to the state's SOP. The system collects the caller details and incident details such as Emergency event information, location, address etc., and the acquired information is registered in database by application. If the Call Takers identify the call as a genuine one, then he/she can

register the case and forward it to the Dispatcher Agents who are stationed in the corresponding District Control Rooms (DCR). The Call takers can even assign the same case event to different other services if required.

**Dispatching Process**

ERSS administers and monitors the dispatching process/procedure by receiving the case events which is forwarded by the Call taking Agents. The forwarded events are assigned appropriately to available ERVs in the near-by location of the event across the state. Further, the information regarding the case event can also be updated by the dispatcher if needed.

**Task Assigning Process**

The key process in ERSS is the Task assigning process, where the registered case event is assigned for action/responses. The case event is assigned to a vehicle equipped with a PFT Tab. As and when the event is assigned to the vehicle nearer to the event location, the rescue vehicle dash to the spot very quickly and can respond to the event with less response time. The process facilitates the rescue vehicle to communicate with the Caller/Victim and the Call taking Agents if needed.

An integrated software is designed and developed to accomplish the requirements of ERC, NSS and DCR and is fully customized according to the needs of individual States/UTs. The main objective of ERSS is to provide a responsive and high-quality service to the public citizen under distress, in an emergency situation to reduce the hazard to ensure the safety of life, property etc.

# ERC : Emergency Response Centre

Emergency Response Centre(ERC) or the control room, is a location which is stationed at the State/UT capital and has got adequate signal receiving equipment to track and process different kinds of emergency signals originating in that particular State/UT.

The first phase deals with receiving of the emergency signals. The emergency signals landing at the ERC are initially received and recorded by a panel of experienced Call-takers, also known as Communication Officer, who records all relevant information regarding the event on the CO console .Afterwards only genuine and actionable requests are forwarded to the next phase - the DO /Dispatchers.

The Dispatchers initiate further necessary actions. Depending on the location of the incident the Dispatchers may either forward the task to the District Control Room or assign the task to the Emergency Response Vehicle (ERV), which is the third phase.

The Emergency Response Vehicle (ERV) is usually a vehicle associated with a specific jurisdiction, equipped with a handheld data device/Portable Field Tab. The Dispatcher finds the vehicle which is located near to the event location and assigns the task to it so that the victim gets immediate assistance. The entire mission is monitored and controlled by the ERC Supervisor with the help of the Incident Manager (IM) application.

The basic functioning of this Emergency Response System is similar for all other services viz., Police, Fire Force, Health Department etc. with some additional functionalities that are very unique to ERSS.

## ERVs with Portable Field Tab (PFT)

Portable Field Tab (PFT) is a handheld device or a Tablet that is mounted in the Emergency Response Vehicle. This device is enabled with data connectivity. The PFT application displays the victim location and the assigned vehicle location in a map along with the relevant information of the event and actions to be performed by the vehicle.

# ERSS Architecture

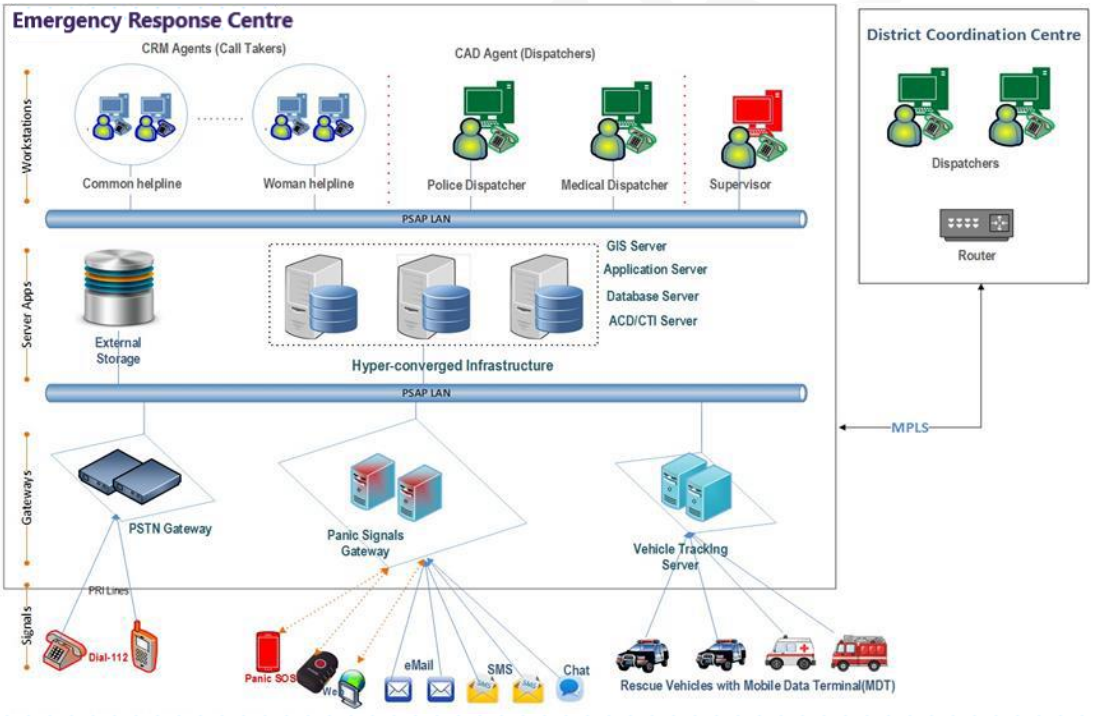



**Figure 2: ERSS Architecture**

The base layer includes various hardware and software gateways for reception of emergency signals like voice, SMS, Email, Panic signals etc. These signals are processed and routed to the middle layer for further processing and delivery..

The middle layer includes all application processing, communication, GIS and storage services. This scalable backend system is connected to all clients including CO, DO and IM for exchange of data and signals.

The top layer includes Workstations / Mobile Devices running User Interface applications.

# Geographic Information System (GIS)

A Geographic Information System is a computer system capable of assembling, storing, manipulating, and displaying geographically referenced information, i.e. data identified according to their locations. Geographic Information System focuses on the processes and methods that are used to sample, represent, manipulate and present information about the world. The central function of GIS is to provide a visual representation of data.

GIS help the users for better understanding and visualization of spatial patterns and relationships. It allows to record a base map with a geospatial referencing system such as longitude or latitude and then to add additional layers of other information. This contains a high resolution digital map of the state with tools for basic navigation, searching and information gathering. Map will render the layers according to the zoom level.

Functions of GIS include Data collection, Data storing, Processing & Analysis, Display data. A geographic feature is any real-world object on a map, such as a single building. A layer is the visual representation of a set of geographic features. Layers must contain spatial data. Spatial data indicates the geographic location and shape of the feature. The two main types of GIS

data are raster and vector. Vector data is spatial data represented as points, lines and polygons. Raster data is cell-based data such as aerial imagery and digital elevation models.

Spatial reference systems are a key component of writing spatial applications. It helps to describe where features are located in the real world. Projected coordinate systems define a flat 2D Cartesian surface. It has constant lengths, angles and areas across the two dimensions. It is always based on a geographic coordinate system that references a specific datum. EPSG 4326 is the most common spatial reference for storing a referencing data across the entire world. In ERSS, the GIS map helps in monitoring and managing vehicles, locating the incident spot, crime mapping and different types of analysis.

## Integrated GIS

GIS Map is integrated with modules like Communication Officer (CO), Dispatch Officer (DO), Incident Manager (IM) and Emergency Response Vehicle (ERV). The GIS Map console is dynamic and their view is dynamic as per the login and role of the user, i.e. the toolbar functionalities and dynamic overlays of event and vehicle will varies according to the user role.

GIS Map having more than 50 layers of 'Point Of Interest' and enabled with basic functionalities of Zoom In, Zoom Out, PAN and current map scale also displayed. The GIS Map have layer switcher in which multiple base layers are provided user can swap between one base map to another and also various overlays. Two dynamic overlays of event, vehicles are rendered over the base map. Clustering is provided to event and vehicle overlay for visually consolidating markers, making it easier for viewers to understand a map as a whole by combining nearby markers on a map into a cluster, which is presented on the map as a single icon with colour code.

Integrated GIS Map with CO module helps the CO to mark incident location instantly by collecting minimal information from caller. Location marking can be done using options like Location Based Service (LBS), Get Location using Caller/Victim address, Search landmark. Nearest Police Station, Hospital, Fire station, Schools, District will be filled in the CO console automatically once the location is marked. This helps the Communication Officer to make faster decisions. CO can view the events location of all events assigned to that particular CO.

Integrated GIS Map with DO module contains the live location of all ERVs and cases under that DO with various colour codes according to the status of event and vehicle. The DO can select the nearest ERV/ERVs (police, medical, fire or other rescue vehicle) based on the proximity and availability from the GIS Map.

Integrated GIS Map having functionalities like Geo-fencing, Buffering, Vehicle Trace. Integrated GIS Map with Supervisor module have all the relevant information of events with all CO's and DO's consoles and also the live location of all ERV's (police, medical, fire or other rescue vehicle). Supervisor has additional roles of monitoring and analysis.

# Communication Officer (CO) Software

## Communication Officer or CO

CO is the first level responder for citizens making any request to 112 PSAP. Citizen raising the request is referred as Informer and person requiring assistance is referred as 'Person in Distress'.

Request made by the citizen is generally referred as Signals. Signal can be

- Voice Call to 112
- Panic SOS from 112 India App
- SMS to 112
- Email to 112

- Web requests from https://hr.ners.in

Created/Manual Events (Other than the above mentioned signals, if we get information from any other sources, we can register the signal to PSAP)

Citizens can make signals/request to 112 for any purpose like query/question, information, emergency etc. Signal/request are broadly classified into two types

### Emergency Signals

By default, Voice Call to 112 and Panic SOS from 112 India App and Created Events are treated as Emergency Signals.

### Non-Emergency Signals

SMS to 112, Email to 112, Web requests from https://hr.ners.in, Social media like Facebook, Twitter and WhatsApp, Chat are treated as Non-Emergency Signals by default.

Emergency and Non-Emergency signals can be Actionable or Non-Actionable based on the nature of the signal.

### Non Actionable Signal

Those signals which does not require any intervention from the PSAP is called Non Actionable signals. Normally these signals will be closed without any action.

Eg: A caller called 112 to enquire about something.

### Actionable Signal/Event

Any signal/request made by a citizen which requires immediate attention/action from the PSAP is called an Actionable Signal or Event. Events are handled based on pre-defined Standard Operating Procedures (SOP) which will be configured in the CO software.

Eg: A caller informed PSAP about a Major Accident occurred.

CO Officer should collect all the possible information including the incident location. Incident location refers to the place where the event happened.

CO should collect all the possible information as quickly as possible and should transfer/dispatch the event to Dispatch Officer (DO).

## CO User Interface

CO software is a java based standalone application that allows the operator to communicate with the citizen who is requesting help through a signal. The CO application facilitate the operator to collect and feed information from the citizen. CO software runs in a PC with dual monitor and an IP phone will be attached to the CO desk for taking calls to 112.

CO user interface has mainly two parts:

GUI interface in Monitor 1

Monitor 2 will be loaded with Haryana State Map

The GUI interface part will assist CO to communicate and collect information from the citizen and to dispatch/transfer the event to DO. The GIS map typically aids CO to quickly identify the location of the incident and Person in Distress. Identification of incident location is important for dispatching the event to Dispatch Officer.

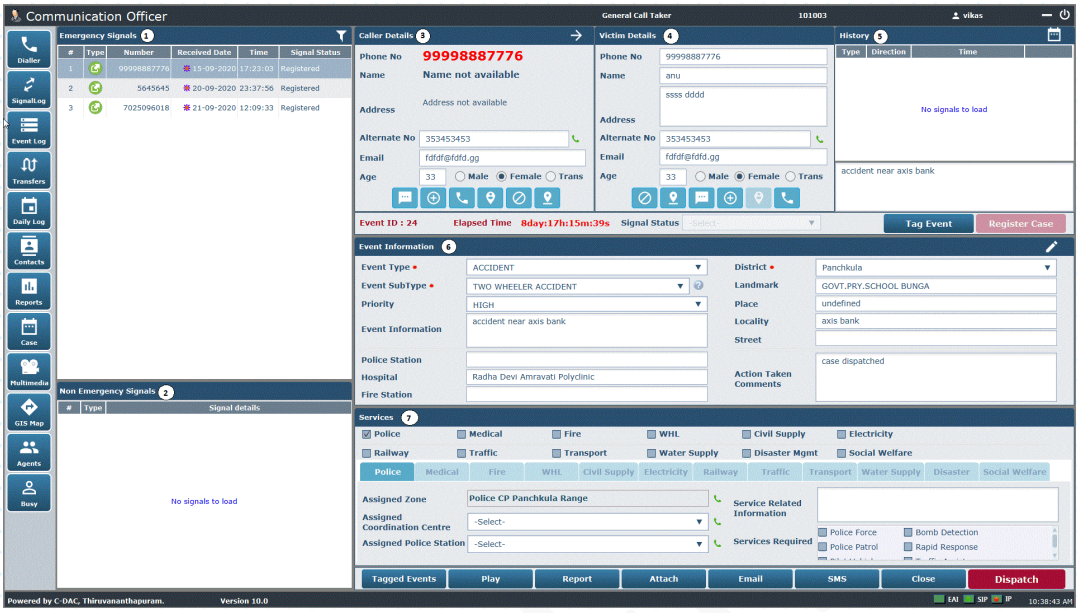



**Figure 3: Communication Officer Console**

The main portions of CO interface is numbered from 1 to 7 in the above image.

1. Emergency Signals

   The table lists the emergency signals received in the CO desk. Emergency signals are voice calls, SOS from 112 India App and Created/Manual signals. It shows information such as signal type, contact number and the time when the signal is received.

2. Non-Emergency Signals

   The table lists the non-emergency signals received in the CO desk. Non-Emergency signals are SMS to 112, Email to 112, voice calls, Web request. It shows information such as signal type and the signal content.

3. Caller Details

Once a signal is landed on the CO desk, the details of the Person in Distress is shown in this area based on the type of signal.

For Voice Call, SOS, SMS and Web request it will show the phone number, name and address. For Email it will show the email address of the sender. The CO can enter the details such as gender, age, alternate number and email address after enquiring with the person in distress. It also provides facilities like

- Call : To call back the informer
- SMS: Send text message to informer
- Block: Blacklist the informer so that he will not be able to raise request to 112
- Add: To add details of the informer like name and address
- GIS: To identify the location of the informer from his address
- LBS: To identify the current cellular location of the informer

4. Victim Details

This portion is for adding the information about the victim/Person in Distress. Informer and person in distress can be same or different. Victim details portion has fields like victim name, phone number, address, alternate number, email address, age and gender. These information should be collected from the informer. If informer does not know these information regarding the victim, these fields can be left empty.

If caller and victim are same, caller details can be copied here with single click over a button provided in victim details panel. It also provides facilities like

- Call : To call back the victim
- SMS: Send text message to victim

- Block: Blacklist the victim so that he will not be able to raise request to 112
- Add: To add details of the victim like name and address
- GIS: To identify the location of the victim from his address
- LBS: To identify the current cellular location of the victim

5. History

This table will show the details of signals from the same number within a specific time

6. Event Information

This panel has the fields related to the incident informed by the informer. The main fields are

- Event Type: The type of event happened (Main head) Eg. Accident
- Sub type: Sub head of the event type Eg Car Accident
- Priority: Priority of the event. It may be LOW, MEDIUM or HIGH based on event type.
- Event Information: CO Officer should enter the details of the incident in this portion.
- Police Station: The police station nearest to the incident location.
- Hospital: The hospital nearest to the incident location.
- Fire Station: The fire station nearest to the incident location.
- District: District at which the incident happened.
- Landmark: Landmark in the incident location like an ATM or Building or School etc.
- Place: Place at which incident happened.
- Locality: Locality where the incident happened.
- Street : Street where the incident happened.

- Action taken comments: Here the CO Officer can enter the details of action taken by CO, if any, such as calling police station, fire station etc.

Mandatory fields are marked by a red colour star symbol.

7. Services

This area will list all the services provided by 112 to the citizens. The different services are Police, Medical, Fire, Disaster etc. The CO has to select the required services based on the information gathered from the informer. For example an Accident require Police and Medical Service. In each service tab, there is specific fields like the Zone and DCC which needs to be entered by the CO.

There are some buttons provided for managing the event.

- Tagged Events: List all the signals and events which are tagged to this signal/event
- Play: To playback the call recording
- Report: To export the event to PDF document
- Attach: CO Officer can attach other external documents like PDF, Word, Excel, audio, video, images etc. to an event.
- Email: To forward the event details as Email
- SMS: To forward the event details as SMS
- Close: To close an event which is not required to dispatch to DO
- Dispatch: To dispatch/transfer the event to DO.

Register button is provided to make a signal into an event. Consider a scenario that CO has received a call. On talking to the caller, the CO identifies that this signal needs to be dispatched. Now the CO has to click on the register button so that the signal will be registered into an event and can be dispatched. If it is not an actionable signal/event, it can be closed

by marking the status accordingly. Accidently registered events can be closed by the CO by clicking the Close button provided.

Tag event button is provided to avoid duplicate events. For example when an Accident occurs, there is a chance that multiple informers will report the same incident to the PSAP. In such cases the action is initiated based on the first call and subsequent calls will be tagged along with the first call.

When the Dispatch button is pressed, a Dispatch Window will be opened. It will show all the online Dispatch Officers in the selected services for the event. If multiple DO Officers are available in a service, then the system will automatically identify the DO based on Least Recently Used mechanism.

The bottom of CO application displays the status of all services required for smooth working of the application. Following server status are displayed namely EAI, SIP, IP Phone. Green colour indicates that the server is up and the service is available. Red colour indicates that the server is not reachable and the service is unavailable.

## Standard Operating Procedure – Communication Officer (CO)

CO Operation and Event flow can be grouped into five steps. Each step is described below:

**I. Step-1, Agent Login**

- Double click the ERSS CO application icon on the screen and open the application.
- On launching the CO application a login window will pop up, prompting the CO to enter the login credentials.
- CO has to enter his username and password and press the “Login” button.
- On entering the right credentials, the authentication of the agent will happen with the ERSS server and the agent will get logged into the ERSS CO application successfully.

- If the agent enters wrong credentials, the application will prompt for entering the right credentials again.

**II. Step-2, Check Server Status**

Once CO log into the application he has to verify the status of all the required backend services at bottom right corner. The following services should be active for the proper functioning of the application: IP Phone, EAI Server and SIP.

- Green colour indicates the server is up and the service is available.
- Red colour indicates the server is not reachable and the service is unavailable.
- On red colour indication the agent has to inform the network administrator for taking corrective action.

**III. Step-3, Receive the Signal (Emergency/Non-emergency)**

COs are grouped into different groups like general Communication Officers, women Communication Officers, query Communication Officers etc. All emergency, non-emergency signals landing on "112" will be attended by general Communication Officers pool. From there it will be forwarded to corresponding Communication Officers group depending on the call criteria such as, female voice calls in emergency is forwarded to women Communication Officers, general queries will be forwarded to query Communication Officers etc.

- When a Voice call signal arrives:
  - Soft phone will pop up showing the call status, caller number, name, and address of the caller. For registered users, photo and other immediate contact details are also made available.
  - CO has to accept/attend the call.

- Discard the signal: If the agent feels the received signal need not to be dispatched to DO (Enquiry calls, Irrelevant calls, Abusive calls etc.), he can discard the signal by selecting appropriate option from Signal Status.
- Tag with event: The system will notify the agent on similar calls which were already registered based on various criteria such as caller number, event location and event type to avoid multiple actions initiated to single incident (E.g. If any accident occurs, there are chances of multiple informers). CO can tag the event with another event on identifying that the event is already reported by clicking the Tag with Event.
- Register the signal: If agent feels the signal is to be registered, press the Register Case button, on which all other required modules in GUI will get enabled.
- Location of the caller can be fetched by giving LBS request using the button provided in Informer Details/Victim details panel.
- If the location of the caller is not available, the agent has to query the location of incident and mark it in the application.
- On identifying the location CO will populates all the location related information like the district, landmark, etc. over the Event Information module of User Interface.
- CO has option to do partial dispatch of an event if it is an emergency signal and requires urgent response. Other relevant information collected can be updated to the event later.

**IV. Step-4, Data Entry**

CO has to collect all relevant details about the event from informer and make entry in the required modules.

- Victim name, address and phone number has to be queried and entered in Victim details panel. If the caller and victim are same, caller information can be copied to victim information over a button click.

- Agent has to categorize the event based on event main type, sub type and priority, and make entry in event information panel.
  - Select appropriate Event Main Type like robbery, murder, crime against women, accident, etc.
  - Select Sub category of main event type. E.g. vehicle theft and chain snatching for main event type robbery.
  - Select Event Priority from High, Medium and Low priority.
- Details such as District, Taluk, City and Locality of the incident are to be queried/ collected from map and make entry in Event Information module.
- If there is any extra information collected, the agent can use event information field to enter it.

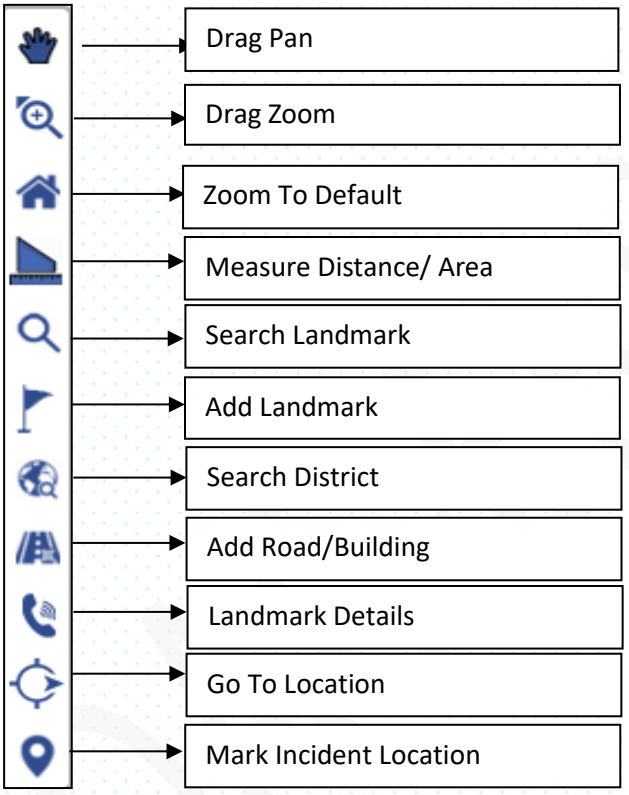
**V. Step-5, Event Dispatch**

CO will identifies the type of services required based on the event type. If services of multiple agents are required, the event needs to be dispatched to multiple agents with all collected data. Select the required agencies to which the event need to be dispatched, using checkbox in Dispatch panel.

- On selecting a service, corresponding tab for that particular service is enabled.
- The CO can enter the agent specific information like type of accidents, recovery van requirements, number of casualties etc. in that tab.
- On pressing the Dispatch button main Dispatch panel will appear to select the DO.
- Agent can select online dispatch officers for selected services and dispatch the case.

# CO GIS Map Console

## CO Tool Bar in GIS



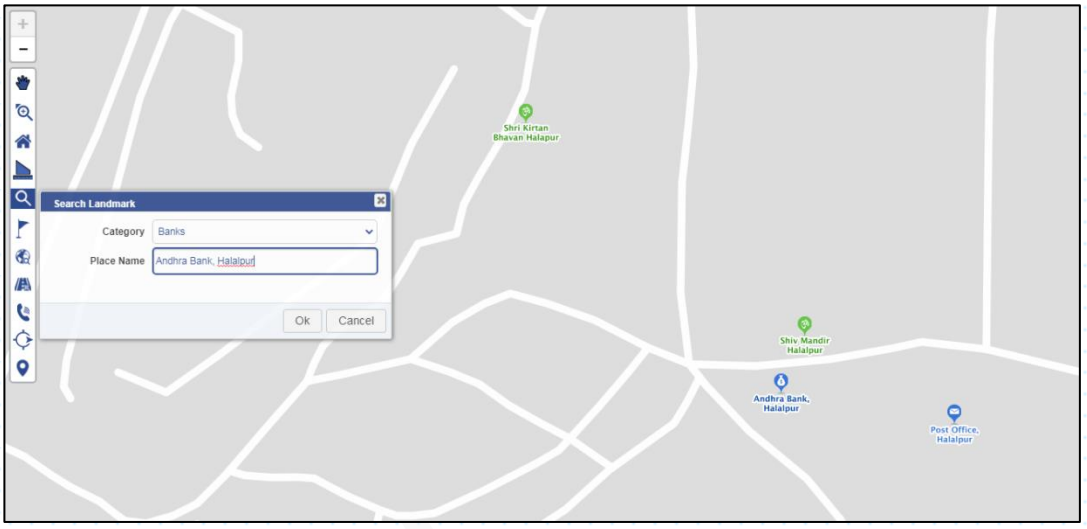

### Zoom

The user can zoom to different locations in the map. Zoom level up to 22 is supported in GIS Map. The map scale is also displayed with current geo location (latitude and longitude).

Using + Zoom In to a location and – to Zoom Out

## Search Landmark

There are about 50 layers/categories in GIS Map. The Search Landmark helps to locate the nearest incident location.




## Mark Incident Location

Use tool to mark the location. Icons representing different signals will be placed in the map. The on focus signal will be red colour/others in green. Location can be changed by the CO if not accurate.

| Signal Type | Description |
|---|---|
| | Location on call ringing, if TSP database have location |
| | Voice Call - ONFOCUS/OUTFOCUS |

| | |
|---|---|
| | Missed Call |
| | SOS |
| | SMS |
| | EMAIL |
| | Web Request |
| | New Case |
| | Twitter |

The location marked will list out the nearby POIs with Phone No and call taker can directly phone to that POI. The Inform Caller Button will give the caller the nearby POIs name and Phone number as SMS.

Nearest Police Station, District, Nearby Landmark everything will be filled in the CRM Console once the location is marked.

Address can be marked in the map using CO console Get Address Location button. Get Address Location (Blue marker will be placed in the location)

**Address Data format should be**

Nearby Landmark,

Street Name/Colony Name,

Place Name,

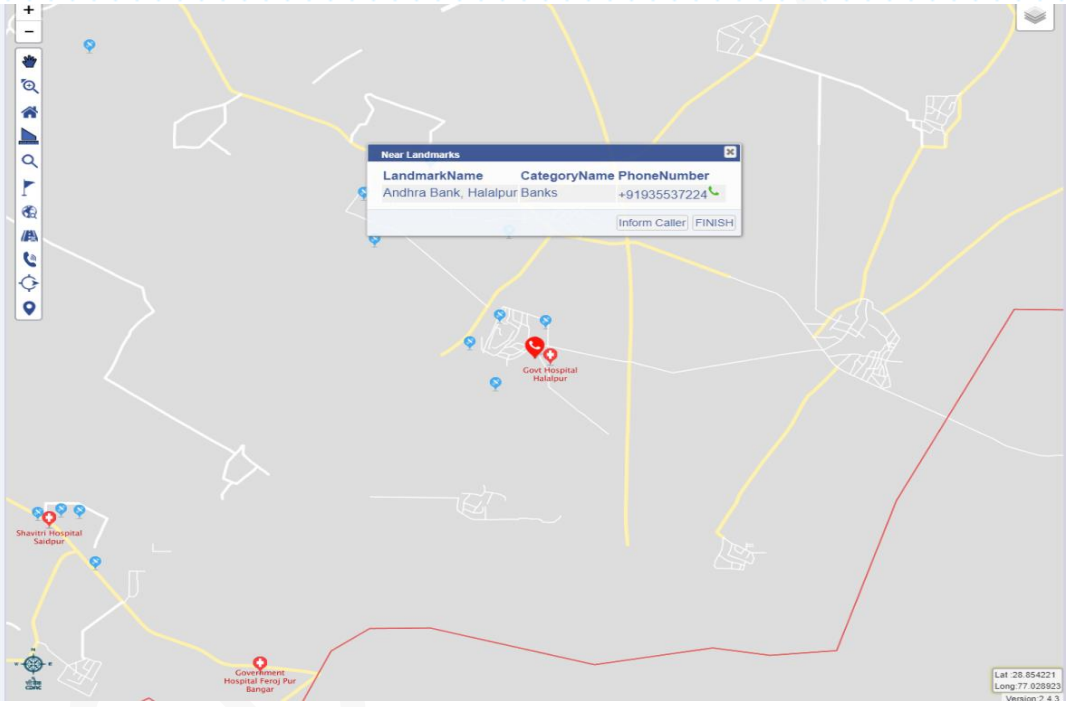
CDAC-ERSS

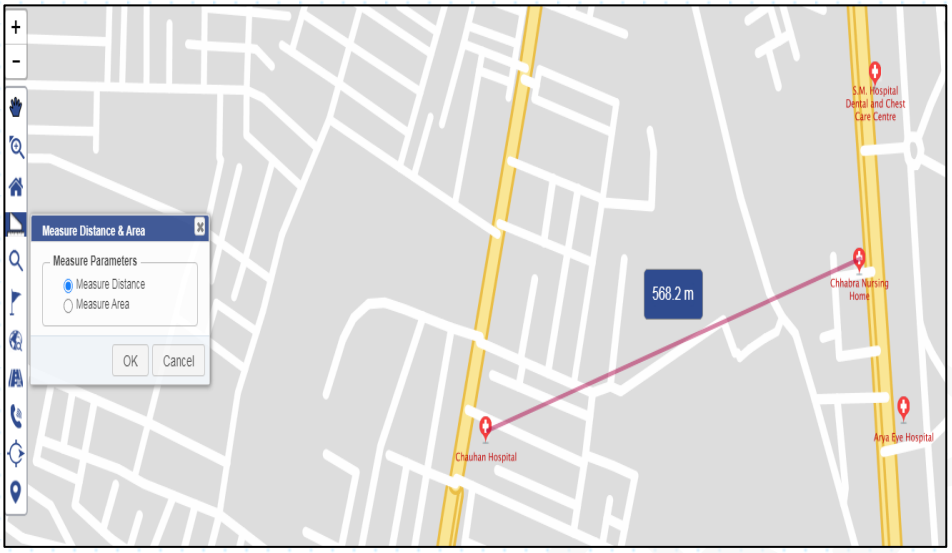
District

## Measuring Tool

### Measure Distance

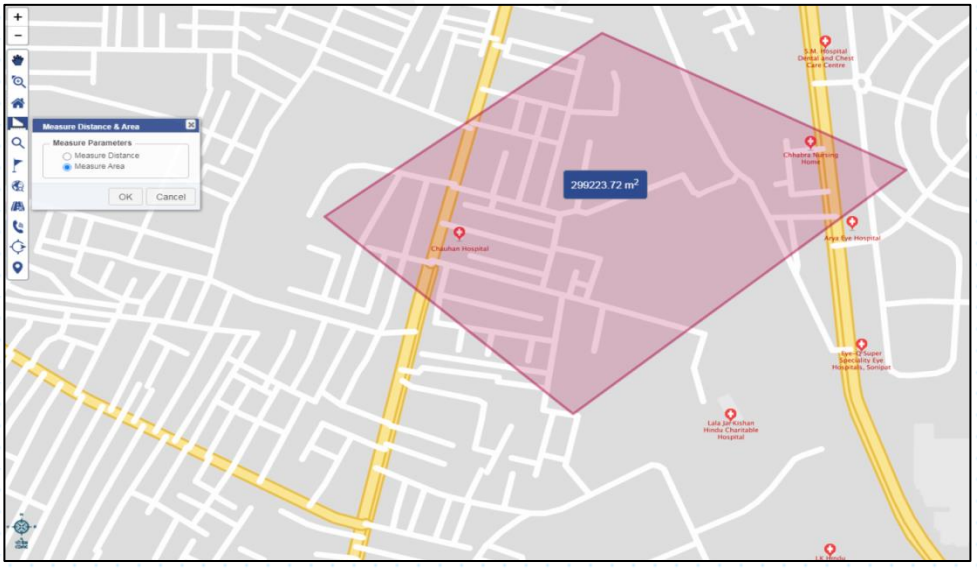
The length in meters between 2 different locations can be measured using measure distance.






## Measure Area

The area of a building/polygon can be measured using Measure Area.



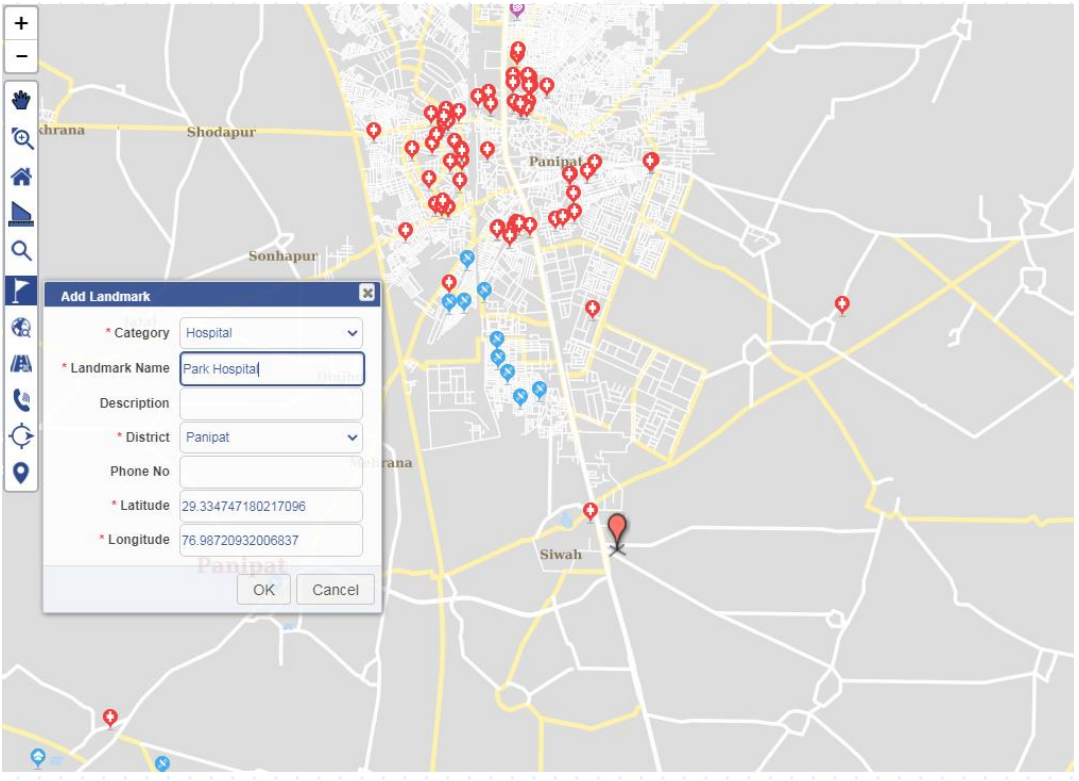
# Add Landmark

GIS Map gives provision for the user to add Landmark names /POIs.

Category, Landmark Name, Description, District, Phone No has to be inputted by the user.

The latitude and longitude is automatically filled when the marker is placed on map.

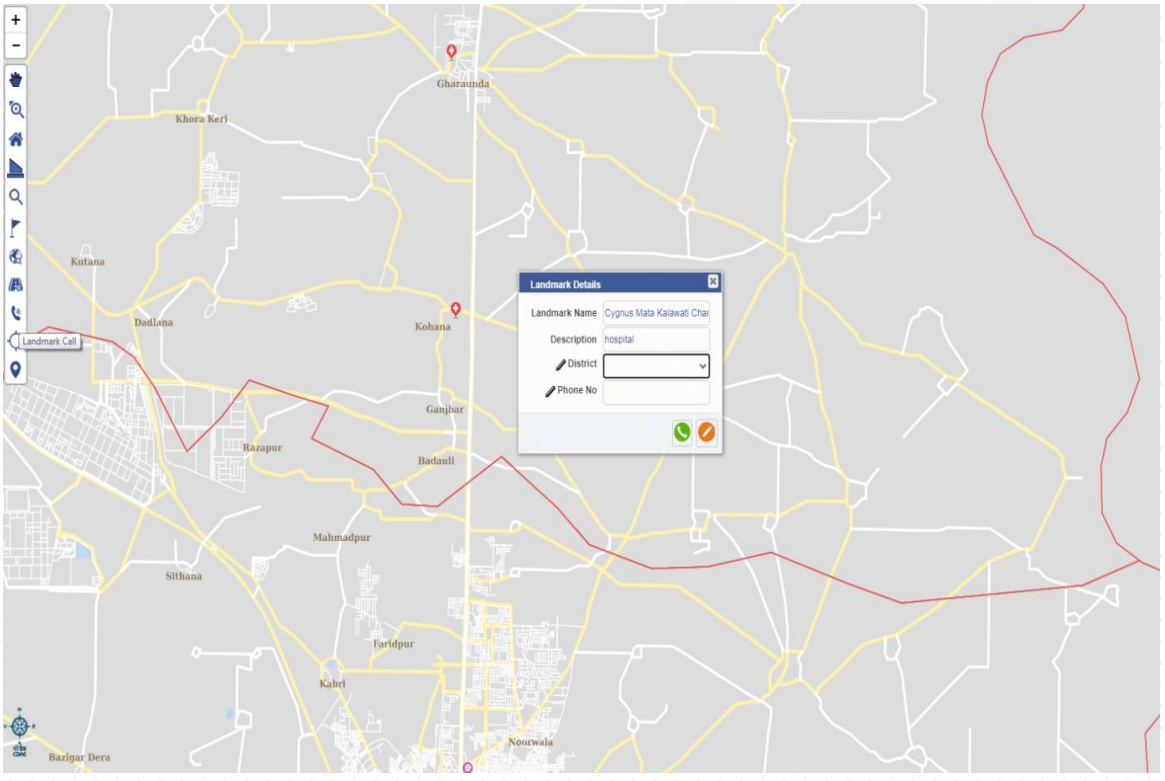
Once the landmark is added from front end it is updated in database. IM has to verify the details.



## Landmark call

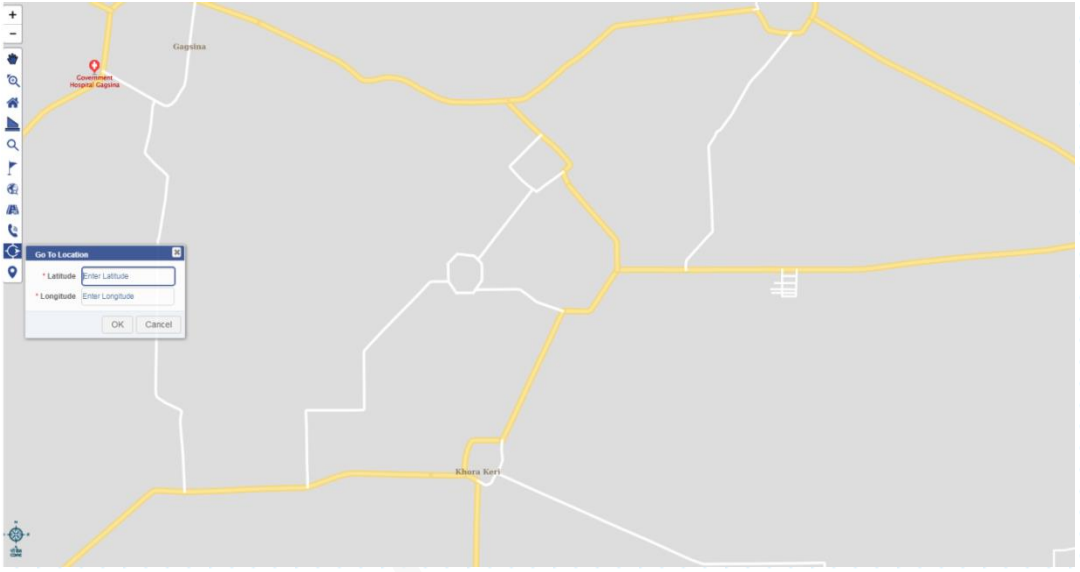
The user can call and also update the details of a landmark using this tool. Phone No can be added and from Map the call can be placed using Click to call. .

For this from the Layer Switcher, the corresponding layer has to be enabled.



## Go To Location

Fill in the latitude and longitude. It will go the corresponding location.



# Dispatch Officer (DO)

Dispatch Officer (DO) provides assistance to citizen in distress, by dispatching service based Emergency Response Vehicles (ERVs), within minimal response time. The request made by a citizen can be of different types like: voice Call to 112, panic SOS from 112 India App, SMS to 112, email to 112, web requests from https://hr.ners.in, created/manual events (signals registered in PSAP, for an information from any other sources).

CO identifies the Actionable Event, collects maximum possible information from the caller and transfer/dispatch the event to DO.

Dispatch Officer assess the criticality of the event, and dispatch the event to Emergency Response Vehicles which are closer to the incident location. DOs are responsible for service based dispatching of events. Event handling is based on pre-defined Standard Operating Procedures (SOP) which will be configured in the DO software, and will differ based on the service handled like Police, Medical, and Fire etc.

The communication between DO and Emergency Response Vehicle happens through Portable Field Tablet (PFT). DO identifies the nearest ERV (police, medical, fire or other rescue vehicles) on the GIS map and dispatches events with complete available event data including location, image, video etc. PFT agents or rescue officers in ERVs will accept the case dispatched by DO in the tablet (PFT) fitted in their vehicle and proceed for further actions.

DO will monitor the entire mission through all available communication channels. ERV officers will update DO on the progress in form of text, videos, or messages. On finishing the mission by rescue officers, DO closes the case after getting confirmation from the respective ERVs. DO software also helps to generate action logs, event history (Event log) and generate reports for audit and track the actions.

Dispatch Officers (DOs) are categorized based on the service (Police, Fire, Medical etc.) handled by them. DO should possess knowledge of the system so that quick actions can be taken to provide timely service to the requester. DOs are stationed at state level Emergency Response Centre as well as District Control Rooms.

## DO for Police

In this case, the DO should perform the following steps:

1. Study the case information passed on from the Communication Officer.
2. Replay and listen to the voice log if more clarity is needed.
3. Fill up any additional information about the case.
4. Call back the service requester and collect more information if needed.
5. Identify the nearest Emergency Response Vehicle (ERV) for servicing the request, either from the map or from the ERV list in DO software.
6. Dispatch the case details to the nearest ERV and wait for acknowledgement.
7. If the ERV accepts the task.
   i. Monitor the status of case when updates are received from ERV.
   ii. Close the case upon receiving a 'Mission Complete' message or intimation by any other means.
8. If the ERV rejects the task, the Dispatcher should identify another ERV and repeat step 6 and 7.

## DO for Fire & Rescue

If PFT App is installed in ERV of Fire department, then the same operating procedure as in case of Police service should be used. If Web Dispatcher Terminals (WDTs) are installed in fire stations, the case information should be sent to the relevant fire stations.

## DO for Medical

If PFT App is installed in ERV of Medical department, then the same operating procedure should be followed, as in case of Police. Otherwise, from the Medical Dispatcher Terminal, the user may communicate and coordinate the mission to the respective district level entities as per the prevailing procedure.

## DO User Interface

Dispatch Officer Software is a java based standalone application that allows the officer to provide necessary service to the citizen who requires assistance. The DO application integrated with Vehicle Management platform (AVLS) and GIS platform, helps DOs to make smart decisions quickly, to respond to an emergency by dispatching the nearest response unit within a minimal time.

DO software runs in a personal computer with dual monitor and an IP phone attached for making calls. DO console has mainly two parts:

- DO interface in Monitor 1
- Monitor 2 will be loaded with Haryana State Map

The first monitor shows the details regarding the case such as Caller/Victim details, event details and other information regarding the case. This will assist the DO to view, edit and dispatch events to ERVs. DO can view all pending case details on this GUI which helps them to dispatch events to PFTs for action. And the second monitor shows a GIS map with incident location and ERV location. The DO can select suitable ERV/ERVs based on the proximity and availability, either from the ERV list or from the map application. Location of all the ERVs and the cases under that DO will be displayed on the map. On selecting a case in the application GUI, the incident location will be highlighted over the map. The DO can then make a decision on which ERV to be assigned to the case.

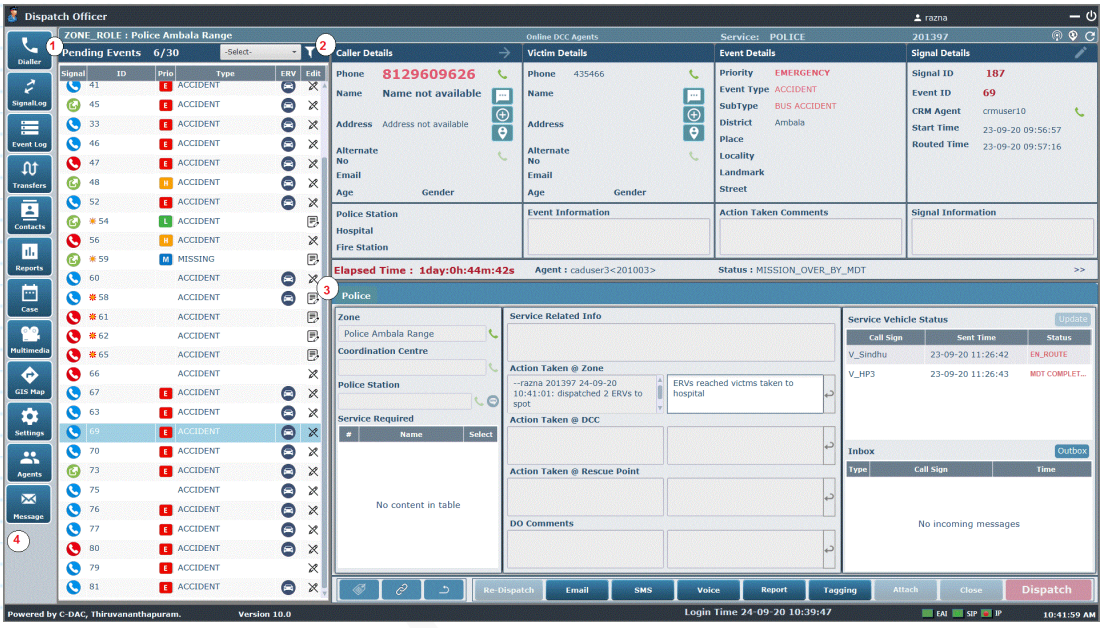



**Figure 4: Dispatch Officer Console**

DO interface facilities and privileges will change depending on the login service type or role. The DO will be working on various panels in the DO software interface. GUI interface has mainly five panels: Pending Events panel, Case Details panel, Service Details panel and Main Toolbar panel.

## a. Pending Events Panel

The DO will be looking into this event panel for fresh events forwarded by CO, which needed action from the DO for emergency response. This panel will mainly help the DO to see all the pending events, edit event details if required, and to view other event related information. Once an event is dispatched by CO, it will get updated in pending events list of that particular

DO. DO application software will also generate an alert message and sound on arrival of a new event.

Each entry in Pending Events list displays:

- Status alert, Event id, Priority, Event type, Assigned ERV with latest update and Event edit option.
- Events pending for review will be displayed in bold text, and action taken events will show the Call Sign of the Assigned ERV with latest update.
- On clicking an event in Pending Events, details of the case will be filled in Caller details, Victim details, Event details, Signal details and Service specific details. Also the map will get zoomed to the event location.

### b. Case Details Panel

The DO case details panel comprises Caller details, Victim details, Event details, Signal details and current handler details.

### Caller Details

- On selecting an event in pending events, caller information such as phone number, name and address will get filled here and are not editable. In addition to this alternate number, email, age and gender also will get updated.
- Provision to do the following:
  - Call : Call back the informer.
  - Message : Send message to informer.
  - Add : Add the selected number to contact list.
  - LBS : To get informer location using LBS service.

## Victim Details

- On selecting an event in pending events list, victim information such as phone number, name, address, alternate number, email, age and gender of victim will get filled here.
- Victim information is editable by the DO.
- Facilities in victim panel:
  - Call : Call back the victim.
  - Message: Send message to victim.
  - Add : Add the selected number to contact list.
  - LBS : To get caller location using LBS service.

## Event Details

Event details pane displays all details collected and dispatched by CO and are editable by DO.

- Priority : Classify the event priority as Emergency, High, Medium and Low.
- Event Type : To select main type of the event like robbery, murder, crime against women, accident, fire, etc.
- Event Sub Type : Sub category of the main event type will be listed here on selection of Main Event Type.
- District : District where the incident occurred.
- Place : Place where the incident occurred.
- Taluk : Taluk name.
- City : City name.
- Locality : Locality details to identify exact place.

- Landmark : Landmark to locate exact place.
- Street : Street details.

## Signal Details

Event details pane displays all details collected and dispatched by CO and are non-editable for DO.

- Signal ID: Displays the Signal ID of the selected case, complete details of the case can be viewed on clicking the signal id.
- Event ID: Displays the Event ID of the selected case, unique identification number of the case used for further reference.
- CO Name: Name of the call taker who has forwarded this case.
- Start Time: Time at which the case landed in CO console.
- Routed Time: Time at which the case has been forwarded to DO for action.

## Other Details

Other event details include detailed event information, current handler and elapsed time which are non-editable for DO. Event details also include nearby landmarks, which DO can update by relocating the location on GIS map.

- Police Station: Nearby police station to incident location.
- Hospital: Nearby hospital to incident location.
- Fire Station: Nearby fire station to incident location.
- Event Information: Details of the event updated by CO.
- Action Taken Comments: Action taken comments updated by CO.
- Signal Information: Signal information updated by CO.

- Elapsed Time: Time elapsed after which the case reached DO.
- Agent: Name and VoIP extension of the DO, currently handling the event.

## c. Service Details Panel

### Service Details

Service details panel displays the services required for the selected case. It describes the service specific data entered by CO. This include Zone, Coordination Centre, Rescue Point and Specific services required. DO can update the service details, which is handled by the agent. DO can also view other services selected for the event (e.g. Police, Medical, Fire, etc.), in addition to the service handled by him/her.

- Other event details entered by CO such as Zone, Coordination centre, Police station, specific service required will also get displayed here.
- Service Related Info: Service related information entered by the CO.
- Action taken at Zone: DO in zone role can update comments, if available.
- Action taken at DCC: DO in co-ordination centre role can update comments, if available.
- Action taken at Rescue Point: DO in rescue point role can update comments, if available.
- DO Comments: The DO who is currently handling the event can update comments, if available.

### Service Vehicle Status

- Service vehicle status: ERV/ERVs assigned for the selected case will be displayed.
- Displays the status of the case dispatched to PFT. Given below different status:
  - Pending: Yet to process, sent from DO but still pending at backend

- Sent: Case details sent from backend but not delivered to PFT.
- Delivered: Message delivered to PFT.
- Read: Message read by PFT user.
- Accept: PFT user accepts the case.
- En-route: PFT user proceeds to the incident spot, to attend the case.
- Reached: ERV reached the incident spot.
- Complete: PFT user closes the case after providing the service required.
- Aborted: PFT user aborted the case, as the ERV is already assigned with some other task.

## ERV Inbox

This panel contains all the messages received by DO from ERVs, for the selected case. The list displays ERV call sign, message type and receive time.

- ERV Inbox: Incoming messages (text, image, video) from the ERVs will be displayed. DO can click on the list item to view the contents.

Action Button Toolbar

This panel contains all the viewing buttons and action buttons for the selected case in pending events list.

- - Displays all signals associated with the selected case, if available.
- - Displays all events tagged with the selected case, if available.
- - Displays the re-dispatch history of the selected case, if available (only for cases re-dispatched from other DOs).
- Re-Dispatch – To forward the selected case to another DO, if the case is wrongly forwarded by the CO.
- Email - To forward case details as Email.

- SMS – To send case details as SMS.
- Voice – To replay the voice calls related to the case.
- Report – To create a PDF report on selected case.
- Tagging – To tag the selected case any other similar case.
- Attach – To attach case related multimedia files.
- Close
  - This button enables the DO to close the selected case.
  - DO can close a case after getting confirmation from ERV through orally or through PFT application. When ERV close the case using PFT application, DO who assigned the event will get a notification asking whether to close the case or not.
  - Before closing the case DO needs to select the closure type like Service provided, Case Registered and False Information. Agent should also enter Closure reason in the textbox provided.
- Dispatch – For dispatching, actionable cases which require assistance, to ERV/ERVs.

## Dispatch Compose

On clicking **Dispatch** button, a new popup window for ERV Assignment and Communication, will be opened. Various options available in this window are:

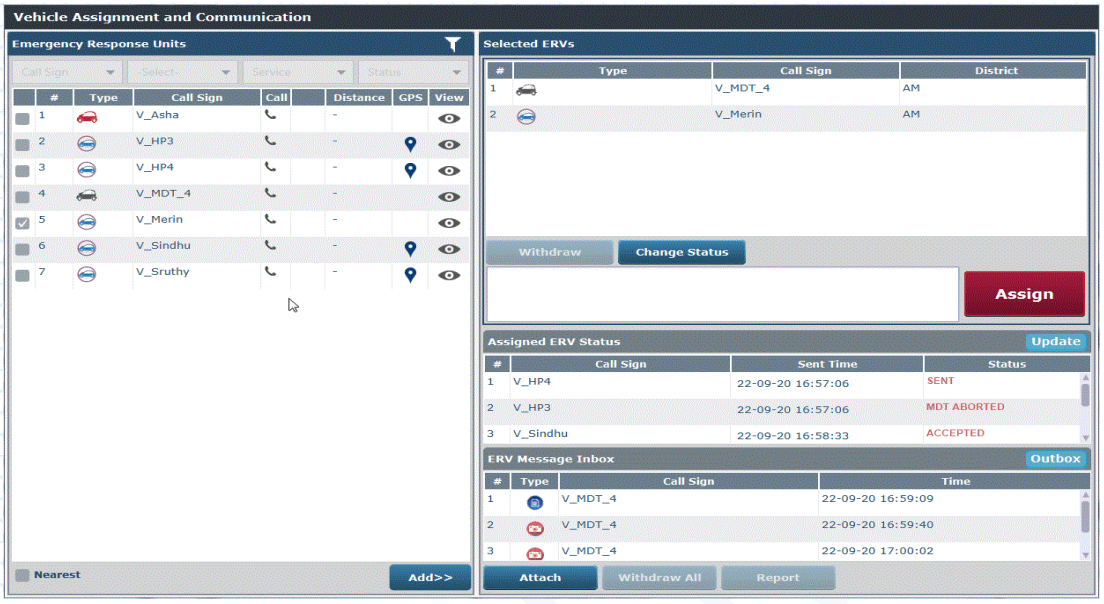



**Figure 5: Dispatch Compose Dialog**

- Complete ERV list with filter option.
- Selected ERV list for the current event.
- ERV Assign and Withdraw option.
- DO can select nearest ERV/ERVs, enter the message for ERV and assign the task.
- DO can change the status of ERVs under their control. Different status options are: Available, Special Duty, Maintenance and Break.
- DO can monitor the updates from ERVs for the selected case.

For ERV assignments, DO can either use the *Dispatch* option, or he can find the available ERV nearer to the incident location from the GIS map. Click on the ERV in GIS map and select the *Dispatch* option.

## d. Main Toolbar Panel

Main toolbar (vertical) includes the features common to DO application console. This includes:

- Dialer – To make outgoing voice calls.
- Signal Log – To search and view signal (outgoing voice calls/SMS) history.
- Event Log – To search and view event history.
- Transfers – To search and view event re-dispatch history.
- Contacts – To manage (add/update/delete) emergency phone contacts.
- Reports – To generate DO based reports.
- Case – To create a new case.
- Multimedia – To upload multimedia (image/video/audio/pdf) files, used for broadcasting to ERVs.
- GIS Map – To open GIS map in popup window, if single monitor is supported.
- Settings – To edit DO notification settings.
- Agents – To view online agents (COs/DOs/Supervisors)
- Close – For bulk closure of events from DO console.

## Standard Operating Procedure – Dispatch Officer (DO)

DO Operation and Event flow can be grouped into *six* steps. Each step is described below:

**I. Step-1, Agent Login**

- Double click the ERSS DO application icon on the screen and open the application.
- On launching the DO application a login window will pop up, prompting the DO to enter the login credentials.
- DO has to enter the Username & Password and press the “Login” button.
- On entering the right credentials, the authentication of the agent will happen with the ERSS server and the agent will get logged into the ERSS DO application successfully.

- After login, the agent will get agent specific services allocated to him (E.g. Police agent will have services specific to police activities, Medical agent will have services specific to medical activities).

- If the agent enters wrong credentials, the application will prompt for the right credentials again.

**II. Step-2, Check Server Status**

Once DO log into the application he has to verify the status of all the required backend services, in the status bar of User Interface. The following services should be active for the proper functioning of the application: IP Phone, EAI Server and SIP.

- Green colour indicates the server is up and the service is available.
- Red colour indicates the server is not reachable and the service is unavailable.
- If all the three services shows Green colour, then agent can proceed to next Step.
- On Red colour indication on any service, DO has to inform the network administrator for initiating corrective action.
- Once the above two steps are done, the DO is ready handle events.

**III. Step-3, View Pending Events**

- All pending events of a DO will be displayed in Pending Events panel. Based on priority, DO has to dispatch events to appropriate ERV/ERVs. Agent can call back the informer in case additional information is required for effective processing of an event.
- Select the event which needs to be dispatched, from pending events panel.
- Caller Details, Victim Details and Event Details panels will reveal event related information, filled by the CO.
- Service specific details panel will displays the event details specific to that particular service.
- GIS map will zoom to the incident location, highlighting the exact location with a marker.

- In case more details to be collected from the informer, use the click to call button provided in the informer details.
- Collect required information from the informer make entry in appropriate textbox/ dropdown box.

**IV. Step-4, Identify ERV/ERVs and Event Dispatch**

- DO has to decide on the number and type of ERVs and to be dispatched for an event based on the emergency level of the event. Click on the Dispatch button, to view all the ERVs under the DO. Agent can dispatch to ERV based on ERV's availability and proximity to the event location.
- Identify the ERV/ERVs to be dispatched for the event from the GIS map (available ERV nearest to event location).
- For ease of selection, ERV list will be sorted based on options: Available and Nearest.
- Enter the message for ERV, and click Assign.

**V. Step-5, View Vehicle Messages and Event Status**

- By selecting an event in Pending Events panel, DO can view the status of Assigned ERVs and also the incoming messages from Assigned ERVs.
- Agent can view status of selected case in Service Vehicle Status panel.
- Click on the Update button, to send further updates to assigned ERVs.
- Agent can view messages (text, image or video) from assigned ERVs in the Inbox. Click the type button to view the message sent from ERV.
- Click on the Outbox button, to view the messages sent to ERVs.
- Various status of the dispatched case can be viewed like Pending, Sent, Delivered, Read, Accept, En-route, Reached, Complete and Aborted.

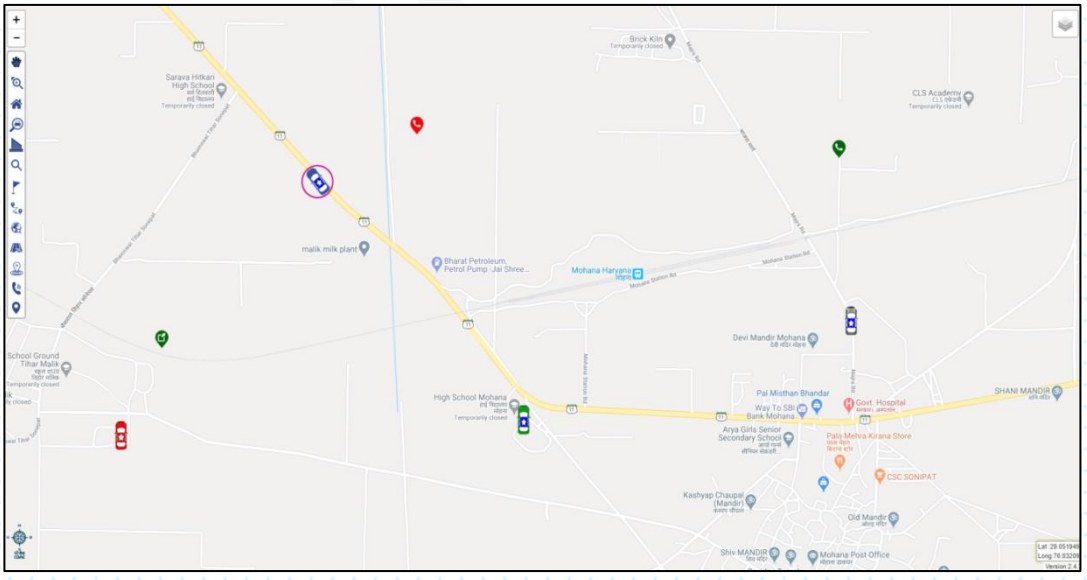
**VI. Step-6, Close Event**

DO can close an event after getting confirmation from ERV.

- DO needs to select the event in pending events panel which is to be closed.
- Verify whether all ERVs assigned with the case has completed the task.
- Check the Assigned ERV panel to see the case status.
- Check all messages, images and videos send by ERVs to confirm case completion status.
- Select Close Event button.
- Before closing the case DO needs to select the closure type like Service provided, Case Registered and False Information. Agent should also enter Closure reason in the textbox provided.

## DO GIS Map Console

The Live location of PFT Devices is shown in map. The colour coding of vehicle icons is as listed. Once a vehicle is assigned with an event the icon colour changes. The DO can find the nearest vehicle to the event from map and assign the case. The vehicles assigned to an event can be tracked and DO can give necessary instructions to reach an incident spot using the GIS map console of DO.



# GIS ERV Status – Colour Code

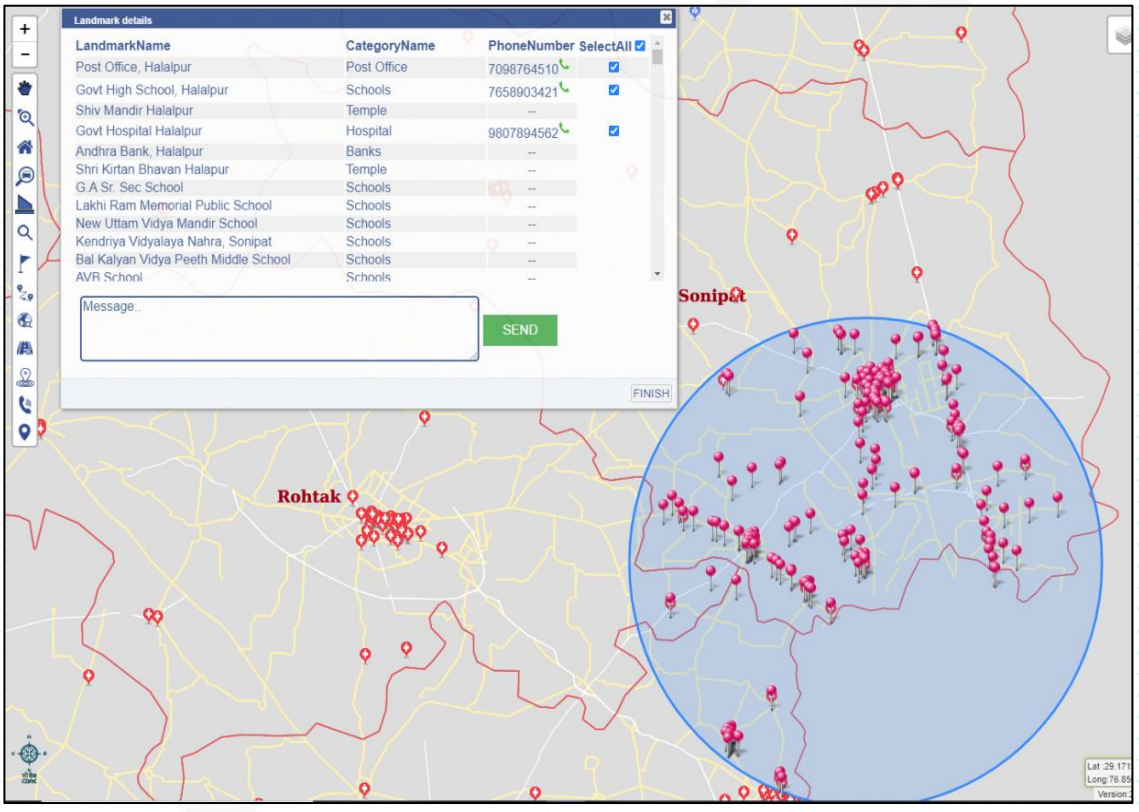
| Running Status/ MDT Status | Colour Code | Representation |
|---|---|---|
| Disconnected (if last updates before 15 minutes) | Grey vehicle | |
| Halt (Speed less than 5km/hr) | Blue vehicle | |
| Running | Green vehicle | |
| Halt, on mission | Blue vehicle with pink circle | |
| Running, on mission | Green vehicle with pink circle | |
| Current Location not correct/GPS may be off | Amber vehicle | |
| Current Location not correct/GPS may be off -- On mission | Amber vehicle with pink circle | |
| Halt with Associated Device | Blue vehicle with phone | |
| Running with Associated Device | Green vehicle with phone | |

| | | |
|---|---|---|
| Disconnected with Associated Device | Grey vehicle with phone | |
| Halt, on mission with Associated Device | Blue vehicle with pink circle and phone | |
| Running, on mission with Associated Device | Green vehicle with pink circle and phone | |
| Special Duty/Break/Maintenance | Red vehicle | |
| Special Duty/Break/Maintenance with Associated Device | Red vehicle with phone | |

# DO GIS Tool Bar

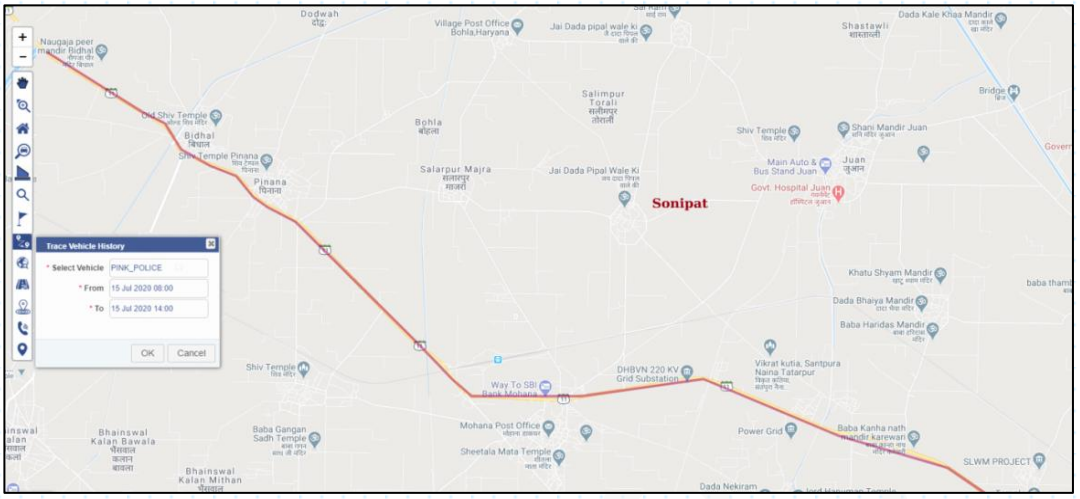
## I. Buffer

The buffer tool helps to buffer or fence a place in map and the locations within that radius is popped up. The user can directly call that POI or else an emergency bulk SMS to nearby locations whose phone nos. are available, can be sent.



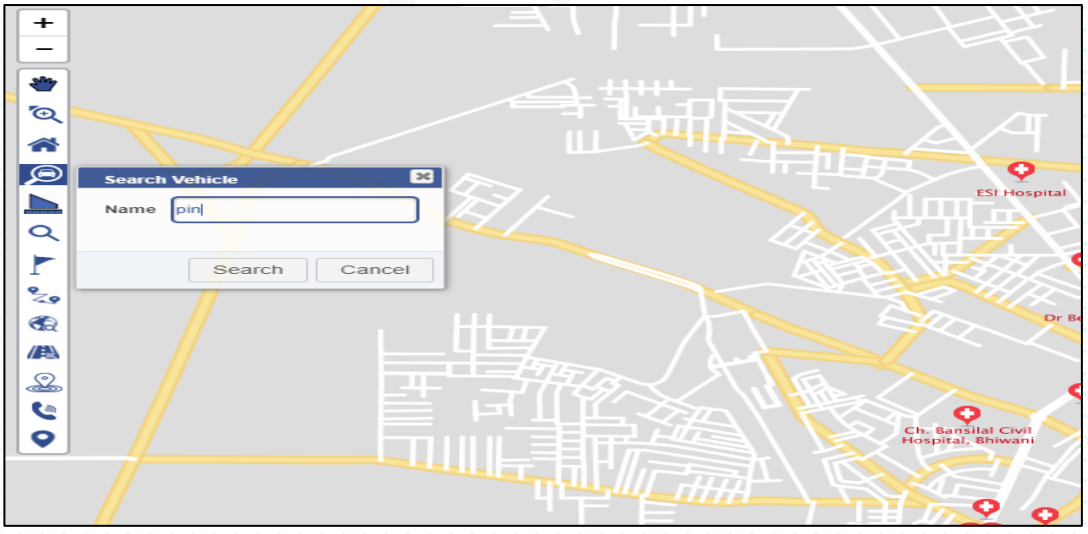

## Trace Vehicle History

The location history of any vehicle can be traced for 24 hrs by inputting the *from* date & time and *to* date & time.

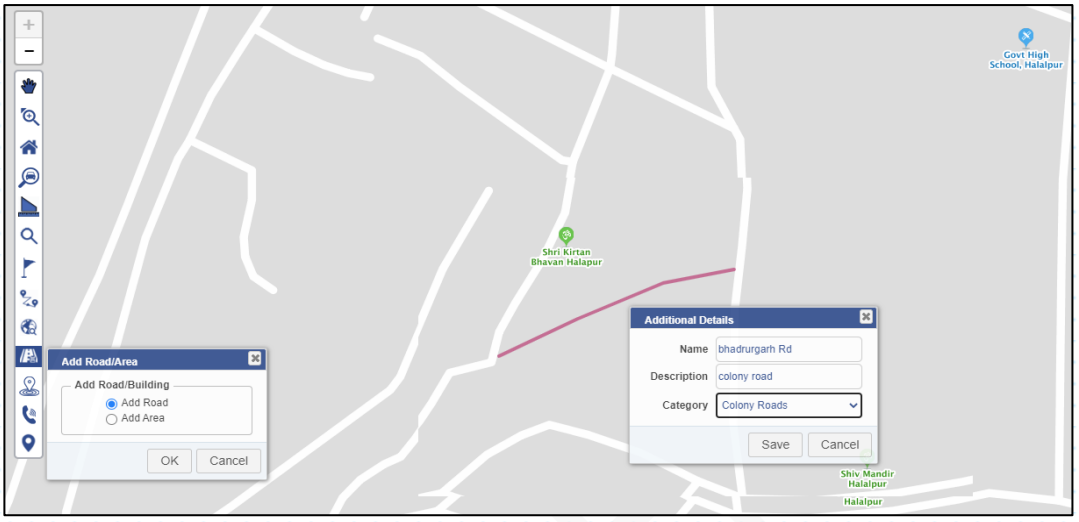



## Vehicle Search

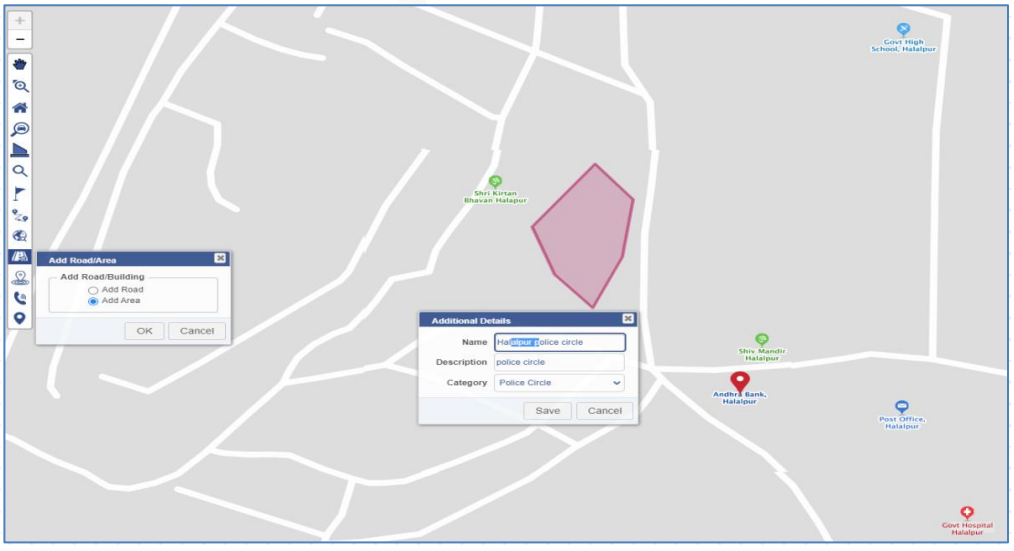
If the vehicle name is known the DO can search the vehicle by inputting 3 letters. From the drop down select the vehicle, then it will zoom to that vehicle location.



## II. Add Road/Area




Add Road - New road can be added using this tool. Necessary details need to be filled. The data is added to database.




Add Area - New area /building can be added using this tool. Necessary details need to be filled. The data is added to database.

# Incident Manager (IM) or Supervisor

Incident Manager or Supervisor is the desktop application, which monitors and displays the status of ERC components and also tracks all activities of the ERC, like event handling, ongoing missions, etc.

The main features of Incident Manager are:

- provides a graphical view of signals, events and vehicles on GIS map.
- monitors and displays real-time health and connectivity status of servers on the dashboard.
- facilitates generation of a wide range of MIS reports on demand.
- Status of CO and DO officers

The features in detail are given below:

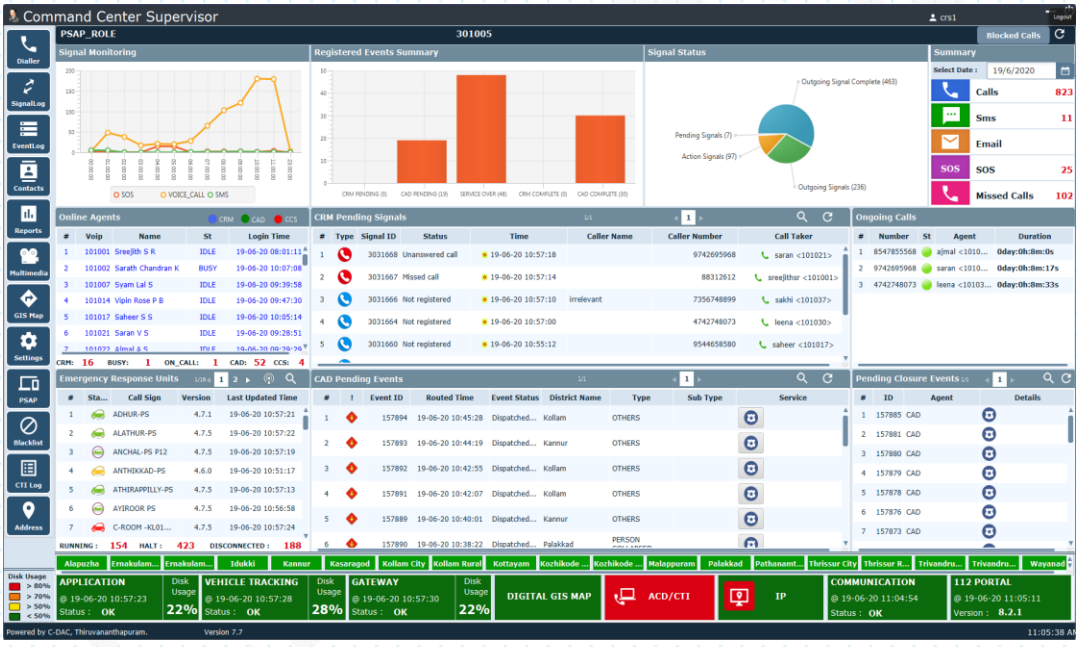
- All signals landed in ERC.
- signal status and event status.
- Ongoing calls with duration and online agents with current status (idle, busy, on call) and count (CO, DO, and IM).
- CO pending signals and DO pending events.
- Detailed information of each event with assigned services and ERV's.
- Sending event information to police officials as SMS.
- ERV's status (running, halt, disconnected) and details. Provides call facility to assigned ERV's.
- Broadcast message to all ERV's. Send multimedia to all ERV's.
- Final closure of events after checking and verifying details.
- Feedback comments from caller/victim (via call) before closure not mandatory.

- Provides various reports – DSR report, Daily report, Event reports, Signal reports, Agent reports, Vehicle reports, Summary and Detailed reports.
- Provides current statistics and historic data (event log, signal log, reports).
- Provides CTI logs and reports.
- Displays list of blocked calls and blacklisted numbers. Supervisor can unblock blocked numbers and remove numbers from blacklist.
- Displays all online/offline agents of ERC and DCR's with details (role, zone, DCR etc) and supervisor can call all online agents of ERC and DCR's.
- Planning & Scheduling for VIP movements: provides provision for Planning and Scheduling of Events and Resource Movements. Events can be pre-planned in case of any future incidents. Resources can be pre-scheduled for dispatching in case of VIP movements
- provision for recording daily patrolling of the Police units and their patrol locations
- provision for creating digitized patrolling route (daily, weekly etc.) and assigning one or more Police vehicles to the pre-defined routes along with check points
- Supervisors have the provision to monitor the patrol response i.e. which static positions to hold, when, which areas need mobile patrolling, when. It is possible to analyse the extent to which the prescription was followed by matching with actual AVLS information
- Provision for sending SMS to the caller stating the Case Number, acknowledgment, and brief text of the complaint and, the password for accessing the Case information on the police website

# IM User Interface

IM user interface has mainly two parts: **GUI interface** and **GIS map** projected over two different screens.

The visual interface part displays all incoming signals count, graphical representation of signals, registered events, signal status, online agents, CO & DO activities, ongoing Calls, ERV's Status and pending closure of events. The DCR status and server status is also displayed.




Supervisor Console

IM GUI interface has the following components:

- **Signal Monitoring: Line chart representation of signals**
  - Showing the incoming signals such as voice call, SMS, Email and SOS in line chart with time in X axis and count in Y axis for selected date.

- **Registered Event Summary: Bar chart representation of events**
  - Displays the event status summary in bar chart including PENDING CO, PENDING DO, COMPLETE CO, COMPLETE DO and SERVICE OVER for selected date.
    - PENDING CO: Pending events on CO side
      - No action is taken for signal
      - Signal is registered but not dispatched
      - Has not closed the signal after updating the status.
    - PENDING DO: Pending events on DO side
      - Pending review
      - Reviewed but no action is taken
      - Assigned to vehicles but services not yet completed
    - COMPLETE CO: Completed actions from CO side
      - Registered event dispatched to DO
      - Closing signal after updating the status
    - COMPLETE CO: Events completed from CO side
      - All services mission are completed
    - SERVICE OVER: Final closure of events by supervisor
- **Signal Status: Pie chart representation of signal status**
  - Shows the signal status of signals in pie chart for selected date.
    - Pending signal: All signals land in CO application
    - Pending action signal: Signals (events) registered in CO and not yet dispatched to DO.
    - Action Signal: Events dispatched to DO for taking action
    - Outgoing Signal: Outgoing call or SMS made by CO Agent and not completed at called side / destination side due to some reasons like called party is not attending the call / called party is engaged in another call / called party is not

reachable at that time/ Out of coverage area. ie call originated from CO side not completed at called end.

- Outgoing Signal Complete: Outgoing call or SMS made by CO Agent and completed at called side/destination side ie call establishes successfully between calling user and called user.
- Service Provided: Event services are completed by DO and also done the final closure by supervisor.

- **Summary: count of signals landing at ERC**
  - Displays all incoming calls, SMS, Email, SOS and Missed calls count landed in ERC on a selected date.

- **Online Agents: Table representation of all online agents including DCR agents**
  - Displays all online agents including CO agents, DO agents and IM agents having the details voice over ip Extn, name, status and login time.
    - Different colour codes are used to identify agent type (CO: blue, DO : green, IM: red)
    - Displays the details such as zone, DCR, agent name and login time in tooltip.
    - Displays the total CO count, CO busy (user busy) count, CO on call count, total DO count and total IM count in dashboard.
    - Agent status such as Idle, busy, on call, clerically busy, voip disconnected are also shown in table.
    - Supervisor can forcefully logout an agent in case of improper logout.
    - Supervisor can make internal voice calls to online agents.

- **Pending CO Signals: Table representation of pending signals at CO**
  - Displays the list of all pending signals (not closed/not dispatched) at the Call Takers desk including the details of signal type, signal id, signal status, caller name, caller number and CO officer.
    - Filter option is provided for searching signals based on signal id, signal status, caller number and call taker.
    - Supervisor can call the victim or caller, view signal details and send SMS to Police officials.
    - Shows the Indication of non-actionable event after 30 minutes and non-actionable signal after 5 minutes.

- **Ongoing Calls: Table representation of all ongoing calls**
  - Shows all ongoing calls of call taker's desk including the details of caller/victim number, call status, attending call taker with voip extn and duration.
    - Call status: Green indicates active calls and blue indicates ringing state of call.

- **Emergency Response Vehicles: Table view of all ERV's**
  - Showing all ERV's including the PFT status, call sign, running app version and last updated time.
    - Supervisor can have some options such as make call to vehicles, view the vehicle details, send SMS to vehicles and also see the vehicles in map.
    - Supervisor can search ERV based on selected district, service, zone, DCR, rescue and call sign.
    - Supervisor can edit and save vehicle call sign and driver number (smart phone associated with ERV).
    - Supervisor can send broadcast message to all PFT's or selected PFT's.
    - Displays the running count, halt count and disconnected count in dashboard.

- **Pending DO Events: Table view of all pending events at DO**
  - Displays the list of all pending events (not closed/assigned to PFT by the respective DO officer) including the priority, event id, routed time, event status, district, event type, sub type and dispatched services.
    - Filter option is provided for searching events based on event id and district.
    - Supervisor can call the victim or caller, view event details and send SMS to Police officials.
    - Shows the Indication of pending review event after 30 minutes.

- **Pending Closure Events: Table view of all pending closure events**
  - Shows the list of all events closed by DO officers and CO officers. ***Final closure*** of all these events should be done by supervisor. This is the main job of supervisor.
    - For events where multiple services are associated, each dispatcher (viz. Police, Medical, Fire) has to indicate the closure of respective services.
    - Supervisor can collect feedback from the caller/victim before closing the case.

- **Blocked Calls: View of all blocked calls**
  - Shows the list of all blocked calls including the caller number and call count. Blocked calls are automatically unblocked the next day.
    - Supervisor can unblock the number using unblock icon.
    - Supervisor can also make call to blocked numbers.

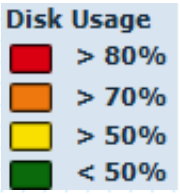
  Reason for blocked calls:

  - If there are continuous calls coming from a number and IVR key is not pressed, the ACD server automatically blocks that number.

- Blacklisted numbers (Numbers blocked by CO and blacklisted by supervisor) are also blocked by ACD server.

- **Server Status:**
  - Displays the status of Application server, Vehicle tracking server, Gateway server, GIS Map server, ACD server, IP, Communication server and 112 Portal. Green indicates the server is up and running and red indicates the server is down. Disk usage of some servers is also shown in dashboard.

    Disk usage indication




- **DCR Status:**
  - Displays the status of all DCR's connectivity. Green represents the connection is OK and red represents the connection is lost/down. Supervisor can also view the online DCR agents and make call to them.

**Toolbar options for supervisor:**

- **Reports :** Various reports can be generated for signals, events, agents, vehicles based on the following criteria
  - CO/DO Busy report
  - CO/DO Login Report
  - CO/DO Profile Report
  - Contacts Category Report
  - DSR (Detailed Statistical Report)
  - Event Report

- Forwarded Signals Report
- Signal Report
- Vehicle Profile Report
- Daily Report
- PFT Status Report
- Vehicle Assignment Report
- Vehicle Trace Report
- Vehicle Response Report
- Vehicle Connectivity Report

- **Settings:** To view the configuration and system.
- **ERC** : Shows all (CO/ DO/ IM)online as well as offline agents
- **Blacklist:** To view all blacklisted contacts. Blacklisted numbers are not automatically unblocked. Supervisor can remove the number from blacklist.
- **CTI Log**: To view the call summary including the call drops, blocked calls, attended calls, missed calls, outgoing calls, total routed calls and landed calls.
- **Address:** To get address from phone number.

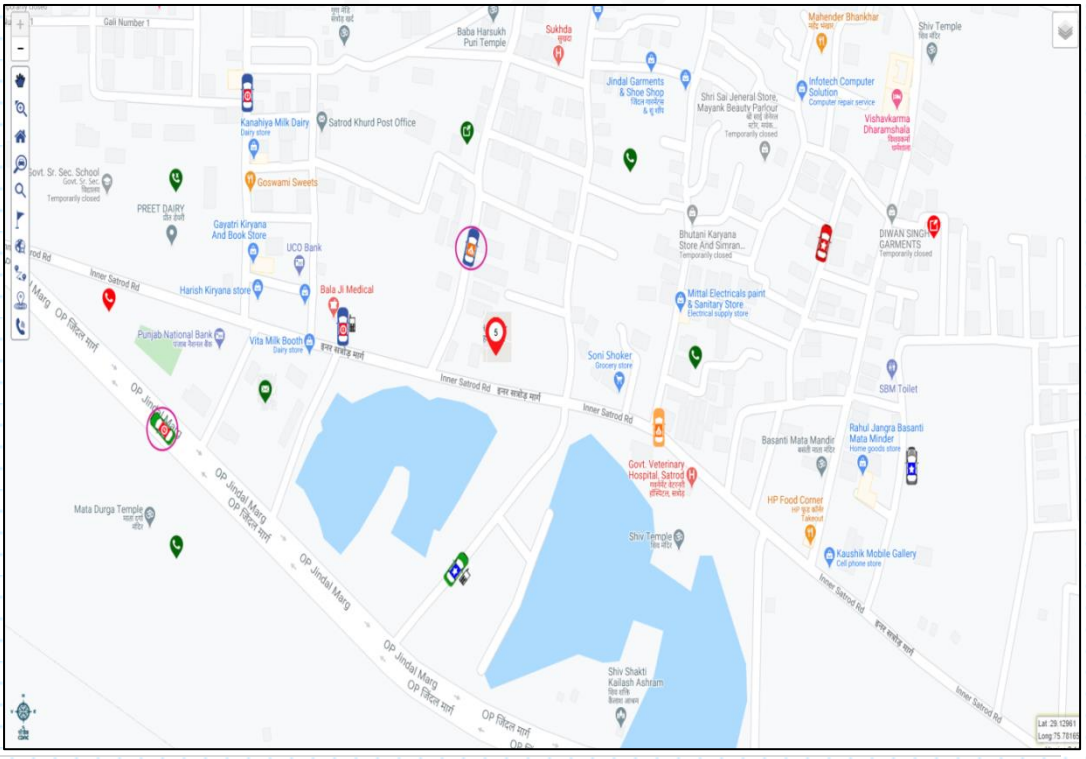
## Incident Manager Map Console

The Incident Manager map has all the relevant information of events associated with all COs and DOs. In the IM GIS Map console ERVs of Police, Fire and Health departments with PFT is visible. IM has additional roles as monitoring and analysis. The figure shows the IM GIS map with all events and assigned vehicles.

# Mobile App for Portable Field Tablet (PFT)

Mobile App for Portable Field Tablet is a smart and efficient software solution which enables the DO Software at Control Room to communicate with emergency response vehicles on field.

The vehicle based communication solution consists of



GPS tracking device,

Portable Field Tablet,

Smartphone and

Radio device.

PFT and Tracker device are fitted on the vehicle dashboard and the feature/ smartphone will be kept with the officer.

The tracker device will send the location of the vehicle in real time to the data centre. The smartphone will have SIM card with outgoing calls enabled and will be used to communicate with the Control Room and general public. The PFT is installed with the Mobile Application for PFT. PFT mobile app is the primary communication interface between the Control Room and Emergency Response Vehicles (includes Police, Ambulance and Fire Engines etc.)

PFT has many capabilities incorporated including location tracking, case assignment, vehicle status monitoring etc. The following are the main features of the mobile application for PFT:

## Features:

PFT software

- provides the Mobile Workforce with full access to the assigned case with distress GIS Map location and voice call logs to empower them to make informed decisions while in the field.
- receives the notification of the case details sent by Dispatch officer
- enables the mobile workforce to be in contact with Officer over the voice call, DO Application notification etc.

- sends location of the vehicle in real time to the data centre through Web API as and when required.
- has an integrated map of Haryana State that can display the nearby vehicles and police stations along with the incident location.
- has the capability to display real-time location of the vehicle on the map.
- capable of updating the version of the software including GIS maps installed in the PFT remotely. The PFT GIS map can display local area point of interest.
- PFT GIS helps in finding shortest route to the incident site.
- PFT is capable of minor modifications and as and when this data is changed, the PFT can be reconfigured. The reconfiguration can be initiated from the PFT or the DO Application at the Haryana Control Room.
- has the feature of single sign on to authorize the user and this feature is integrated with attendance module linked HRMS.
- allows users to report action taken by attaching Audio Files, Image Files, Video Files and Text Entry. Data of all action taken is available to DO and Supervisor through logs.
- The software supports GPRS Message Capabilities between the dispatch consoles and vehicle.
- PFT updates the transaction as required in the application even in case of poor or no network connectivity. All the transactions are stored in the PFT devices and can be sync once the devices is connected.

- Fire Services Mobile application for PFT of Fire services has additional features like contact facility to Primary and Secondary Call Centre, District control room and concerned fire stations. Application also has list of fire causes like chemical, jungle fire, cylinder blast fire and call closure mechanism.

- PFT software allows the user to view all incoming details(Case id, Case type, user Phone Number, user Name, user Address, into the Software and user location on map) and mark case acceptance. It also has options to mark the various case status such as en-route, at scene, back to base and closure status along with comments and reason. The software is capable of delivering the acknowledgment to the DO for all these conditions.

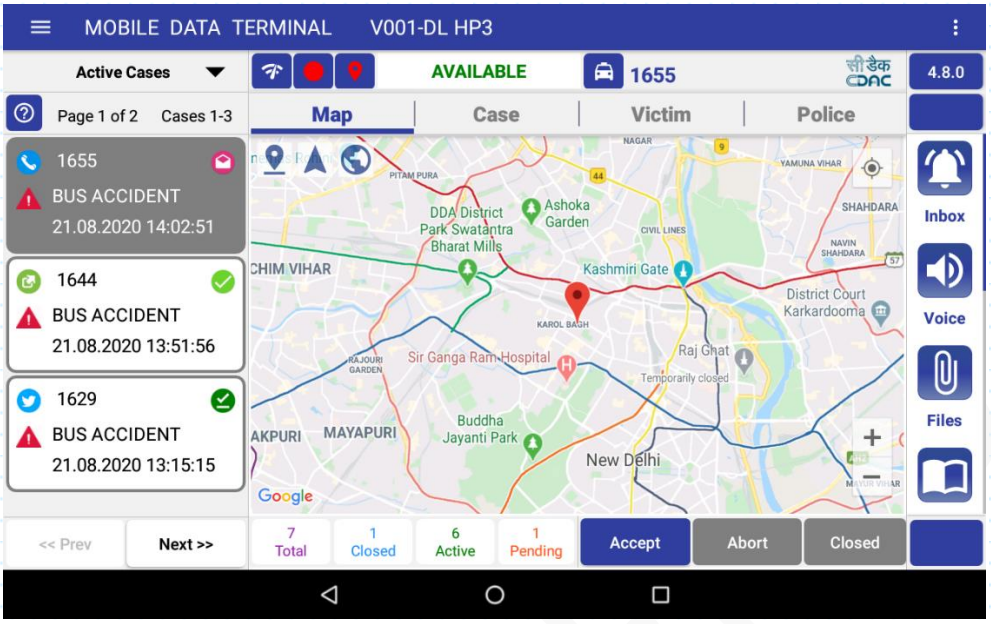
- PFT software has the functionality to update the Status like Available, Away, Attending to cases, On Break, etc. of the police personnel.

- PFT also has an application for ERV management that shall be used by the field staff for supervision of ERV operations and maintenance. e.g. refuel of vehicles, submission of bills, logging the odometer readings at the time of ERV handover-takeover for patrol vehicle mileage validation, periodic inspection reports, and code violations if any etc.

- A Patrol Management application is also installed on PFTs for managing the Patrol related activities of the ERVs.

- Option is provided for testing connection to backend server. Also, indications are provided to display the location update and GPS status.

Main interface of mobile application for PFT device is given below:




PFT Software Console

# Annexure – I

## Standard Operating Procedure based on events

### Crime against Women

| | |
|---|---|
| Step 1 | An emergency voice call lands in the ERSS system, and a CO picks up the IP phone. |
| Step 2 | The CO identifies the incident, gathers incident information.<br><br>Register the case as an event now. |

| | |
|---|---|
| Step 3 | If it is a women helpline call, forward to skilled women COs.<br><br>Or<br><br>If service is needed immediately, CO may do a partial dispatch while collecting information, then forward to skilled women COs. |
| Step 4 | A skilled women CO attends the forwarded call |
| Step 5 | Women CO gathers incident information, caller details (if not automatically collected by the system), and victim details if the caller is only an informer and update in the system. |
| Step 6 | If call is not registered yet, Register the call as an event in the system. |
| Step 7 | Determine the incident location.<br><br>If victim's/caller's location not automatically updated on map , then<br><br>get address details from the caller/victim and update the system<br><br>OR<br><br>Manually mark incident location on the map using map tools |
| Step 8 | Select the Event Type and Event Subtype<br><br>Set the priority for the event. (For some event types, the priority is automatically set. |
| Step 9 | Send details of the incident to CAW cell |
| Step 10 | If case is settled and no further action is required, then it can be closed after updating the status. |

| | |
|---|---|
| | Or<br><br>Get update of case from CAW cell, settle and close the case.<br><br>If the case is not criminal in nature, dispatch the case to a trained counsellor/male officer to provide counselling or issue warning to the predator to reframe from such activities. Get update from victim and close the case.<br><br>If case is of severe/criminal in nature , go to next step |
| Step 11 | Select appropriate services required based on the case assessment. Main services are<br><br>• Medical<br>• Police Assistance<br>• Fire & Rescue |
| Step 12 | Disconnect the call after sufficient information is collected. |
| Step 13 | Identify the district where the incident has occurred. |
| Step 14 | Forward the case to the corresponding skilled Dispatcher in PSAP/ERC using the 'Dispatch' option. If skilled Dispatchers are not available for the helpline, forward to ERC Dispatcher of the corresponding district. |

## Accident

| | |
|---|---|
| Step 1 | An emergency voice call lands in the ERSS system, and a CO picks up the IP phone. |
| Step 2 | CO should gather information from the caller and update the system.<br><br>If the caller details are not automatically displayed on the screen, the CO should ask and get that information.<br><br>If the caller is only an informer, then ask for victim details and the incident location. |
| Step 3 | **Perform action based on the assessment of the call**<br>• **If it is a prank / fake / child call**<br>○ Disconnect the call & Close the case after setting the Status as irrelevant call<br>• **If it is an enquiry call**<br>○ Provide the required information, Disconnect the call and close the case.<br>• **If it is an emergency call ,** Proceed to next step |
| Step 4 | **Register the event** (an event id will be generated for this case) |
| Step 5 | Copy the caller details to Victim details, if both are same.<br><br>If the victim details are different from caller details, then enter the victim details in the victim information panel. |
| Step 6 | **Determine the incident location.**<br><br>Three ways to mark the incident location on map<br>• Get the incident location details from the caller and manually mark the location on map using GIS map tool tip<br>• Click on LBS button to get the location from the Telecom Subscriber.<br>• Click on GIS button to retrieve the location from the given address |

| | |
|---|---|
| Step 7 | **Select the Event Type as "Accident" and Event Subtype as Two wheeler accident**<br><br>Set the priority as "Emergency". |
| Step 8 | When the incident location is marked on the map, the nearest landmark, Police Station, Hospital etc. are **automatically** populated. Change the default options, if needed. Collect more relevant information.<br><br>Collect the no. of people injured in the accident.<br><br>Provide additional information reg. the incident, such as the no. of people injured. |
| Step 9 | **Identify the services required for this incident.**<br><br>Select Police service and medical service.<br><br>**If service is needed immediately, CO may do a partial dispatch while collecting information.** |
| Step 10 | **Disconnect the call,** after sufficient information is collected. |
| Step 11 | Identify the district, where the incident has occurred. |
| Step 12 | Full Dispatch: Forward the case to the corresponding District Dispatcher using the 'Dispatch' option.<br><br>The caller/victim gets the SMS. |
| Step 13 | **Police dispatcher has to identify the police vehicle closest to the incident location and dispatch it at the earliest.**<br>The caller/victim gets the SMS regarding the vehicle assigned for this incident.<br><br>**Medical dispatcher has to identify the ambulance closest to the incident location and dispatch it at the earliest.**<br>The caller/victim gets the SMS regarding the vehicle assigned for this incident. |
| Step 14 | Vehicle reaches the spot. |

| | |
|---|---|
| Step 15 | Admit the injured people in hospital. |
| Step 16 | Medical and Police PFT closes the case. |
| Step 17 | Police and Medical Dispatcher closes the case by giving the reason as “Service Provided” |
| Step 18 | The Supervisor finally closes the case by entering Closure Type as “Service Delivered”, Closure Comment, User satisfaction feedback and remarks after getting feedback from the victim. |

# Annexure – II

## Do’s

- Always login & logout properly from the Application.
- Check your application during start-up
- Check you IP Phone – status
- For shutdown always prefer graceful shutdown.
- For short breaks use the BUSY button.
- Any assistance please contact our Support Staff.

## Don’ts

- Install games/other unwanted software on the PCs.
- Connect USB/mobile/external HDD etc. to the PCs.
- Unplugging cables/power cords – without advice.
- Modifying settings of PC & IP Phones.

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