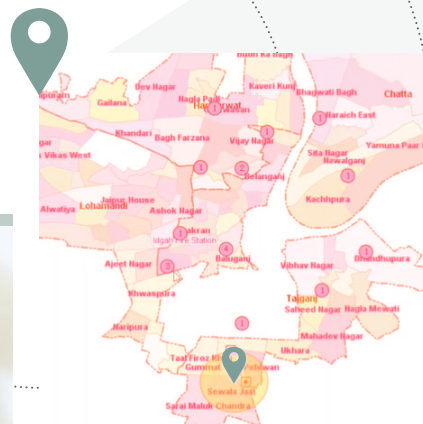


Application of GIS in Fire and Emergency Services

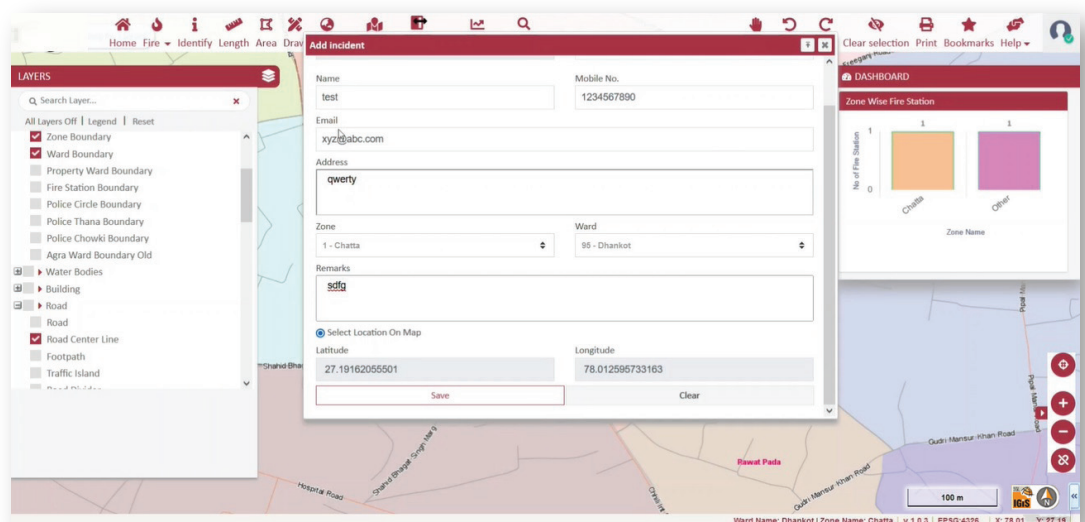


Fire management services are a critical component of emergency response, aimed at minimizing the impact of fires and protecting lives and property. Geospatial technology provides some valuable tools and functions for enhancing management and decision-making activities in this regard. It has the capability of integrating various spatial and non-spatial information in a unified system that empowers departmental and citizen users to efficiently know, assess and address fire incidents for better monitoring, management, and mitigation.

IGiS, an indigenous Enterprise-based geospatial software, have the capabilities to support incident mapping, system integration for real-time data updation, hotspot analysis, evacuation planning, and information dissemination through a web portal & dashboard which makes it capable enough to be used as a marquee tool for fire and emergency services. Following is a brief discussion of the GIS application in the Fire and Emergency Services.

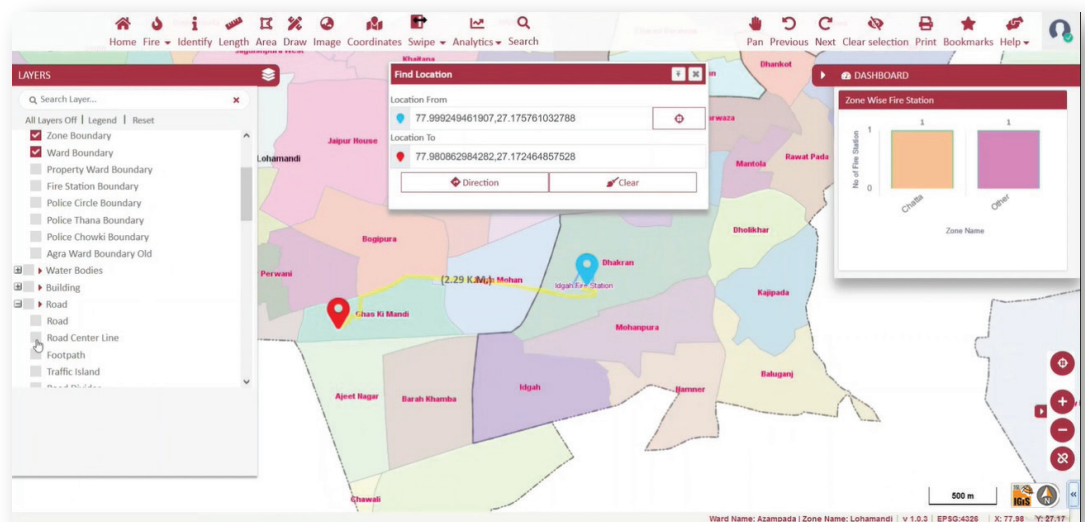
Real-time Fire Incident Updation

The crucial part of the fire management service is the real-time updation of fire incidents. These can be done through various geospatial analyses using IGiS platform such as, sensor integration for temperature, smoke, and heat detection, thermal satellite image processing for timely monitoring of the fire & update effectiveness of the incident (e.g. wildfires), aerial survey to identify the location of fire incidents, size, and progression, etc. It all helps to understand the severity of the incident. Additionally, this information helps the planner to effectively assign resources to the incident spots. Moreover, IGiS provides an advanced customization facility where any field officer/ citizen can mark real-time incidents through a Web Portal. Thus, GIS implementation plays a crucial role in real-time fire incident updation.



Smart Response System

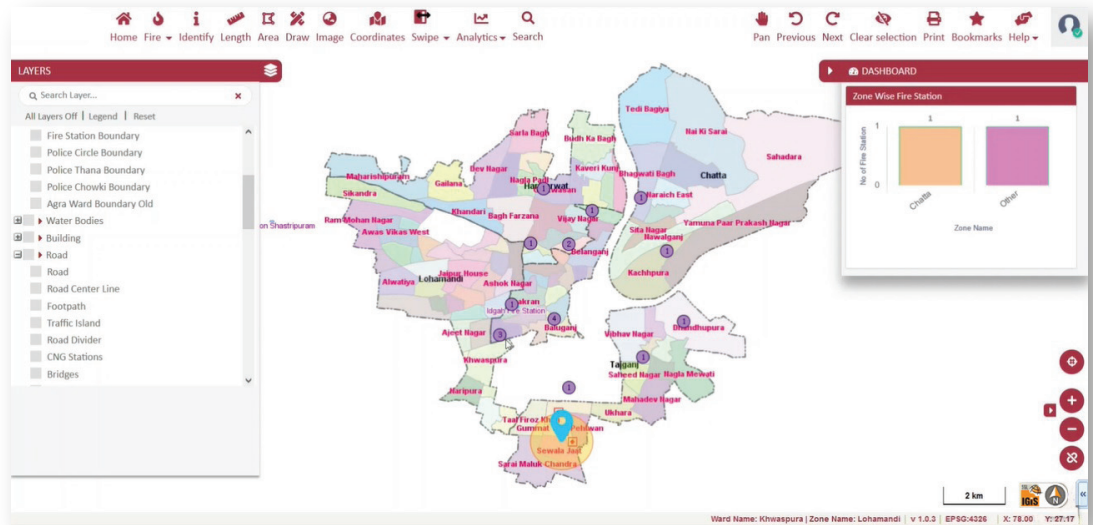
GIS acts as a Smart Response System in fire incident management. It assists decision-makers in enhanced visualization of incidents, optimized resource allocation, management, pre-incident planning, and post-incident analysis based on various locational and attribute information. As discussed in the previous section, after the updation of the fire incident through the Web Portal, GIS-based Smart Response System will assign the resources accordingly and guide them through the best routes so that, the team can reach the location within a minimal time. Thus, IGIS provides a unified solution that acts as a decision support system for effective management of fire & emergency services.



Hotspot Analysis

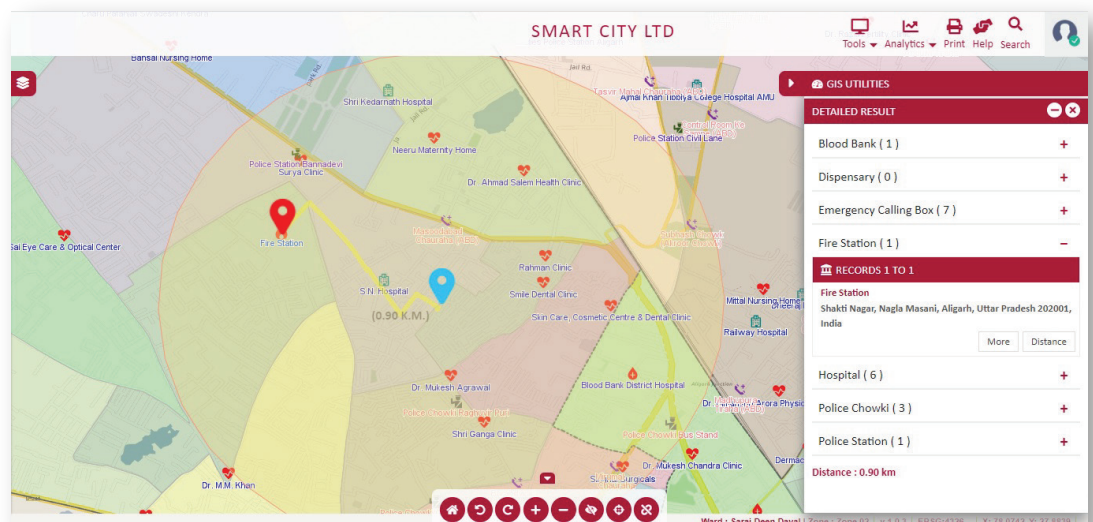
Hotspot analysis is a technique used for the identification of areas with a high frequency or intensity of fire incidents. This analysis helps to identify the most vulnerable zones. Thus, it helps fire management agencies in understanding spatial patterns and focusing

their efforts on areas that require targeted prevention, preparedness, and response measures. Additionally, IGIS provides a multi-criterion decision-making tool that considers various socio-economic factors with information related to the fire stations, fire engines, & firefighters for better management of incidents and immediate responses.



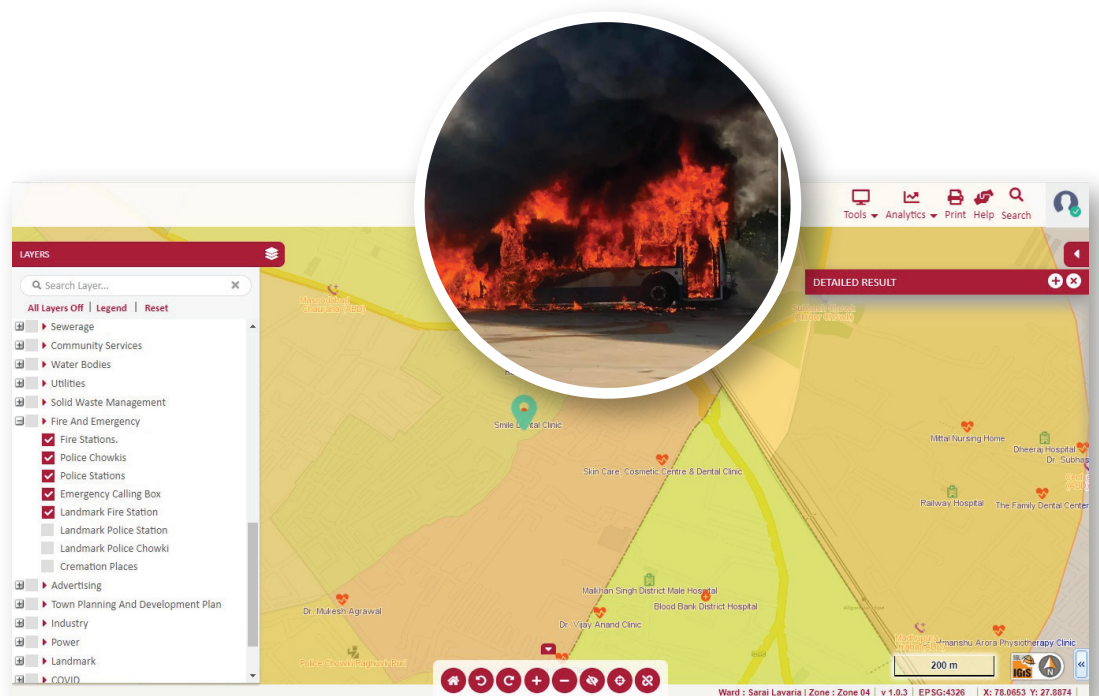
Information Dissemination

Proper circulation and dissemination of the information is required for optimized fire incident management. Information dissemination through a web portal is an effective way to provide timely and accessible information to the public and relevant stakeholders in fire events and asset-related information management. IGIS-based web portal serves as a centralized platform where various fire events-related information and updates can be shared. The departmental users can also use the web portal for marking incidents, assigning resources to the location, and monitoring the overall activity.



Citizen Charter emergency services

Citizen Charter emergency services emphasize citizen engagement, awareness, and cooperation in preventing and responding to fire incidents. It includes incident marking along with geo-tagged photographs, an emergency call facility through an interactive web portal, and a mobile application. Additionally, real-time fire incident information can be shared with the public through this system, and social media platforms. This empowers citizens to stay informed about the fire incident's location, size, and potential risks. Public engagement fosters community involvement, preparedness, and cooperation during fire emergencies.



Conclusion

In conclusion, it can be said that GIS implementation in Fire and Emergency services plays a pivotal role to empower fire management agencies by integrating various spatial data, analysis tools, and real-time information with enhanced situational awareness, efficient resource allocation, and informed decision-making. The Service Oriented Architecture (SOA) of the IGiS platform and its customization facility put an additional credential to support the firefighters in safeguarding lives and protecting properties by implementing various requirement-specific functions.

ABOUT

Scanpoint Geomatics Limited

Scanpoint Geomatics Ltd. is the leader in the Indian Geomatics Industry. We pioneer the nation's geospatial domain through IGiS. An indigenous technology that brings GIS, Image Processing, and Photogrammetry together on the same platform under the Make in India Initiative. We are proud of our partnership with the Indian Space Research Organisation (ISRO). With an innovative approach and over two decades of rigorous research and development, the duo developed the IGiS platform. Backed by ISRO's domain expertise, we aim to push forth innovation and uplift the global geospatial domain.