Role Of Geospatial Technology In Smart Cities

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He is leading urban planning, and guiding team in successful technical triumphs with his excellent technology expertise.

Geospatial technology is present in almost every aspect of the modern life. Whether we realise or not, we are continuously in touch with these technologies. Geospatial technology is present in our smartphones, smart TVs, personal computers, navigations systems and almost everything. These technologies have not only made the world a smarter place, but also a faster and safer place. Geospatial technologies like GIS, GPS and remote sensing have been instrumental in emergence, growth and development of smart cities, which focus on providing better quality of life to their residents and simultaneously reducing the carbonfootprint.

It is estimated that more than 68% of the world's total population will be living in urban areas by year 2050. The majority of this population will be living in cities in Asia and Africa. Urban infrastructure across the world, especially in India, is already under tremendous pressure and is in need to significant overhaul. Smart cities are being seen as the ultimate solution to most of the problems faced by the ever-growing urban population. Smart cities are not only expected to provide better quality of life to its residents but also minimise their ecologicaladverse impact.

Initially, smart cities were conceptualised as places with minimum was tages and optimum resource utilisation. However today it is an extremely wide concept and it is almost impossible to imagine a smart city without geospatial technologies like GIS, GPS, Remote sensing etc. These technologies have been instrumental in planning, creation and operation of the smart cities.

Global Information System (GIS)

GIS has been a very significant tool for planning smart cities. GIS helps collect spatial and geographical data and integrate it with the maps used by urban planners thus creating multidimensional model. It also links characteristic data to the geographical features of a particular landscape. This serves as a tool for analysing the spatial properties of the area. In simpler words, GIS integrates maps and data to create sophisticated tools for planning and analysis. Urban planners often have to deal with large data sets containing information not only relating to the site itself but also cultural, social, economic and sometimeseven political landscape. GIS helps integrating all the data sets into one and make informed decisions on real time and position. It helps the urban planners understand the spatial patterns of facilities and events by providing them accurate information about the physical layouts and demographics of the area. Few other areas where GIS plays important role are land-use planning, demographic analysis, waste management, public transport planning, open space planning, preservation etc.

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Global Positioning System (GPS)

Since smart cities are real places and not only data sets on computers, physical location is an important aspect of urban planning. Urban planning lays great emphasis on the place or the physical location. GPS helps providing physical location attributes to spaces and infrastructure in the smart cities. These physical attributes play significant role in the delivery of the services as location is fundamental in doing so. GPS provides the basic framework required to built smart solutions for smart cities. GPS plays pivotal role in providing real-time location-based services. Real-time location sharing is extremely important in resource allocation and city administration. Be-sides other things, it helps in traffic management, crime control, delivery of products & services and disaster preparedness.

Remote Sensing

Remote sensing helps smart cities keep continuous surveillance of demographics, landscape, weather, infra-structure etc. It helps the city administration keep track of even the slightest changes in any of the defined parameters and assists in making timely decisions. Remote sensing also helps disaster mitigation planning. It also helps authorities in locating construction sites and building alterations and do change detection. This further helps them in making decisions whether to tax or stop any such constructions and alterations. Remote sensing also keeps the cities aware about any upcoming unusual weather events or predict climatic changes. Natural resources like groundwater and biodiversity are better monitored and managed with help of remote sensing.

Conclusion

As mentioned previously now-a-days it's almost impossible to imagine a smart city without the geospatial technologies. In simpler words, these technologies not only help us to gather data but more importantly help us in making sense out of the data and make informed decisions. All the above-mentioned technologies work hand-in-hand to make life better and easier in the smart cities. Besides helping the urban planners and administrators plan and run the cities, they also help in increasing the citizen partnership in city management. Citizen partner-ship is extremely important for any city to function efficiently as it's the citizens who understand the needs and the problems of the city much better than the administrators. Geospatial technologies make citizen participation possible and productive thus making cities truly smart.