The government has installed various smart solutions across the country as part of its ambitious smart cities programme. One such solution is smart poles. These are multifunctional, energy efficient pillars that provide smart services to citizens. Apart from their basic function of lighting roads, smart poles host mobile broadband infrastructure, Wi-Fi hotspots, active geo-location transponders for location-based services and surveillance cameras. Smart poles combine the benefits of LED lighting and mobile connectivity in a “lighting-as-a-service” model for cities. Unlike conventional telecom towers, smart poles have built-in power infrastructure for telecom equipment. The deployment of mobile wireless 4G/LTE infrastructure on smart poles can result in better coverage, improved data speeds, reduced radiation, minimal signal dropouts, etc. Further, smart poles are powered with lithium-ion batteries, which provide backup during electricity outage. LED street lighting can generate energy savings of 50-80 per cent.

Fitted with CCTV cameras, smart poles provide real-time data related to traffic, security and other aspects of the environment. This data is collected in the control room, which helps monitor all the activities and respond to situations accordingly. Since smart poles are equipped with the SOS application, surveillance cameras and charging facilities, they make the city safer, better managed and well connected for its residents. Besides, smart poles can generate good revenue for city municipal corporations. The civic bodies can forge long-term revenue sharing contracts with telcos, which can use smart poles for providing mobile services.

Deployment status in India

The Indore Municipal Corporation is planning to install 800 smart poles and 70,000 LED lights in the city as part of its “Intelligent Street” poles project under the public-private partnership (PPP) model. Indore Smart City Development Limited (ISCDL) has prepared the plan for the project, which will entail an investment of around Rs 3 billion. According to ISCDL, smart poles will be erected at short distances and will include equipment such as security cameras, pollution-measuring meters and Wi-Fi routers. Further, a control room will be set up for monitoring all the poles and data related to traffic, pollution, etc.

Bhopal has also launched the smart poles and intelligent street lights project under the Smart Cities Mission. Under this project, Bhopal Smart City Development Corporation Limited

(BSCDCL) is planning to install 400 smart poles and 20,000 LED street lights in the heavy-footfall areas of the city. The Bhopal smart city project is being implemented under the PPP model in partnership with Ericsson and Bharti Infratel, which will be investing about Rs 7 billion over a period of 15 years. These poles will be backed by 200 kms optic fibre network to be deployed by Bharti Infratel and powered by Ericsson's zero site technology. According to BSCDCL, the poles will be equipped with environment sensors, electrical vehicle charging points, surveillance cameras, digital signage systems and Wi-Fi access points. So far, 98 such poles have been installed though the majority of them are not functional.

The New Delhi Municipal Corporation (NDMC) is planning to install over 18,300 smart poles by 2020 as part of its smart city project, which has a budget of about Rs 18 billion. The civic body has already installed 15 smart poles in the Connaught Place area. The poles are equipped with air sensors, LED lights, free Wi-Fi access points and CCTV cameras. At each pole, at least 75 simultaneous users will be able to access free Wi-Fi at a minimum speed of 1 Mbps. As per the tender, the selected vendor will pay to NDMC Rs 2,655 per month per smart pole. The firm will generate revenue from advertisements on free internet. The electricity consumed for providing service to NDMC for CCTV cameras, LED street lights and other equipment will be free of cost.

Challenges and the way forward

One of the biggest challenges is gathering data on existing LED lights, pole and feeder panel status. In addition to this, the replacement of old poles is a big challenge. Choosing the right location for a smart pole is not always easy. The authorities need to keep in mind a lot of factors so as to make sure that the benefits of smart poles reach the majority of the city population. Further, the positioning and design of power infrastructure should be such that it can be used by telecom operators. Despite the challenges, smart pole deployment in the country will grow at a brisk pace under the government's Smart Cities Mission.

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