

### Case Study Smart Lighting

## JUSCO brings innovation to the streets of Jamshedpur with Tata Communications' Smart lighting IoT solution



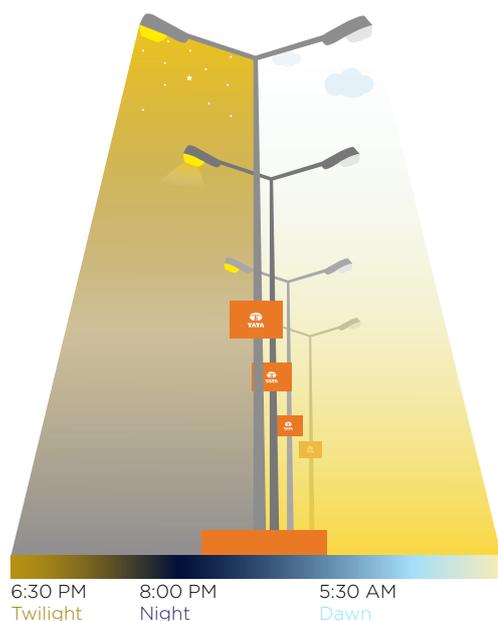
India's first planned industrial city, Jamshedpur is home to one of the largest, fully integrated and geographically diversified steel companies in the world - Tata Steel. In order to be able to serve its thriving community of about 1.3 million residents, Tata Steel carved out its town services division into what is called Jamshedpur Utilities and Services Company (JUSCO) Ltd. Today, JUSCO is India's only comprehensive urban infrastructure service provider.

Serving the community with engineering construction procurement, power distribution, township management, operation & maintenance and real estate, JUSCO is tackling the challenges of urban growth with innovations in technology. So when JUSCO's initiative of setting up an integrated command and control centre for citywide data analytics and control was charted, JUSCO was looking for an enablement partner who could advise and implement smart solutions that are cost-effective, scalable and runs on a technology that supports a wide range of smart city initiatives.

### The Challenge

One of the key imperatives of JUSCO was optimising infrastructure services in Jamshedpur. Specific areas that involved safety and additional manual effort due to scale, took priority. With more than 16000 street lights installed across the city, the monitoring and maintenance of these street lights were both tedious and repetitive. Jamshedpur's civil twilight starts at 6:30 PM and enters through the night at 8:00 PM to end at 5:30 AM. This meant that JUSCO need not operate the street lights at 100 percent efficiency all throughout the scheduled operating time. It wanted to implement a smart lighting solution that could drive energy conservation, monitor, and automate fault detection to ensure uninterrupted civil services, all from the central JUSCO command centre.

What JUSCO was looking for in a solution is deeper than its functional benefits; they were exploring the market for partners in disruptive transformation through innovation and technology, with an acute understanding of the needs of a smart city.



Centralised control and optimised utilisation of assets can improve administration quality and efficiencies that JUSCO wants to achieve

## The Solution

JUSCO chose to partner with Tata Communications to implement its Smart lighting IoT solution. Enabled by the underlying Low Power Wide Area Network (LPWAN) based on Semtech's LoRa® devices and wireless radio frequency technology (LoRa Technology) that is developed to support multiple smart city use cases at scale, Tata Communications and its device partners deployed smart sensors on the street lights of Jamshedpur. The solution tracked and optimised energy consumption with the automated switching of street lights, along with the capability to control light intensity based on the external lighting conditions.

LoRa Technology's geolocation capabilities allowed monitoring the health of each street light and rectify faulty lights immediately. Since the low power consuming sensors are sustained by a battery, JUSCO could also track the lights in cases of theft. Tata Communications' dedicated IoT network ensured an added layer of security from external network threat.

Central Command Centre orchestrates the street lights through a web based application to



Control and schedule group and individual lighting



Geo track to prevent theft



Quick maintenance based on alerts

Web application accessed at Command Centre



Data is aggregated and analysed in Tata Communications' cloud based IoT platform

Data is securely transmitted over Tata Communications' LoRaWAN

## Business impact

JUSCO realised the power of IoT by transferring complete control of smart lights to its command centre. It also enjoys the assurance of enterprise-grade SLAs from Tata Communications. The command centre could centrally operate, monitor and optimise all of its smart lights through a web-based application. This integrated view allowed JUSCO to significantly improve their response time and minimise disruption in service and safety.

The command centre now orchestrates and operate the street lights at various intensities to create **27 percent** saving in power consumption. JUSCO estimates that the return on investment can be realised in just three years. The command centre could accurately identify the smart lights that must be promptly serviced, delivering a better quality of life to the residents of Jamshedpur. All of this is achieved at lower cost and effort.

"We need a smart street lighting system that will help us save energy, reduce maintenance costs, get real time reports, full controllability over the light intensity and reduce CO2 emissions. IoT is probably the biggest game-changer we are experiencing in urban planning and management. Tata Communications' IoT based smart streetlights solution meets all our needs. Not only does it help us reduce our carbon footprint, but it also sets significant cost savings of around INR 700 per light, per year, because of its extremely low power consumption."

**Ashish Mathur, Managing Director, JUSCO**

JUSCO created a safer and energy efficient community by implementing smart lighting solutions in Jamshedpur.

Learn how Tata Communications can help in creating efficient and sustainable communities powered by the Internet of Things.

**Contact us**

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