Award Category: RETAIL. PROJECT: IKEA NAVI MUMBAI.



Image Courtesy: Free press Journa



VIDEO LINK : https://youtu.be/TC48_koRHvY

IKEA kicked off its operation in Navi Mumbai in the December 2020. The Navi Mumbai Store is IKEA's second store in India and the first big format store in the state of Maharashtra. This store like all other is based on the principle on being sustainable while delivering superior shopping experience.

The Brief:

As IKEA believes in the principle of global standardization, KNX based system was choice of automation protocol as it a worldwide STANDARD for home and building control. The aim was to have intelligent monitoring and control system while keeping safety and sustainability at the helm.IKEA being a retail store with different kinds of areas, every area had its own different lighting requirement. Quality of light in every area of the store had to be maintained. For them realising these Visual Aspect of lighting, using control system was very important for 1) it highlights architectural elements, product qualities and creates virtual spaces 2) Enhances customers mood and overall shopping experience 3) and creating pathway and visual aspect of safety for customers.

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Some area where natural light could penetrate, provision of Daylight sensors had been asked for, to harvest natural light. Lastly Energy saving control system which offered the highest level of safety and security, with Central Control and monitoring was needed to monitor such large space. This being a store with public spaces where thousands of people are always present, monitoring the status of lights (for visual aspect of safety and comfort) as well as generating alerts and alarms for any fault were of utmost importance

Challenges:

This being IKEA's large format store, the biggest challenge was to design, monitor and control the lighting system of such a massive space. Different kinds of lights required different lighting modes in all the areas for e.g. the rows of lights in the Market Hall area were switched in alternate modes. Some areas in the store had bus duct trunking and automation components had to be installed in these bus ducts (distributed intelligence architecture). KNX automation components were widely distributed throughout the store. Connectivity between KNX components for a project of this scale while taking the permissible KNX bus lengths (1KM) into account was a challenge. This required us to create huge Network of KNX, Fibre Optic and CAT6 cable to interconnect all the floors of the store on a single monitoring and controlling platform.

Solution:

The Lighting Control Management System (LCMS) has the capabilities of standalone operation with full automatic control and monitoring ability. It is designed to interface with BMS and also give remote control on Mobile app to operation team. KNX (ISO 14543) Standard Based system ensures future upgrades of system to be cost effective. Distributed intelligence characteristics of KNX system helped in reducing cabling and its cost. Robustness of KNX system ensures 24/7 operability.

Using around 3000 KNX components (ABB and Busch Jaeger) and NetX Server for visualisation, following Controls were provided:

- As different parts/areas of the store required different kind of lighting, switching of lights is based on preset modes. And this can vary during the time of day.
- Double height (40Ft) areas lighting modes have been designed in a way to switch alternate rows of lights at a time to save energy and lamp life.
- BOH areas Occupancy based sensor controls and Push Buttons for local operation. For Warehouse areas high bay sensors have been used.
- Time Based Controls and event based (like Fire) controls are defined in the LCMS for automatic and manual override controls which contributes to saving of energy.
- Alarm Management and Fault Monitoring.
- Remote Maintenance is possible.

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Benefits

- Functions like History, trends, reports; Alarms are available to user using simple GUI.
- Due to various logic functions and advantages, this system has actually helped in reducing ROI period and could aid the store to achieve Green building rating.
- Consistent, ergonomic operating concept means all floors can be operated just as easily as one
- Easy to quickly check operating statuses and remedy faults
- System is easy to modify or add to thanks to KNX technology and our optimized control system design.

Project:	IKEA Store at Navi Mumbai, India
Consultants and PMC	ATKINS
Design & Systems Integrator:	
Contact	
Brands Used	ABB / Busch Jaeger
	NETx Visualisation software.
Size of Project	5,30,000 sq. ft.
Number of KNX Devices used	3000+
Number of automation panels	42
Man Hours to complete work	2000 Hrs.
COST	22 MINR