

emblaze™

Connected Smart Lighting Control Solution

We illuminate people's hearts.

We Believe that Lighting Can Change Lives

All living organisms have an internal clock called the 24-hour biorhythm, and human beings are no exception. Proper lighting improves the quality of life and is an important factor that affects many aspects such as personal health and the environment.

Until now, however, most people have only used lighting to its most basic use, which is to light up spaces. Our vision is not just to illuminate things, but also to create human-centered lighting that operates on its own, according to the way of life or its purpose. The lighting we will create will be an essential element of life that changes human life and make us healthier.

INTERACTIVE
LIGHTING
CONTROL

True Wireless Lighting Solution, emblaze

Add the “Smart Lighting Solution” to your product portfolio. As your technology partner, we provide features and benefits that you have not experienced in existing lighting systems.

emblaze

Clean, Efficient,
Sustainable Technology, and More

Simplest Wireless Solution for Lighting Control in Large Facilities

Build a true Smart Lighting System with our solutions.

We provide any requested features, such as energy-efficiency, data collection, control flexibility, and convenience. The Emblaze solution, faster, more reliable, and affordable than a wired solution, will help you quickly bring smart lighting products to the market. With your technology partner, Neostack, you will get everything you need to take your product to the next level.

We will provide new business value to you



Various Product Configuration Options

Software applicable to various products such as dimming lighting, color temperature lighting, and sensors are available. Expand your product portfolio.



Interoperability For Global Expansion

Emblaze complies with the mesh standard of the Bluetooth SIG (Special Interest Group). It can be used with products from any manufactures in the world.



Response to Wireless Standardization and Certification

Response to Wireless Standardization and Certification
Provides software and firmware updates to meet various domestic and foreign standards. Also, take the competitive advantage by responding to various domestic and foreign certifications with the emblaze solutions.



Fast Entry into the Market

We provide out-of-the-box lighting control unit. Reduce R&D costs and enter the smart lighting market fast.

The New Network Technology MESH

Emblaze mesh provides enterprise-level stability, expandability, and security.

Bluetooth Mesh?

It is the latest IoT (Internet of Things) solution that enables hundreds or thousands of devices to communicate effectively and securely, creating large device networks. It is widely used in commercial lighting solutions and various sensor network markets worldwide.

01 Ensure Interoperability

The Bluetooth mesh network defines every stack, from the physical wireless layer to the application layer. These full-stack architectures enable smoother, more flexible product development, and provide users with a clear quality of global interoperability and capabilities.

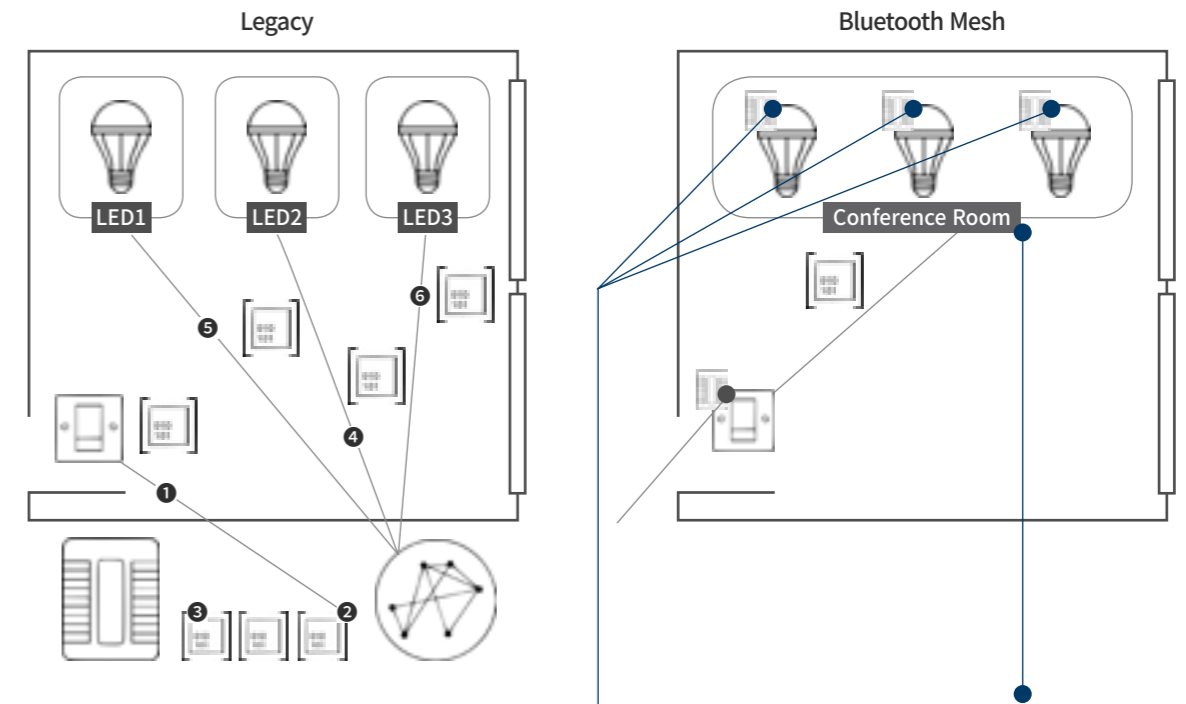
02 Latest Encryption Standard Applied

Bluetooth MESH devices are secured for the entire cycle from deployment to disposal. mesh network security uses three types of security keys: the network key, the app key, and the device key. This security key is changed periodically. All mesh network messages are encrypted and authenticated with AES-CCM, AES-CMAC and so on. The network can prevent a variety of attacks, including Replay Attack and Trashcan Attack.

03 Available to Operate without Separate Networks

In a Bluetooth mesh network, mesh nodes are wirelessly connected to each other, enabling a wide range of communication. Deploy reliable systems quickly and easily, even in environments without networks such as Wi-Fi and LAN. For example, it can be freely applied to locations with limited communications, such as parking lots and construction sites. Run your own lighting system with your mobile device through Bluetooth without any additional devices.

04 High Network Scalability and Reliability



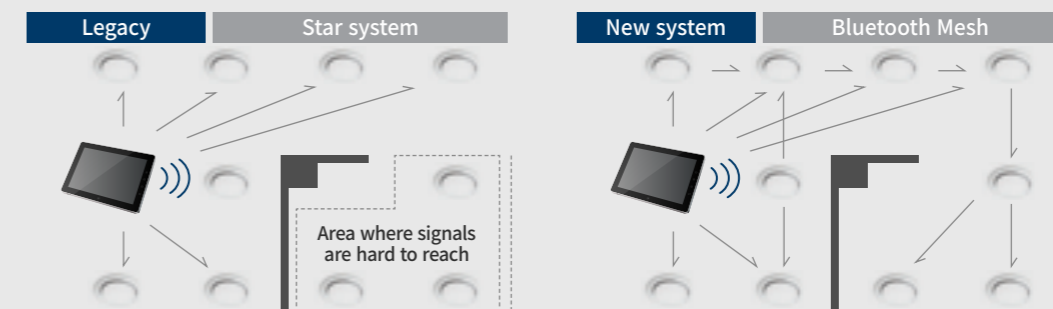
Robust Distributed Control Architecture

All devices in the mesh network are intelligent to analyze messages within the network and determine the behavior. This enables communication with lights, switches, and sensors without having to go through a central control server. It can be configured without a separate central control server or router, therefore, there is no single point of failure (SPOF) and you can freely expand, change, and delete as needed. With this distributed control architecture, the system delivers much larger scale, reliability, and performance at a lower cost.

Highly Efficient Method of Message Addressing

In wireless networks with high multicast traffic, such as lighting systems, individual addressing can cause significant performance problems. In addition to individual addressing, Bluetooth mesh supports publishing/subscription (pub/sub) addressing for multicast traffic. For example, if the light switch publishes a message to a meeting room group, all the lights that subscribe to the meeting room group can receive messages at the same time. This method significantly reduces the traffic and the latency of the network, resulting in improved network scale and performance.

Highly Efficient and Reliable Message Relay



When the switches and lights are not in each other's radio range, the messages must be relayed by other nodes in the network. However, applying legacy routing technologies used on wired networks as they are to wireless networks can cause reliability, scale and performance problems due to many multicast traffic. To address this problem, Bluetooth mesh adopts a managed flood message relay approach ideally suited for wireless networks, which can scale to thousands of nodes while maintaining high performance and reliability.

emblaze

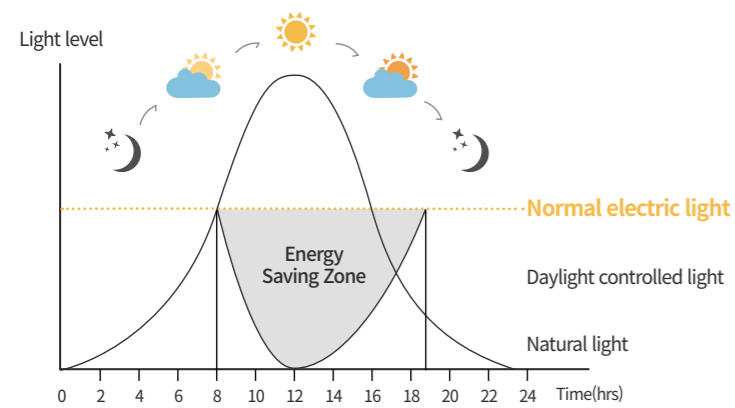
Smart Lighting Control System

Convenient Installation and Operation

The planner provided by Emblaze offers intuitive lighting system information. Apply fast and easy on-site control of scenes, plans, and operation method.

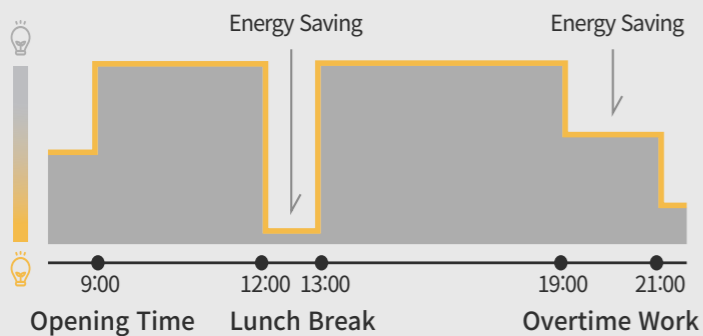


Planner



Daylight Harvesting

Saves energy by automatically dimming or brightening the lights depending on the amount of natural light.



Scheduling

Schedule the lighting system for energy conservation or space utilization purposes.



Scheduling

Group & Individual

Scenes



Group & Individual control

Through individual control, you can manage devices in detail and change group flexibly. Various groups can be created to facilitate the application of scenes, scheduling, and motion scenarios, to fit the space.



Scenes

You can store various presets for the brightness and color of the lights. Set and store different presets for different lights, and use scene call function to conveniently bring up the lighting environment.



Motion Sensor

The different lighting control units receive messages from different motion sensors to allow the output to be adjusted only as much as it needs. Using the Lighting Pad, you can adjust the lighting output graph conveniently.



Alternating Control



Even if the building control system or the building network system is down due to a disaster, etc., the emblaze lighting can be directly accessed and controlled.

Various Types of Wireless Control Modules

There are various firmware models and lighting control units available for your lighting.



Firmware Models

Generic






OnOff Level

Lighting






HSL Level





OnOff Level

Time and Scene





Time Scheduler



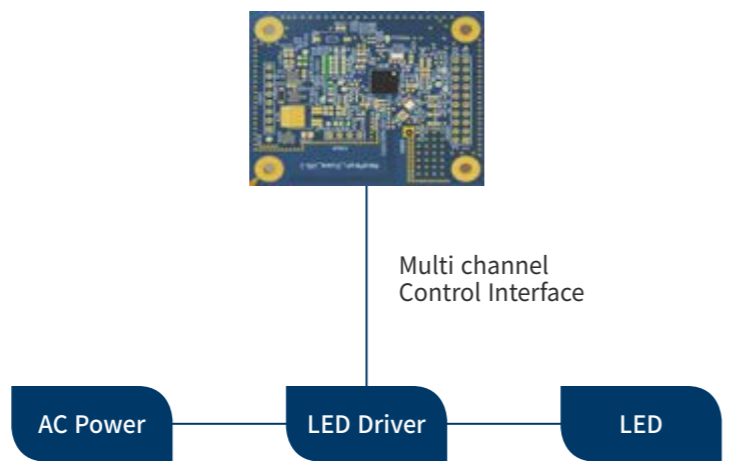
Scene

Sensor

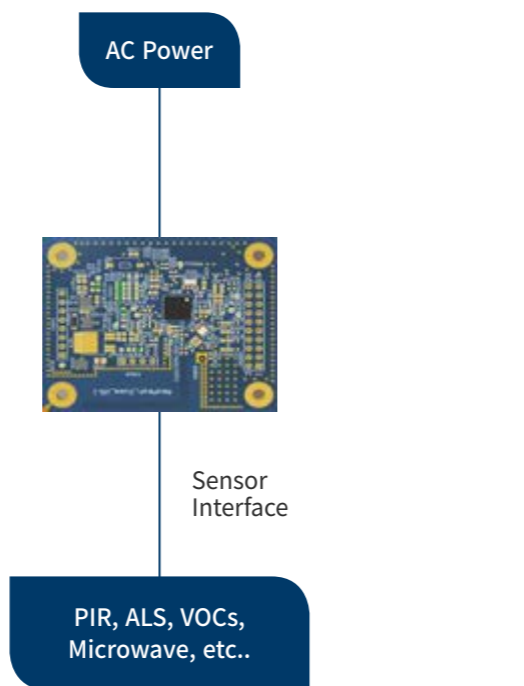


Sensor

Model implantation suitable for lighting type



Model implantation suitable for sensor type



Provides a Wide Range of Product Configuration Options

Emblaze products are designed as large commercial and industrial lighting. Emblaze firmware allows you to flexibly select the features based on customer requirements to realize high-level smart lighting products. Develop Bluetooth mesh-based lighting, switches, and sensors available around the world.

Control method

- Supported Control Interface type PWM, 0-10V
- Supported Control Channel 1Ch (warm or cool color dimming), 2Ch (warm and white color tuning), 3Ch (Red, Green, and Blue color tuning)
- Support sensor PIR, Microwave, Ambient Light
- Sensor coupling Sensor-integrated, Sensor-detachable

- PIR** Sensor for detecting movement of infrared radiators, used in conjunction with Fresnel lenses to control dimming according to movement.
- Ambient** A sensor that detects ambient light volume and is used for dimming control of light.
- Microwave** A sensor that uses RF technology and Doppler Radar Theory to detect movement of objects. More expensive than PIR.

Simple Installation Software

Provides intuitive application for lighting network implementation.

Installing Complex Lighting Control Systems, Simplified

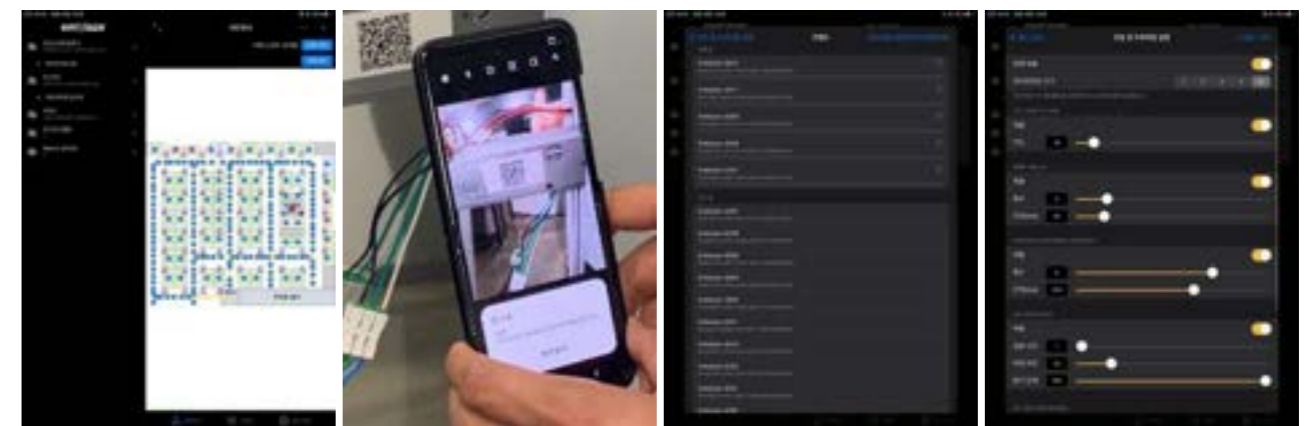
Until now, the lighting control system has been a complex system with too much technology for non-experts to handle. Proper installation requires the service of an experienced professional, on top of the additional cost. Also, it is very difficult to find an expert, which can cause serious inconvenience. Designed to support large-scale installations for commercial and industrial environments, this product offers robust testing, detail setting and schedule management functions. Our solutions help you easily install complex lighting systems.

Planner



Provides convenient lighting design application. Configure the lighting system to suit your purpose without programming. Simply click on the web to define, group and organize your lighting behavior before the build phase.

Autopilot



Selecting

Mapping(QR)

Networking

Operating

Designed to greatly simplify the testing process, our solution requires no specialized training or network engineering expertise. You can set up your entire system faster than ever before. Get planned information from web applications and set up on site (distribute settings, set security, optimize) with one-click. All networking processes are automated, so you just need to connect the nodes.



Cloud

Light & Sensor

control Pad

Control Panel

Planner

Installer

Monitoring

Monitoring System

Provision of remote monitoring service for maintenance and remote firmware update

Smart lighting is connected to the cloud and collects information remotely.

It also provides administrators with several features and tools to easily communicate lighting conditions and establish desired policies.

Energy Monitoring



Easily monitor the power usage of the entire or partial lighting system. Managers can establish and apply better lighting energy efficiency policies to save energy. Identify and inform the administrator of unnecessary lighting use.

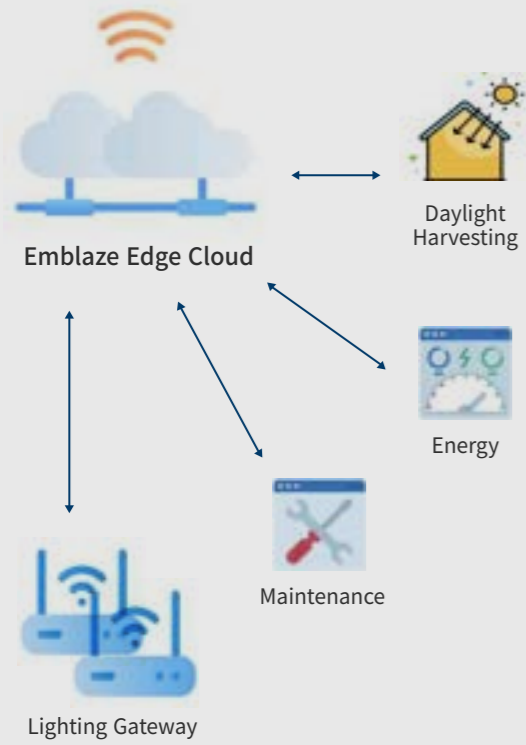
Spatial Occupancy Monitoring



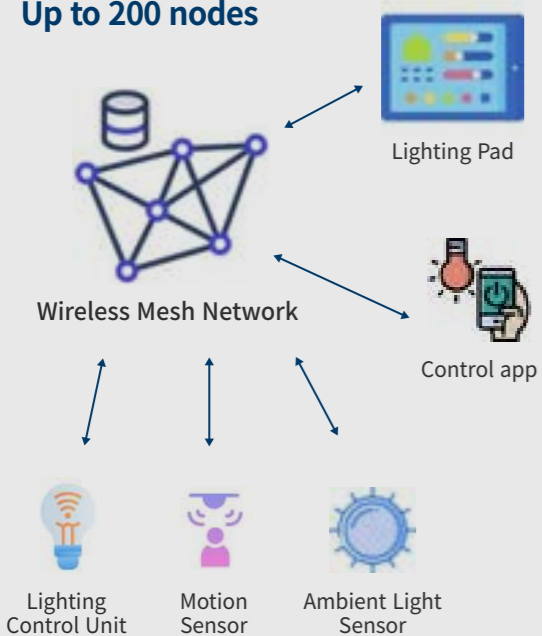
Monitor the spatial occupancy of people or things by timeframe. Managers can know which spaces are frequently used by people by time & day of the week. This can help increase space utilization and help establish alternative policies for spaces that are less occupied. Managers can know the spatial occupancy information of objects and track assets to reduce loss rates.

Product overview

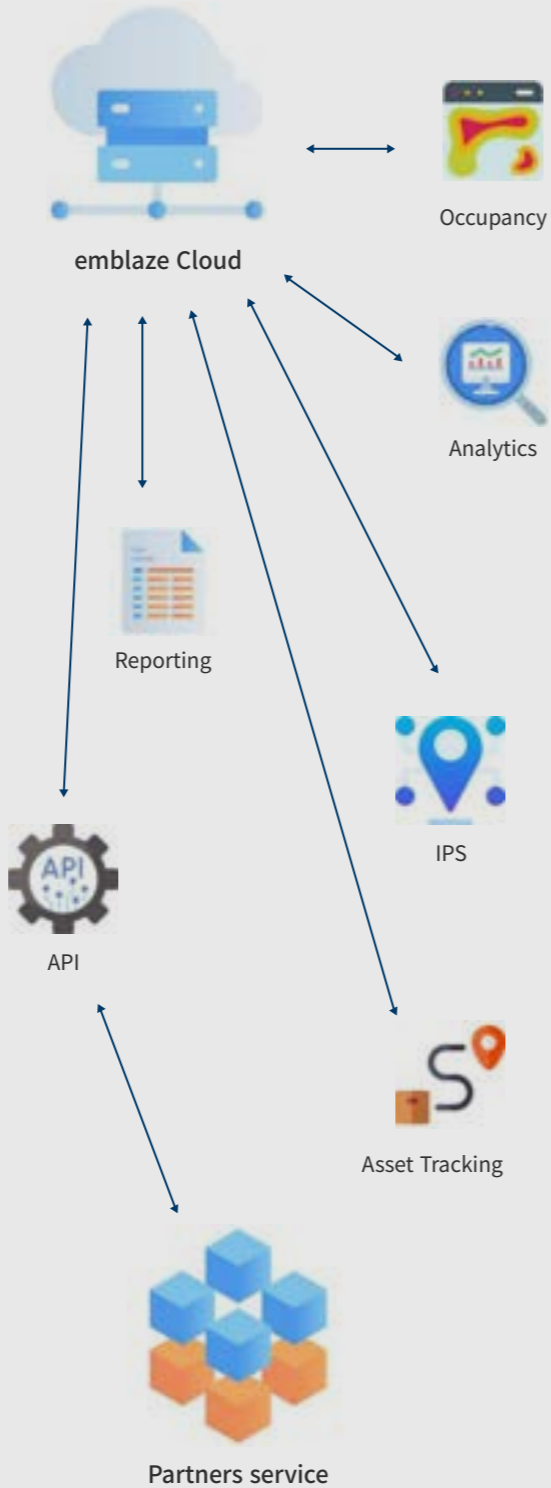
Connected Up to 30,000 nodes



Lite Up to 200 nodes



IoT



Packages	Basic Product	Option
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<p>Lite</p> <ul style="list-style-type: none"> Economical type Support 200 nodes 	<p>Installation S/W</p> <ul style="list-style-type: none"> Planner: Configure the lighting system to suit the purpose of the lighting system without programming Autopilot: Get planned information from the planner and set it up automatically on site with one click Lighting pad APP: User apps that control lighting key functions and services <p>Hardware</p> <ul style="list-style-type: none"> Lighting control unit, sensor, lighting pad <p>Key Features</p> <ul style="list-style-type: none"> Brightness control, occupancy detection, illumination detection, color temperature, group setting, schedule setting, scene setting 	<ul style="list-style-type: none"> Wireless Switch
<p>Connected</p> <ul style="list-style-type: none"> Popular type Support 30,000 nodes 	<p>Lite Package Features and Hardware</p> <ul style="list-style-type: none"> Lighting gateway <p>Service</p> <ul style="list-style-type: none"> Maintenance, energy monitoring, daylight harvesting 	<ul style="list-style-type: none"> Wireless Switch Emblaze Service
<p>IoT</p> <ul style="list-style-type: none"> Premium type Support unlimited nodes 	<p>Lite + Connected Package Features and Emblaze Service</p> <ul style="list-style-type: none"> Beaconing, space occupancy monitoring, Asset Tracking, indoor location tracking, other analysis service 	<ul style="list-style-type: none"> Wireless Switch Custom Sensor Partner Service(API)

Service Description	
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Energy Monitoring	A service that collects the amount of power used in each light and provides insight into energy usage
Daylight Harvesting	A service that reduces indoor illumination and reduces power consumption according to the amount of natural daytime sunlight
Space Occupancy Monitoring	A service that provides insight into the activity of the space by accumulating the detected movement from each sensor
Emblaze Service	IoT service using emblaze lighting network
Partner Service	Partnering-company's service that can be implemented on lighting system using emblaze API

IoT Service Expansion

The introduction of a smart lighting system allows you to build a variety of IoT services into the lighting network infrastructure.

Connected Smart Lighting Control Solution

Experience a Whole New World of Possibilities in the Lighting Industry

Smart lighting systems are well-equipped with IoT network infrastructure. Emblaze's Connected Services can share data and services to build larger, more complex, and more sophisticated applications. In addition, through various sensors, smart lighting systems communicate with IoT gateways and devices within the network. Expanding IoT services provide significant operational efficiency, support a variety of data-driven services, and generate new revenue streams.

Open-API



Indoor Tracking



Asset Tracking



Monitoring the Number of Users



Energy Monitoring

The IoT service that the smart lighting system can provide can be built into various areas such as asset tracking, indoor tracking, monitoring the number of users, and energy monitoring. Through Open-API, these IoT services allow users to process and use dates as they please.

Asset Tracking



Secure Cloud Asset Tracking



Buildings



Vehicles



Furniture



Machinery



Laptop



Intangible Assets

Indoor Positioning System



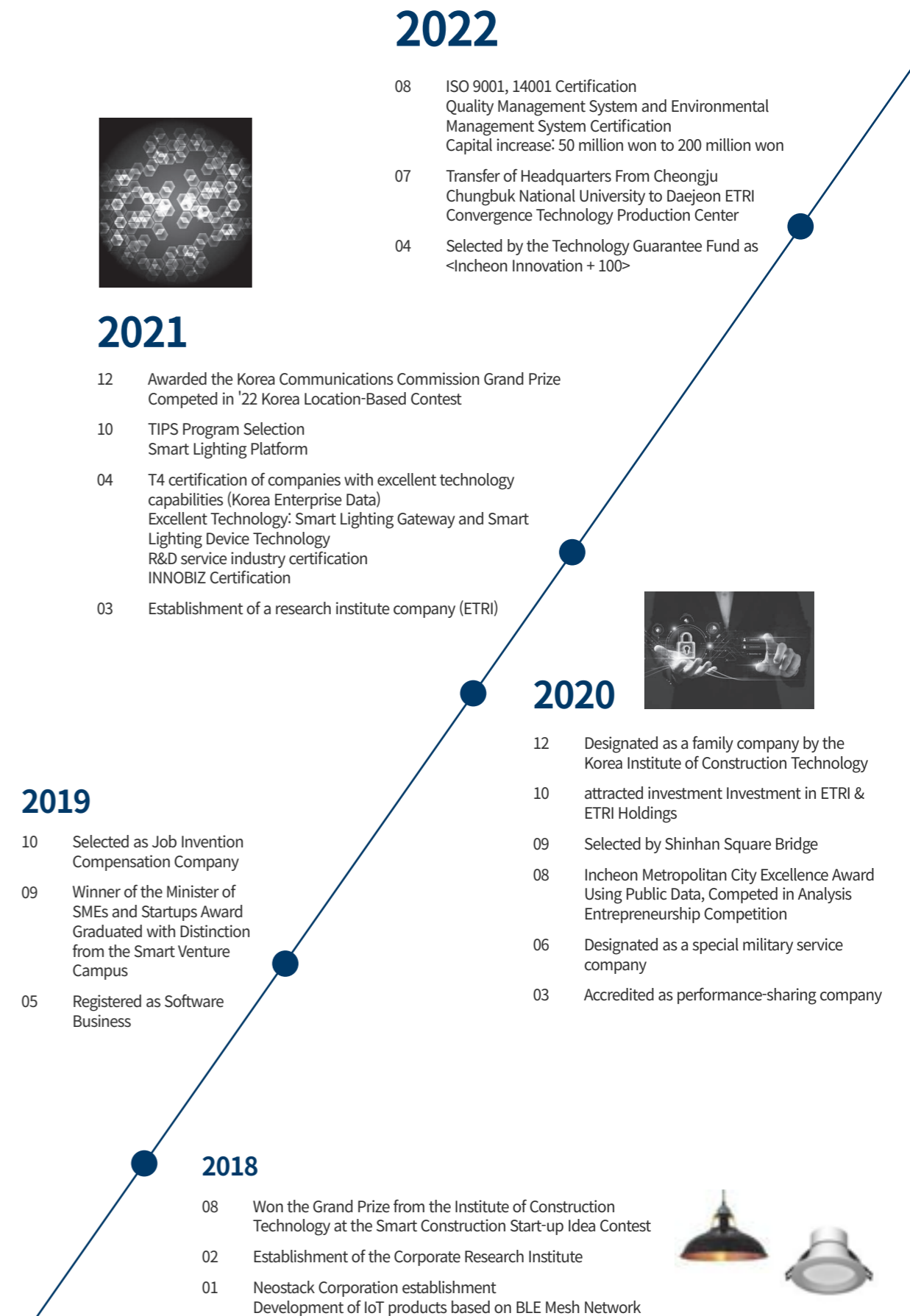
Company Overview

Company Name	Neostack Inc.
Industry Type	Information and Communication
Capital	200 million KRW
Main Product	Lighting Control System
Address	#501, ETRI Convergence Commercialization Center, 218, Gajeong-ro, Yuseong-gu, Daejeon, Republic of Korea
Representative Director	Jeon Jin oh
Date of establishment	January 8, 2018
Number of employees	14 (as of 2022.08)
Phone/Fax	070.4228.1811/02.6455.0618
Homepage	www.neostack.co.kr

Company Certification



History





Neostack Leads the Lighting Market with
State-Of-The-Art Technology

Headquarters

#501, ETRI Convergence Commercialization Center,
218, Gajeong-ro, Yuseong-gu, Daejeon, Republic of Korea
E support@neostack.co.kr

Incheon Branch Office

#213, Incheon Startup Park,
204, Convensia-daero, Yeonsu-gu, Incheon, Republic of Korea
E support@neostack.co.kr

Corporate Research Institute

#106, Smart Construction Support Center, Korea Institute of
Civil Engineering and Building Technology, 283, Goyang-daero,
Ilsanseo-gu, Goyang-si, Gyeonggi-do, Republic of Korea
E md@neostack.co.kr

Manufacturing Headquarters

#224, Geumho Ocean Tower, 583, Neungheodaero, Namdong-
gu, Incheon, Republic of Korea
E mfg@neostack.co.kr

Manufacturing Headquarters

070-4228-18
E sales@neostack.co.kr

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