



**The Nighttime Lighting Environment Enhancement Project
of Foshan City Central Park**

I Project Statement

This project carries out the overall lighting design for 2 parks , creates a night economic gathering area of Lingnan traditional culture through the construction of night lighting, promotes local consumption, and enriches residents' night life.

The lighting design takes “characteristic impression and legendary Foshan” as the theme, and “experience rich situations and converge cutting-edge technologies” as the design concept. The design focuses on the visual experience of tourists at night. Through the lighting, two completely different environmental atmospheres are created in the two parks-lively and serene.

This project uses LED and digital media technologies to express the traditional cultural elements of Foshan in a novel form, and provides citizens with 4 immersive cultural tours including 22 themes, and integrates 34 characteristic stories manifesting local humanities and history into it.

Technically, we strictly set the brightness index, and carry out hidden installation of lamps and lighting equipment. In the meantime, an independent lighting control center is established to realize the unified control of all lamps in the park, which presents diverse effects and reduces energy consumption. Moreover, lamps with replaceable parts and modules is given top priority, which facilitates the operation and maintenance of lamps.

II Project Profile

This project carries out the overall lighting design for Wenhua park and Yayi park, which are located in Chancheng District, Foshan City, Guangdong Province. And the total area is 110.8 hectares.

There are 46 types of lamps, lighting equipment and devices, such as LED lamps, new beam lights, digital pattern lights, laser projectors, intelligent street lamps, interactive lighting devices, etc.

Through the construction of nightscape lighting, it creates a night economic gathering area of Lingnan traditional folk culture , promotes local consumption, and enriches residents' night life.



III Project Strategy

In China, the construction of nightscape lighting needs to deal with the multiple relationships between lighting and city propaganda, citizens' life, environmental space, the application of scientific and technological achievements and the expression of regional culture in an all-round way, and also needs to properly protect the park landscape, so as to enhance a good experience during the day and at night.

Q1: Different Requirements of Different People

The requirements of local government, citizens and tourists for nightscape lighting are different at different times, which not only needs to provide the newfangled and impactful visual experience, but also needs to create dim and quiet leisure environment, so how to balance different needs has become the key to solve.

Q2: Combination of Technology and Culture

In order to present newfangled, impactful and regional lighting, it is necessary to use scientific and technological achievements and regional culture materials reasonably in the limited park space. How to combine them skillfully and perfectly becomes the second problem to be dealt with.

3.1 Design Theme and Concept



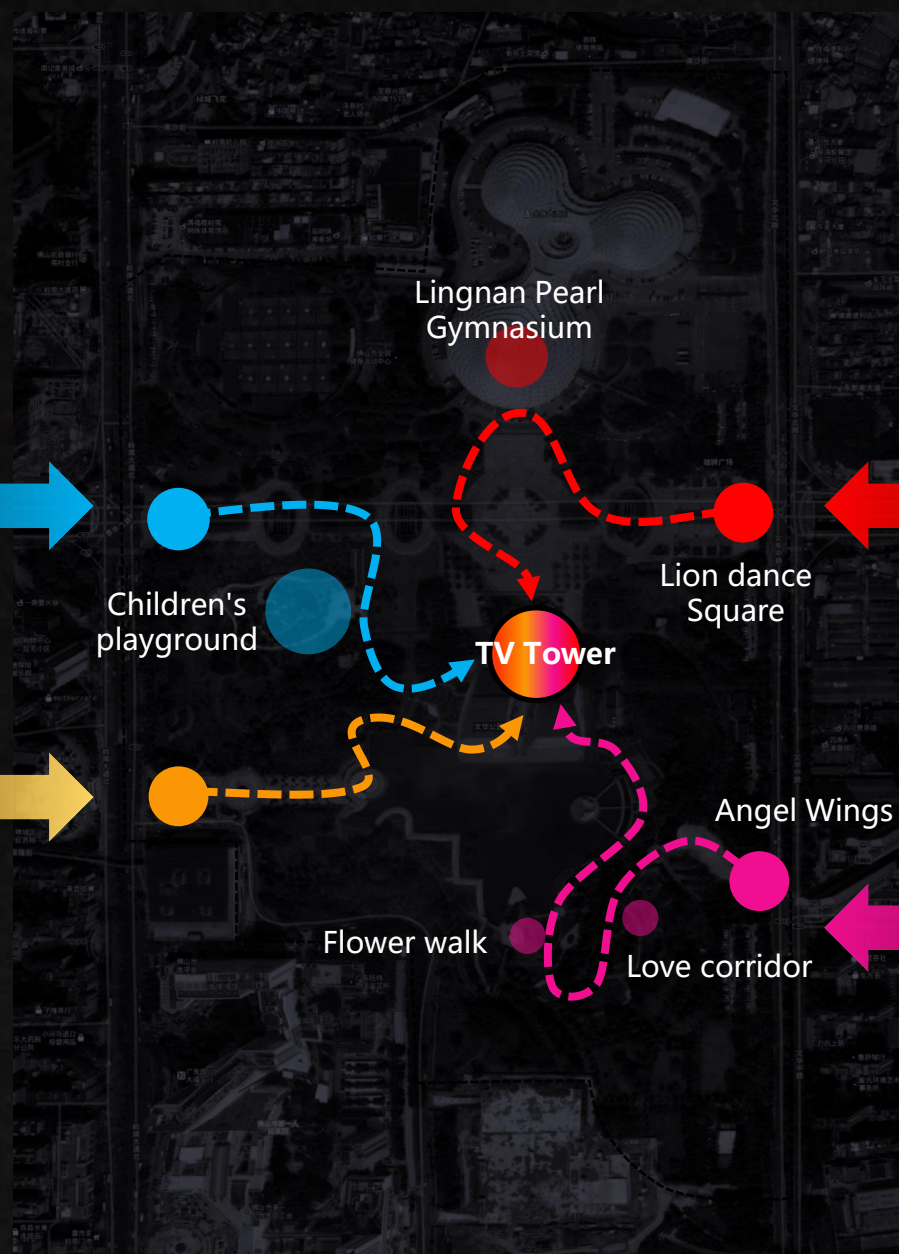
The Chinese Character in The Photo is The City Name - Foshan

In this regard, the lighting design takes “**characteristic impression and legendary Foshan**” as the theme, and “**experience rich situations and converge cutting-edge technologies**” as the design concept. We focuses on the visual experience of citizens and tourists at night, and create two completely different environmental atmospheres in the two parks-lively and serene through the lighting.



Route:
Children's paradise

Route:
Flowers bloom



Wenhua Park



Route:
Lingnan Lion Dance

Route:
Romantic love



**Gambiered
Guangdong Gauze**



Ceramic

Yayi Park

This project uses lifting screen, fountain, projection, laser, interactive device, and other digital media technologies to express the traditional cultural elements of Foshan in a novel form, such as Lingnan lion dance, Foshan martial arts, Cantonese opera, ceramics, etc. Moreover, it provides citizens with 4 immersive cultural tours including 22 themes, and integrates 34 characteristic stories manifesting local humanities and history into it.

The 3D projection technology is used to accurately project the Lingnan lion dance from a long distance (about 150 meters), so that the animation can be integrated with the complex shape of them, thus making the lion dance vividly move.



Lingnan Lion Dance with 3D projection
[Wenhua Park]



Fountain and Light Show
[Wenhua Park]

The design combines 4 digital projectors with 7 90°-flip-flop lifting screens to perform a wonderful light show above the water; In addition, The projection screens generally lie 0.5 meters below the water surface, which does not affect the daytime landscape of the lake.



The Red Boat of The Traditional Cantonese Opera Troupe
[Yayi Park]

According to the style of collections in the museum, the red boat in the traditional Cantonese opera troupe is restored at 1:1, and actors are invited to perform Cantonese opera on board. In addition, a projector is installed on the boat in a hidden way to play classic Cantonese opera on the sail.

A fan-shaped water curtain projection was built on the open lake in Yayi Park. And it plays the history and humanistic stories of Lingnan School on the thin water curtain, which widely spread Lingnan culture.

Fan-shaped Water Curtain Projection
[Wenhua Park]





Decorative Wall of The South Entrance Plaza
[Yayi Park]

3.2 Lighting Interaction

1. Infrared sensor interaction

We also provide a variety of interactive forms for citizens and tourists to participate in lighting.

The lighting can also capture the movements of tourists through infrared induction, so that pictures can follow the rhythm of tourists' arms.





1. Infrared sensor interaction

In the Children's playground, we design luminous amusement facilities and pattern lights to create a starry sky paradise, and project cartoon patterns on the ground. Children and their parents can interact with cartoon patterns through infrared sensors to enjoy parent-child fun.

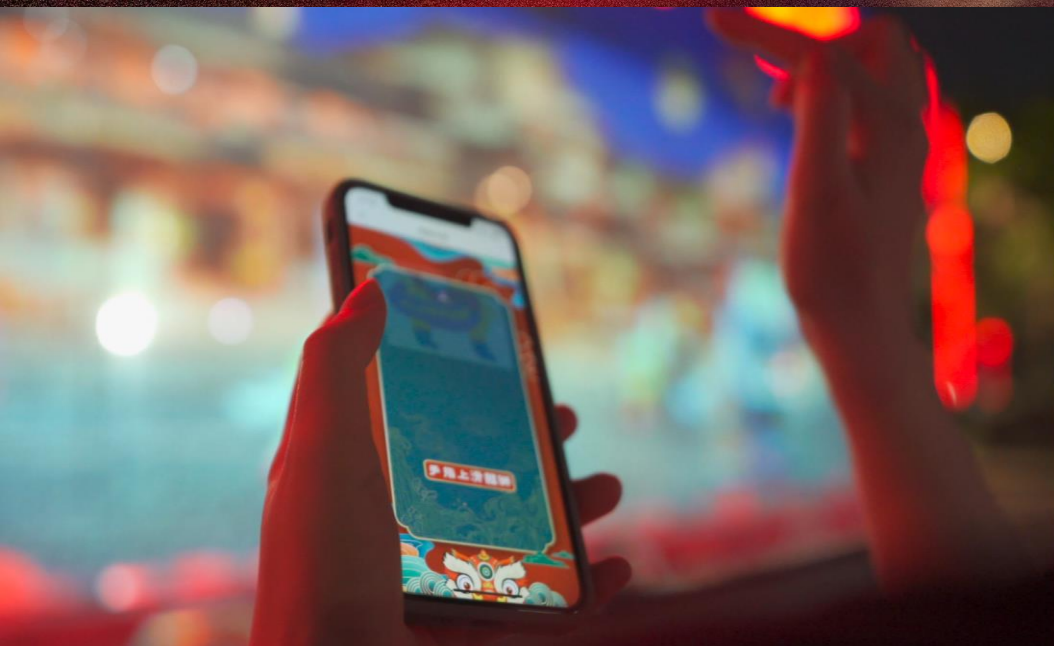


2. Radar Sensor interaction

Through radar sensors , the lighting of floral patterns on the runway bloom with the pedestrians to create a flowery path.

3. APP Scan Code interaction

Tourists can participate in interactive projection by scanning the code on their mobile phone, create their own lion dance on the arc corridor, and enjoy special performances.



Wenhua Park



Yayi Park



Through the above use of scientific and technological achievements and regional cultural materials, a novel and colorful night tour experience will be presented in Wenhua Park, and a quiet, comfortable and artistic leisure environment will be provided in Yayi Park to meet the diverse needs of urban publicity and citizen life.

IV Technical Strategy

In the design of nightscape lighting, we should design environmental protection, energy saving, safety guarantee and installation technology in detail besides providing excellent artistic creativity, and be responsible for the city and the client in terms of art and technology.

Q1: Strictly Control the Impact on Urban Environmental Brightness

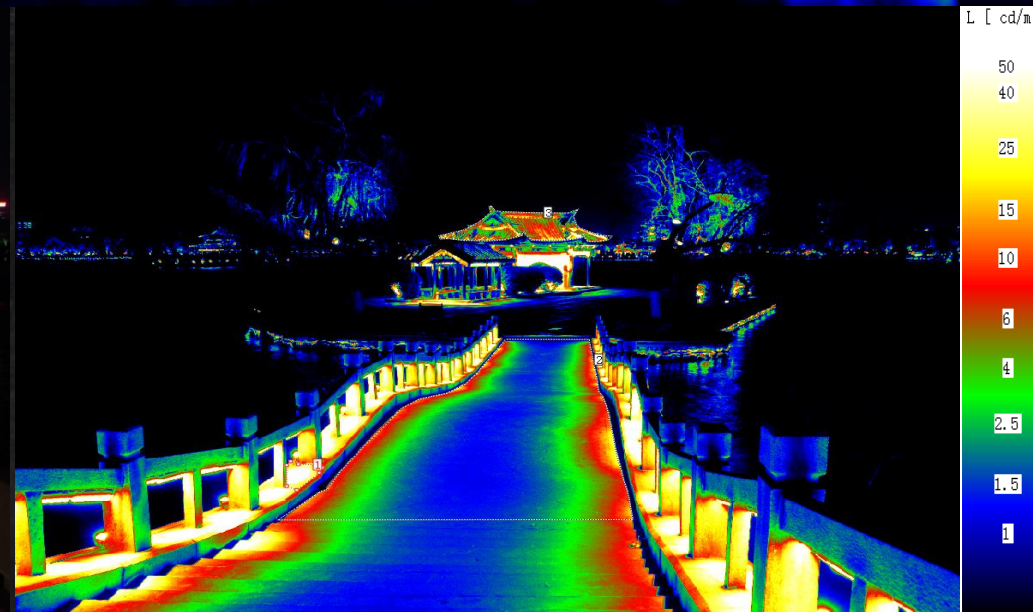
While providing a comfortable and safe night environment, nightscape lighting will inevitably increase the brightness of the urban environment if uncontrolled. Therefore, it is necessary to protect the dark luminous environment through reasonable technical measures.

Q2: Study the Ecological Characteristics of Animals and Plants

There are a large number of animals and plants in the park, so the nightscape lighting design should consider how to reduce the excessive influence of artificial light on the circadian rhythm of animals and plants.

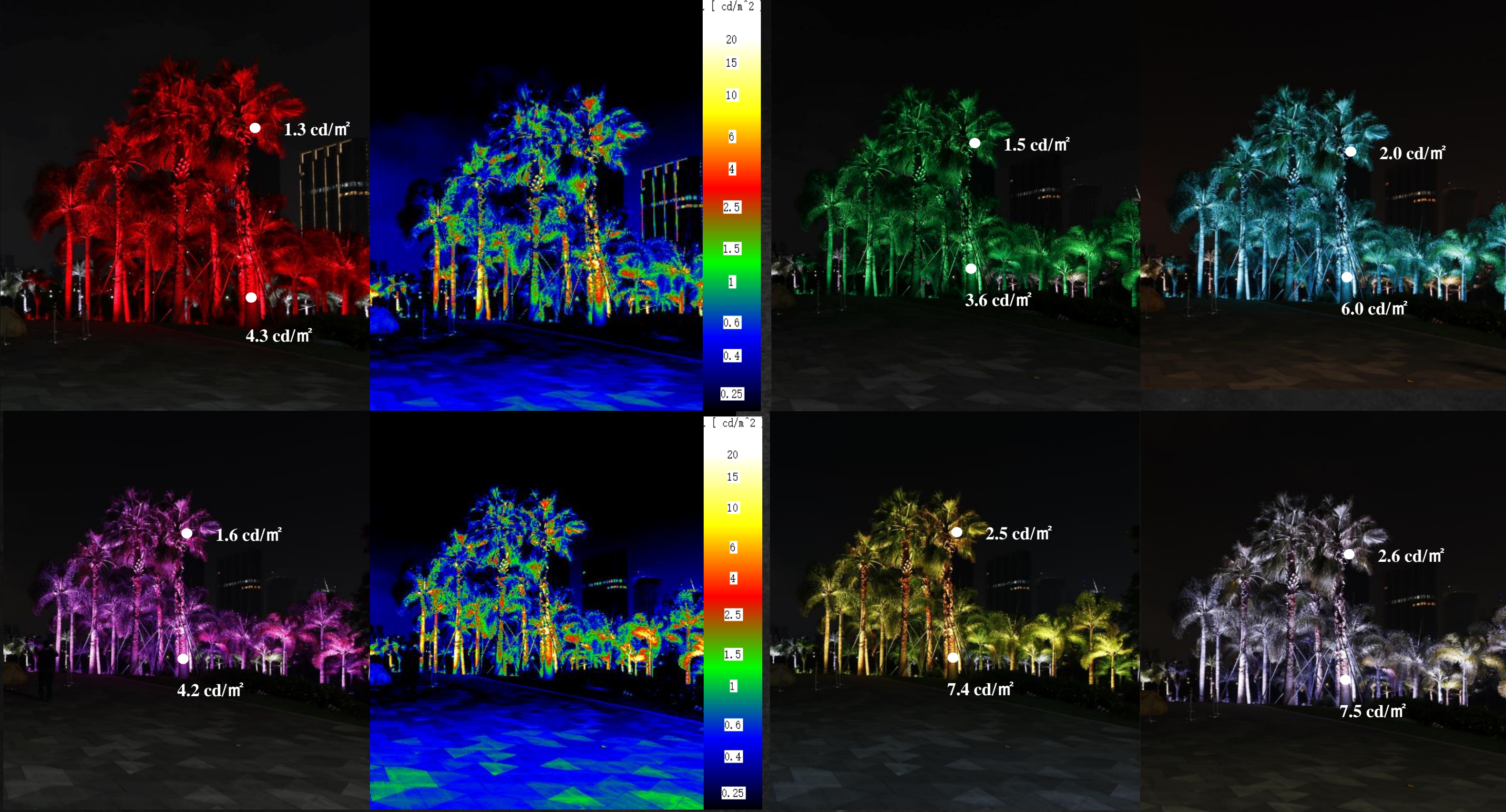
Q3: Fine installation Technology

Appropriate hiding methods should be adopted for lighting equipments to avoid affecting the park landscape.



1. Design Lighting Brightness Index

The brightness index of lighting has obvious influence on the urban light environment. In order to reduce the interference on the dark night and reasonably design the index, we measured the lighting data of similar parks in China, and interviewed citizens to determine the real requirements of citizens for the brightness of nightscape lighting, so as to determine the brightness index of different lighting objects in this project.



2. LED Lamp Experiment

Based on the brightness data and LED characteristic spectrum, we designed a series of experiments to analyze the reasonable brightness level of two parks, evaluate the influence of characteristic spectrum on nightscape lighting, so as to determine the accurate parameters of the lamps.



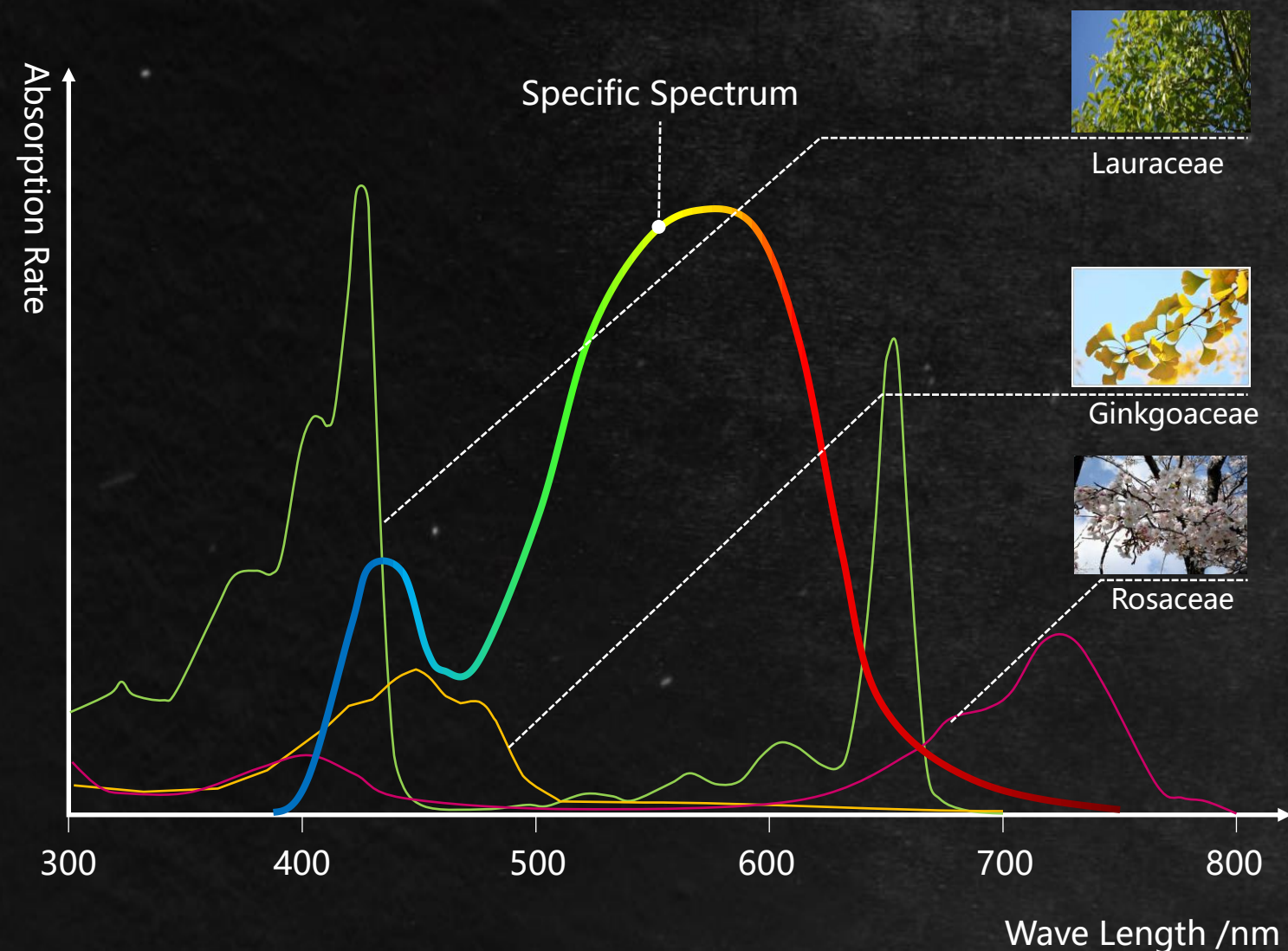
Smart Lighting Control Center



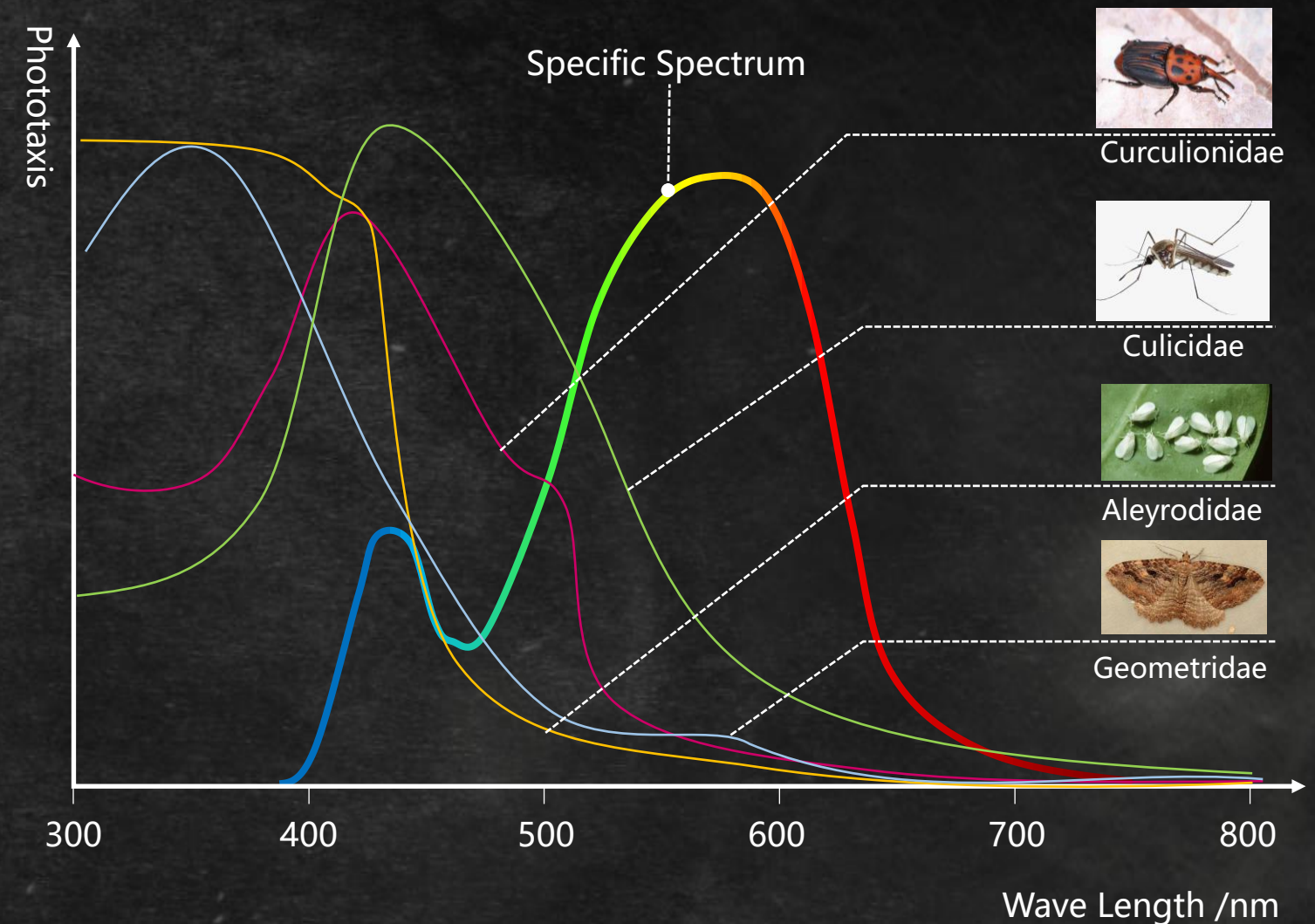
3. Build an Independent Lighting Control System

At the same time, an independent lighting control center is built to control all lamps and lanterns in the park in a unified way. By improving the lighting arrangement and intelligent control system, the overall brightness of the park is greatly reduced and the service life of light facilities is prolonged.

Photosynthetic Absorption Rates of Different Families and Genera at Different Wavelengths

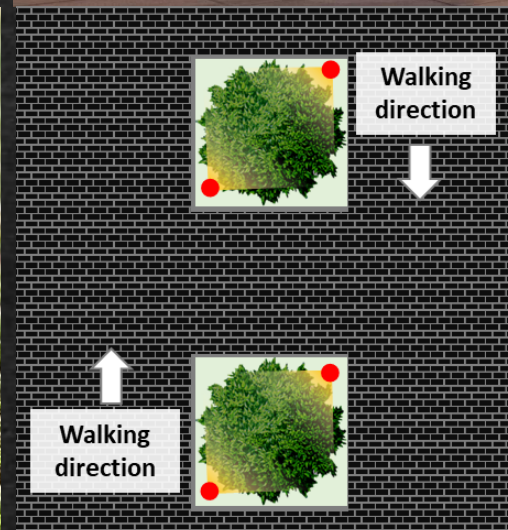
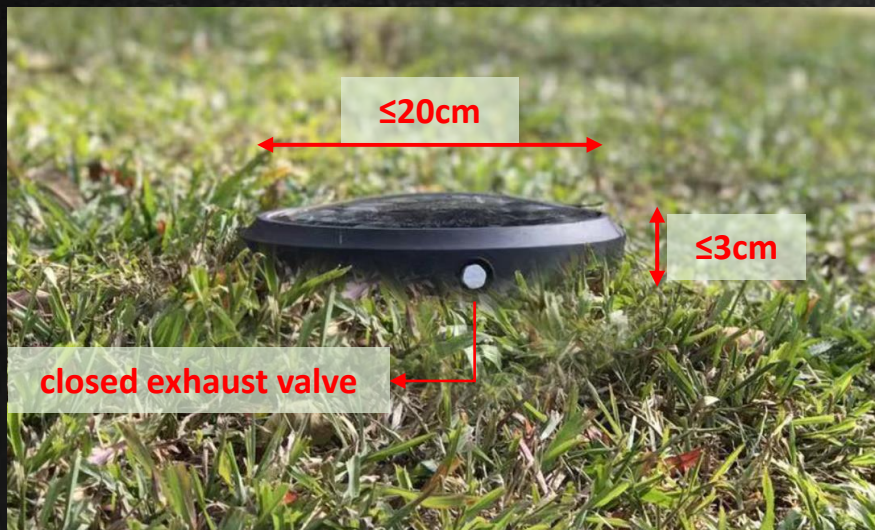


Phototaxis in Insects of Different Families and Genera



4. Study the Ecological Characteristics of Animals and Plants

We investigated the main plants and insects in the park, studied the ecological characteristics of animals and plants, and picked reasonable LED spectrum distribution curves to reduce the impact on biological rhythm under the normal lighting mode (non-linkage performance mode)



5. Fine installation Technology

In addition, the lamps and lighting equipment are installed in a hidden way, such as the buried tree-lighting lamps, which are only leaked out within 3 cm of the ground; Lamps and fixtures are decorated with art or integrated in the poles of courtyard lamps, etc. Moreover, the lamps whose parts can be replaced by modules are preferentially selected to facilitate the maintenance of lamps and lanterns, thus practicing the concept of sustainable development and environmental protection.