风光互补新能源路灯

产品设计研究报告书

Product design research

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选题的背景及内容

The background and content of the topic

选题内容 Topics

目前，还有很多未开发经济落后地区电路问题没有得到解决，山区的问题尤其严重，高低起伏的严峻地形让居民的用电情况无法得到安稳。山区居住的村民大多是老人以及儿童，他们夜晚外出的安全问题无法得到保障，经过设计解决山区农民的照明问题。

At present, there are still many undeveloped and economically backward areas whose circuit problems have not been solved, especially in mountainous areas. The rugged terrain makes it impossible for residents to use electricity safely. Most of the villagers living in mountainous areas are old people and children. Their safety can not be guaranteed when they go out at night. The lighting problem of farmers in mountainous areas has been designed to solve.

选题现状及发展状况

Topic selection status and development status

选题现状

针对保护留守儿童以及留守老人的夜晚照明问题设计

选题现状

山区因为地形原因，风力等级非常高以及太阳光的照射，所以结合风力发电和光伏发电，设计一款新能源路灯，自供自用保证居民夜晚外出的安全问题。

Current situation of topic selection

Due to the terrain, high wind power level and sunlight exposure in mountainous areas, a new energy street lamp is designed in combination with wind power generation and photovoltaic power generation to ensure the safety of residents going out at night.

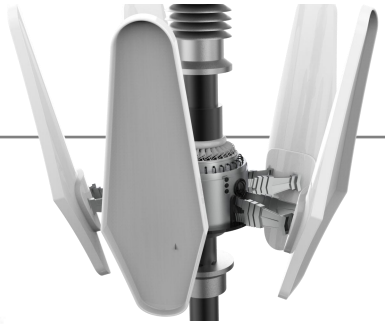
研究思路及过程

Research ideas and process

研究思路

风能发电

Wind power generation



研究思路

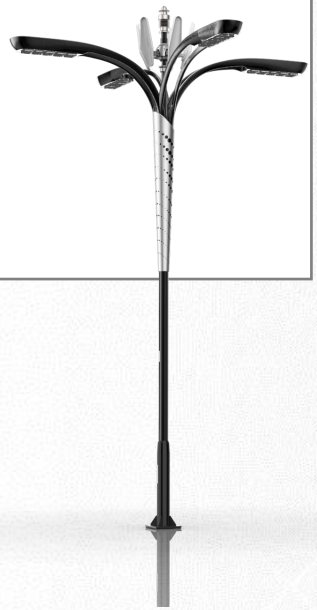
光伏发电

Photovoltaic power generation

研究思路

路灯

street lamp

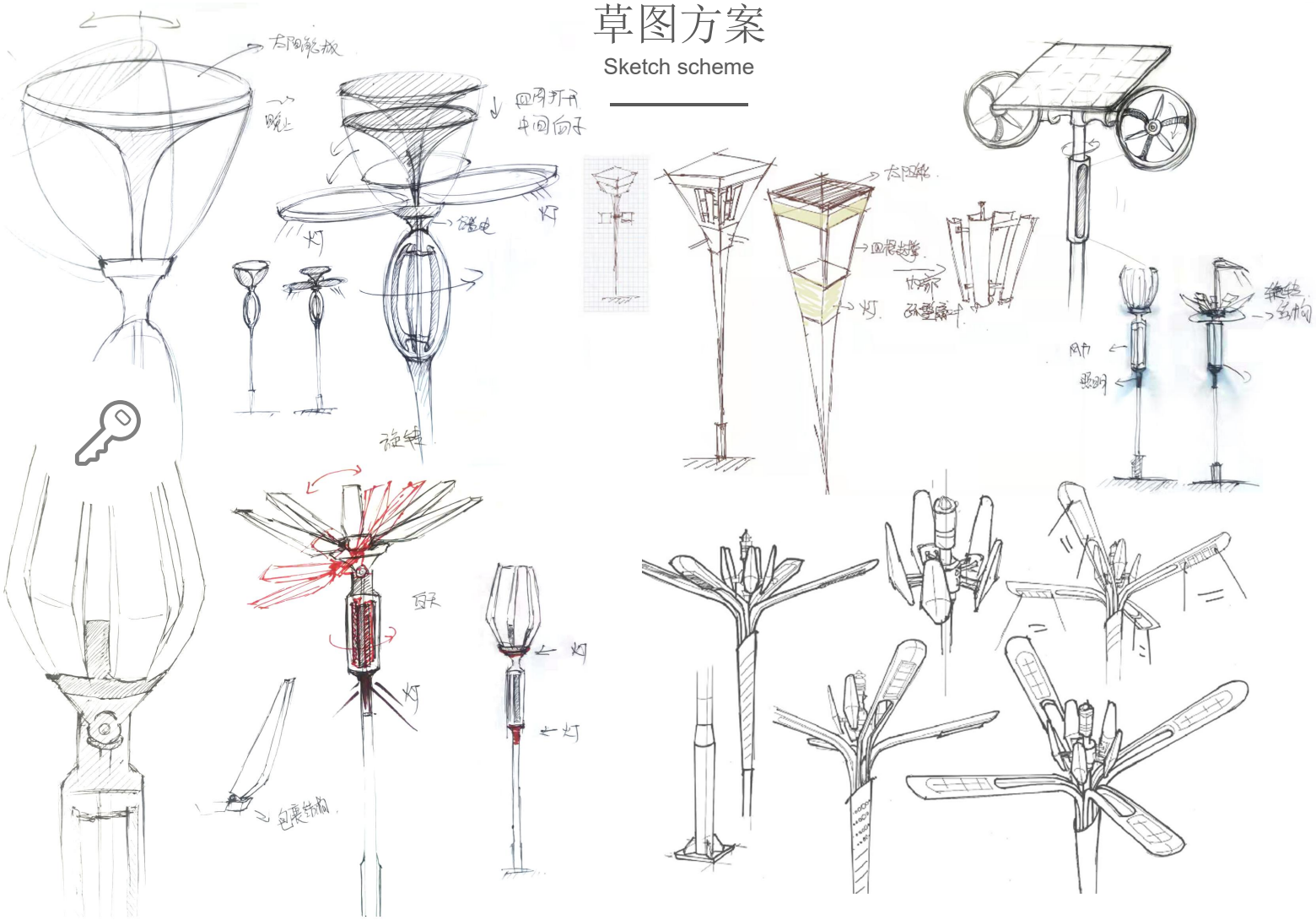


三个方向相结合，设计一款新能源路灯，一次安装多年不用担心。

The three directions are combined to design a new energy street lamp, which can be installed for many years at a time.

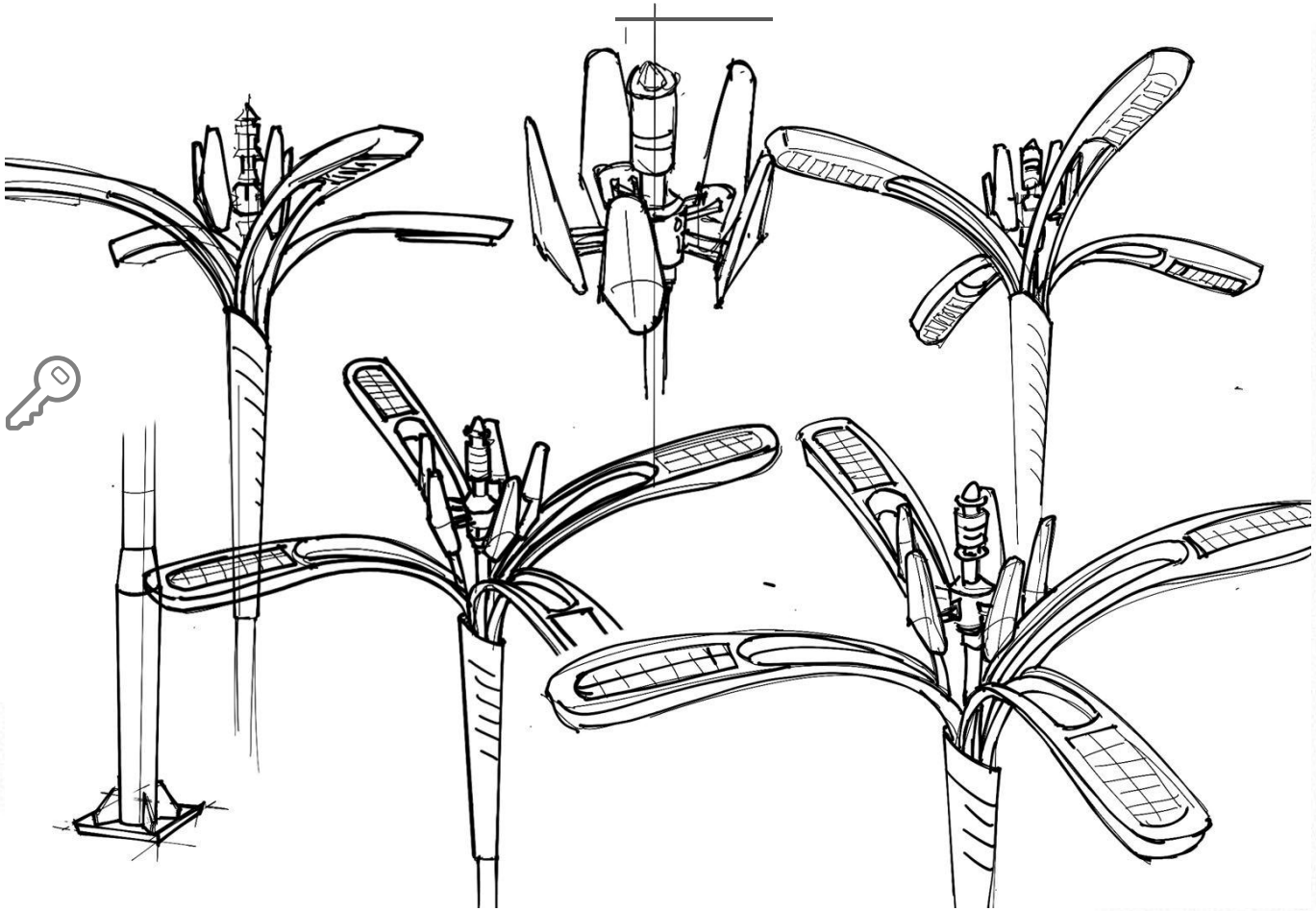
草图方案

Sketch scheme



最终草图方案

Final sketch scheme

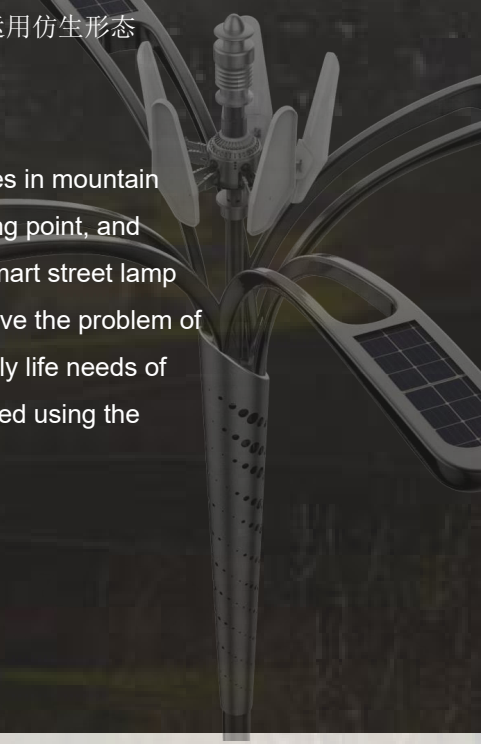


最后方案

Final plan

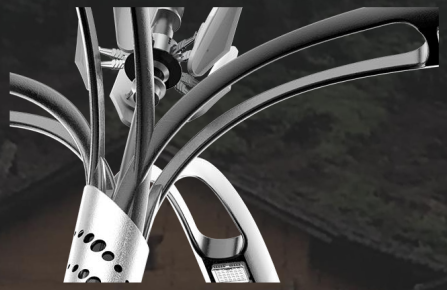
产品以山村通电难问题和夜晚外出照明问题为出发点，设计一款风能和光伏能源结合的风光互补新能源智慧路灯。解决农民夜 晚外出的照明问题，保证农民的日常生活需求。产品花朵的外形运用仿生形态的设计手法进行创作。

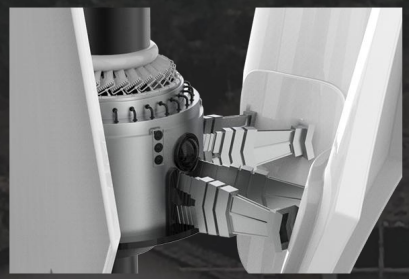
The product takes the problem of electrification difficulties in mountain villages and the problem of lighting at night as the starting point, and designs a wind and solar complementary new energy smart street lamp that combines wind energy and photovoltaic energy. Solve the problem of lighting for farmers going out at night and ensure the daily life needs of farmers. The shape of the flowers in the product is created using the design technique of bionic form.

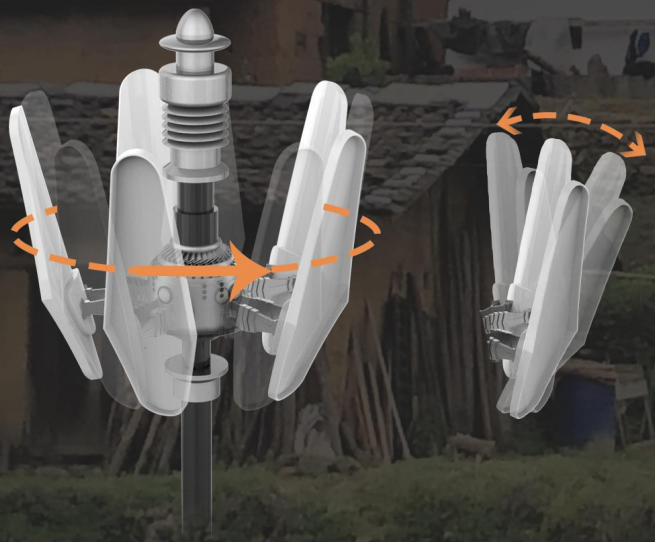


产品细节

Product details

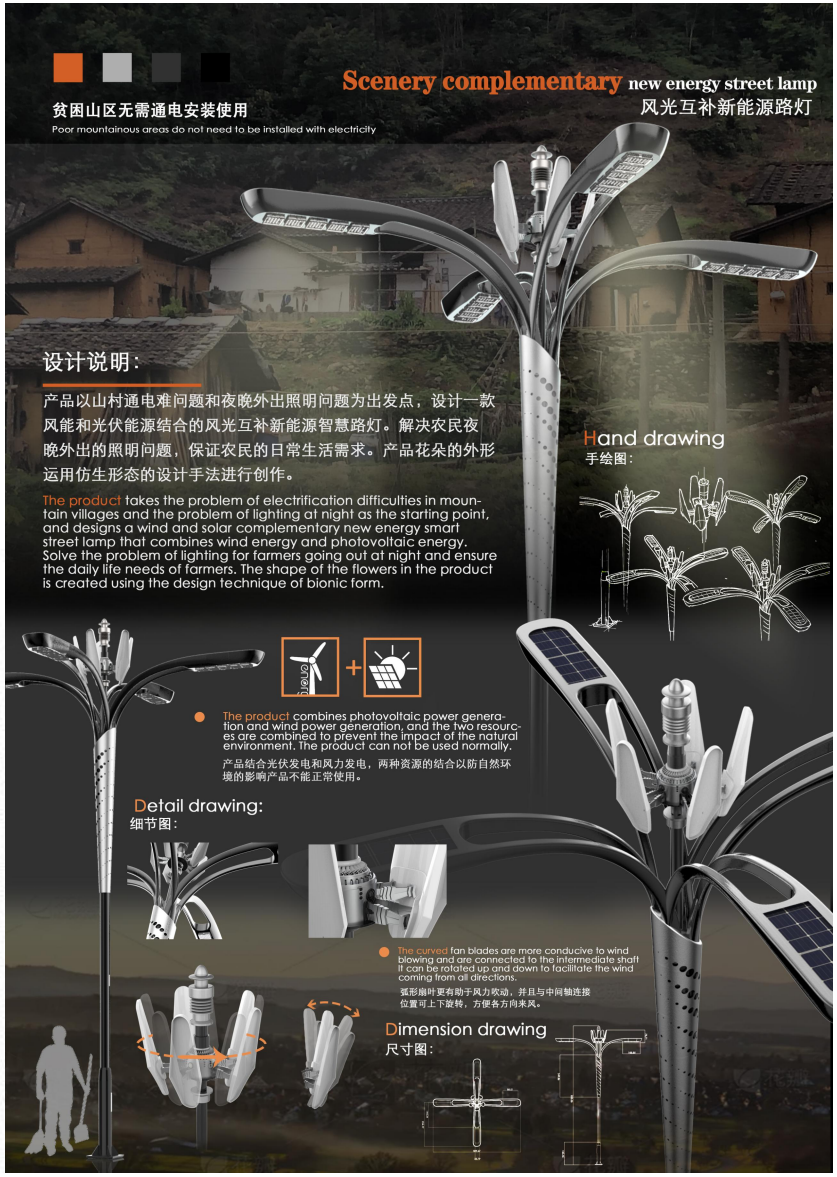






弧形扇叶更有助于风力吹动，并且与中间轴连接位置可上下旋转，方便各方向来风。

Curved blades are more conducive to wind blowing and are connected with the intermediate shaft. The position can be rotated up and down to facilitate wind from all directions.



最后方案

Final plan

最后方案确定，仿生花朵的外形以及风力、光伏发电的结合，让此产品设计放置在山林间充满生机。

The final scheme determines that the shape of bionic flowers and the combination of wind power and photovoltaic power generation make this product design full of vitality in the mountains and forests.

谢谢您的时间

Thank you for your time

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