

Research on the Appearance Design of Jingdezhen Bus Station with 3D Printing Technology

Yifan Zhanga*, Yuguang Chen, Xinzhu Xiong, Yuqi Zhang

Jingdezhen Ceramic University, Jiangxi, 333403, China

*Corresponding Author: marria1220@163.com

Abstract

The bus station is often easily ignored in urban landscape design, but it is one of the important factors of people's livelihood, and its function is huge and should express local cultural characteristics. Transportation is a hub throughout the city, whether it is the development of tourism or urban transportation, all play a crucial role. Ceramics capital of Jingdezhen as famous in the world in one thousand, is one of the most historical and cultural characteristics of city in China, the current state of the bus stop worrying, most of the rest no houses and the function of the rest, in order to meet also the people's demand, in the bus station, and also the transformation to create the distinctive culture of public facilities, Through 3D printing and other modern technologies, the author realizes the bus station with both practicality and local aesthetic and cultural characteristics of Jingdezhen.

Keywords

Bus station design; Cultural characteristics; Jingdezhen.

1. The Cultural Characteristics of Jingdezhen

"Craftsmen come here from all over the world, and the utensils made have the ability to go all over the world." Jingdezhen has been a city without walls since ancient times. The charm of Jingdezhen comes from ceramics, but not just ceramics. Jingdezhen has a profound historical and cultural heritage of many elements derived from ceramics. In the first year of Jingde, Emperor Zhenzong of the Song Dynasty, Jingdezhen was set up under the name of the emperor's year because of the excellent quality of blue and white porcelain produced in the town. It is still used today. The Yuan Dynasty is also famous at home and abroad for its blue and white technology. The individual buildings produced by ceramic production also contain rich cultural characteristics, including Imperial Kiln factory, Taoxichuan, Sanbao village, etc. Jingdezhen is free and inclusive, open but like a paradise. Influenced by Hui style architecture, Jingdezhen's traditional architecture is close to the mountain, with exquisite conception, natural propriety and rhythmic beauty. Among them, horse head wall and small green tiles are the biggest features; The artistic attainments of architectural carving are very high. It integrates stone carving, wood carving and brick carving, and is exquisite and unique in literati elegance. The appearance of folk houses has strong integrity and beauty. The high walls are closed, the horse head is tilted, the wall lines are staggered, and the green tiles and white walls are elegant and generous.

1.1. The City Bus Station Is A Business Card of the City

In a city, bus stops have great advantages in cultural transmission, such as conducting road information, laying commercial advertisements, guiding the flow of people, providing a foothold for people on the roadside and so on. The cultural transmission power of a city is the temperament of the city externally and the soul of the city internally. With the rapid

development of the Internet era, the transmission of information has become a fast pace. The urban cultural exchange and dissemination on the bus platform combine the cultural elements in the city and, driven by diversity, depict the city's style more intuitively. As time goes by, urban bus stops will have more and more contact with urban residents, thus strengthening their sense of identity and belonging to the city.

1.2. The Current Situation of Jingdezhen Urban Bus Station

In Jingdezhen, many bus stations are dilapidated, with no rest benches, no roof, and even a single stop sign, which is nothing new and has no local characteristics of Jingdezhen, and the surface of the post is seriously rusted. From the perspective of function, many bus stops have incomplete information and no clear map route, which does not play the due guiding role. It is very unfriendly to the elderly who do not adapt to smart phones or students who do not have mobile phones, or some foreign tourists who are not familiar with the local situation, and it is also in urgent need of change. After investigation, it is found that many bus stations have no management and maintenance; In addition, Jingdezhen continuous rainy season, rain and sun, accelerate the corrosion of metal parts. Aging facilities and protruding nails also pose great safety risks. How to redesign the bus station, eliminate security risks, make it look brand-new, so as to become the citizens travel small helper; How to design and add some functions, such as notice board, charging pile, rest chair, etc., to make it a warm place for communication, as well as a special window for the external display of Jingdezhen, is exactly what environmental designers need to study and practice.

2. The Appearance Design Scheme of Jingdezhen Bus Station

2.1. Application of 3D Printing Technology in the Design of the Bus

The application of 3D printing technology has brought great influence to the production process of bus appearance design, which can save a lot of time and improve work efficiency. For example, to design a bus appearance design in accordance with the environment in the urban landscape, we only need to input a large number of materials that can be relied on in the real scene into the multimedia software to simulate the state of the bus appearance design in the real environment. The landscape depends on the place and exists. In the process of landscape design, we should follow the spirit of the place. There is a comprehensive consideration of plants, sketches, water systems, roads and so on. In order to make an overall design, the scale, form and color of the landscape are particularly important. 3D printing can be in 3D design software, create the macro the bus design, simulate the real environment state of landscape facilities, under the design of the whole scene, the local landscape elements of arbitrary tensile, scaling, adjust the size, shape and color, selection and match the space environment design elements. Finally according to the ratio of one to one according to different materials directly printed, so as to avoid in the construction process, because the construction side of size, shape and color collocation error caused by the error. It can be said that 3D printing can restore the original appearance of their own design, so as to achieve the purpose of design more truly.

2.2. Analysis of Design Plan of Ceramic University Station

There is no doubt about the importance of function in design. It takes design as a means to guide the harmonious coexistence between man and environment. It is known that today's Jingdezhen bus station cannot meet people's basic functional needs, such as no canopy, no seats and other facilities. Therefore, in order to meet people's practical needs, the bus station in this scheme is fully equipped with station signs, station signs, garbage cans, seats, ceiling, lights and other devices, so that people feel more comfortable in use.

In the shape design, the program strives to combine the local characteristics and traditional culture of Jingdezhen with the simple lines of modern times. Through consulting many

characteristic elements of Jingdezhen and the information of famous porcelain, we finally set our eyes on the plum vase. In this scheme, the profile of plum vase is simplified and printed separately by 3D technology to assemble the appearance (see Figure 1). For the top of the bus station design, so that it looks functional and beautiful coexist. In the logo design, the choice of "Ci du" two words, it is Jingdezhen another name. The word "Ci du" is accompanied by both Chinese and English, which not only shows the confidence of Jingdezhen from Jiangxi and China to the international stage, but also provides convenience for foreign friends to travel. To the left of the platform is an electronic display detailing the bus's route, its current location and how long it will take to get there. The platform back is also the highlight of the design of this project, which intends to use the technique of collage of broken tiles to show the customs of Jingdezhen. The art of collage of broken tiles is also a traditional Chinese art form, which was very popular in southern Fujian. Many famous scenic spots, such as the Porcelain Palace in Tianjin and the Porcelain House in Jingdezhen, have adopted this technique to decorate their buildings.

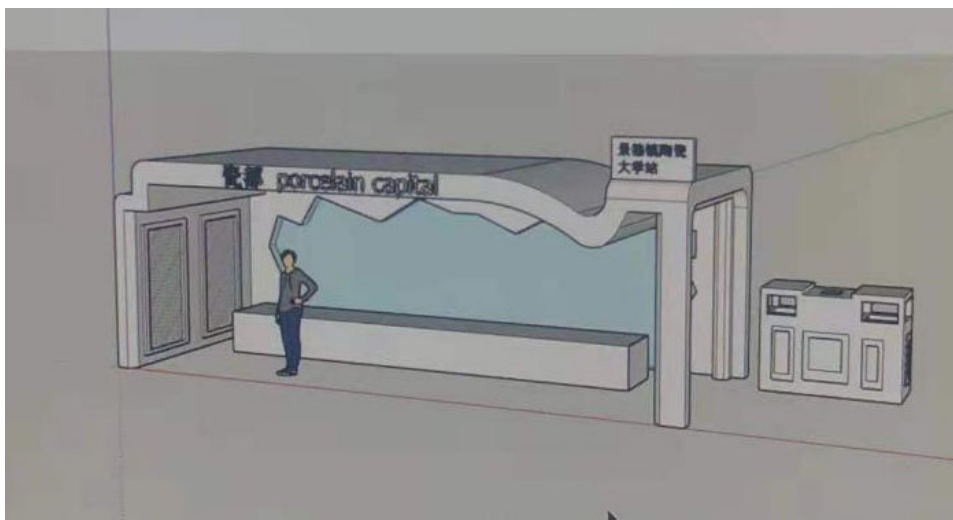


Figure 1. The rendering image of the station

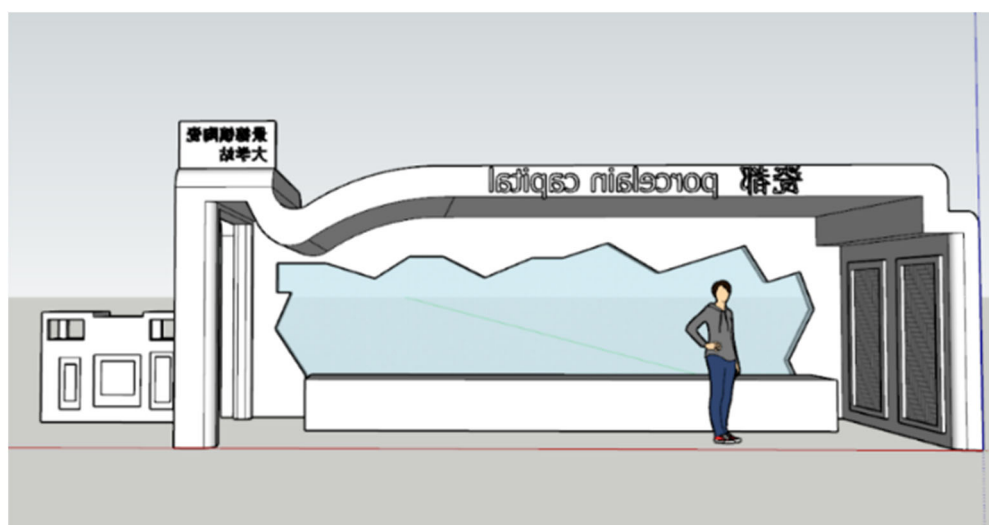


Figure 2. The front view of station

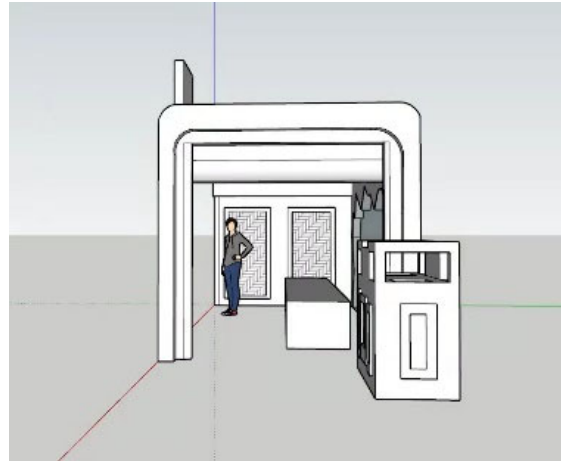


Figure 3. The Right view of station

In the assumption of this case, the paving scheme of each hot spot address also changes accordingly. Taking the bus station of Jingdezhen Ceramic University as an example, the paving effect tries to reach an agreement with "Flying", the logo art background wall of Jingdezhen Ceramic University, resulting in the effect of calling out and responding outside, and combining inside and outside (see Figure 2). In addition to the above, for hot spots, still have a lot of ideas require bus stops, such as university of Jingdezhen ceramic bus station, will be on the platform at the top of the "star of hope" sculpture, form the unique characteristics of the Jingdezhen, and combined with local actual interest device, can provide people with different visual experience photograph and guide people to travel to different locations to clock in, Add fun to an otherwise boring waiting time (see Figure 3). In other aspects, the program uses environmental protection materials and energy-saving lamps to meet the requirements of green environmental protection.

3. Conclusion

In 2019, the National Development and Reform Commission and the Ministry of Culture and Tourism issued the Implementation Plan of Jingdezhen National Ceramic Cultural Heritage and Innovation Pilot Zone. The Plan proposed to build a national ceramic cultural heritage and innovation pilot zone within the whole scope of Jingdezhen to create a new platform for cultural exchanges with foreign countries. Jingdezhen is in the construction of national ceramic cultural heritage innovation pilot zone important stage, the royal kiln factory to declare the world cultural heritage as the leading, start the royal kiln factory site, "Tao Yang thirteen li" old city protection, the construction of royal kiln museum, repair the old factory, old alley, old kiln site and so on. Therefore, as an important node of urban public transportation connecting these urban tourist landscapes, it is necessary for the bus station to reflect the rich local cultural characteristics. Jingdezhen also needs a new urban appearance to show the charm of the city. With the advantages of large flow of people, close to life and indispensable, the bus station can serve as a silent window for the external publicity in Jingdezhen. Currently facing the problem of urban transformation, Jingdezhen needs tourism to improve its industrial structure. Besides traditional buildings and kiln sites, as well as ceramics, it also needs the injection of new blood. Although blindly imitating ancient and rebuilding buildings of Ming and Qing Dynasties can bring certain economic benefits, it fails to fundamentally solve the problem of the lack of characteristic architectural culture in Jingdezhen. We need to use some large or small landscape nodes to awaken people's memory and understanding of beauty.

Acknowledgments

This research is funded by the Jingdezhen Social Science Planning Project in 2021, "Research on the application of 3D printing technology in cultural environment landscape design: taking the ceramic cultural landscape as an example".

References

- [1] Yiwan Wu. Symbolic use and meaning construction of bus platform in urban cultural communication [D]. Gansu University of Politics and Law, 2021.
- [2] Shuihan Pu, Xiangzhuan Li. Jingdezhen: Millennium porcelain blooms [J]. China Political Consultative Conference, 2021(12): 48-50.
- [3] Rongrong Cai. Application of Regional Cultural Elements in the Design of Public Facilities in Jingdezhen [J]. Northern Literature, 2017 (23): 191.
- [4] China Architectural Culture Center. Urban public art:case and path. [M].Nanjing: Jiangsu Phoenix Science and Technology Press, 2018.4