

반사체의 기능성 향상에 관한 연구

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A Study on the Functional Improvement of Reflector using IoT Technology

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Although the mirror has been used for a long time primarily for personal purposes, such as adornment by reflecting feature of mirror, it can also be used to expand from its legacy function to safety and lots of unpredictable applications.

However, the mirror can be used as an information or investigation base, it is subject to human beings in the private region, objects and private purpose in the public and industrial fields.

This paper suggests the wide usage of mirror equipped with smart technology, considering current Korea domestic regulation by law.

1. Introduction

The history of the mirror dates back to the 16th century BC. Until the modern mirror was constructed, the way the face was constructed was sufficient, preferably as flat as the stagnant water. Even though the volcanic outcomes from ground stone or nature were mirrored, a mirror of copper material appeared in a mirror dating back to 4,000 B.C.

Glass used as a basic material of mirrors, was found in Lebanon today, dating back to the 1st century A.D. China's chemical mirror manufacturing process was invented in the fifth century B.C. by using mercury amalgam, and the level of smoothness in the mirror was developed in medieval Germany. These glass mirrors were used for a long period of time before the Nineteenth Century metal mirror appeared. Until recently, the main function of the mirror was mostly and tightly related with human beings behavior and daily life, so the reflection function of mirror has been the key features. Another words, for a long time, mirror does need to alter its function.

In April 2016, Ryan Nelwan, who lives in San Francisco, made a touch screen smart mirror[1]. Ryan Nelwan's touchscreen device not only allows you to check your appearance is OK, but also selects and plays music and movies, browses the internet, and can order an Uber[2]. He has posted a video to YouTube and has announced his intention to bring it to market. He might not be the first person to invent a smart mirror but the technology looks really innovative. And if you are really bored you can stand in front of it and pretend you're Tom Cruise in Minority Report. Ryan proved that the mirror in the house could be enough tools or platform for the delivery of existing information. It has shown that it is operating as an integral medium for transferring existing image content, even though

his mirror had limit to be used in the publically and privately.

The degree of urbanization is a level equivalent to how many mirrors are used in a certain degree. Looking at the most bustling changes in Korea, the new building has the inside view of the inside, and the inside of the interior is mostly glass, which is the nearest device to be turn out mirror. It is said that they are competing like a builder to build a building. Inside, there are more glass mirrors than traditional office buildings. However, most sophisticated research parks maintain the mirror as a basic function of the mirror, which does not convey information provided by the monitor of the commercial elevator, although it is still attached to the glass building and glass mirrors.

A review of the mirror function could lead to many industrial ramifications. This is because the various services provided by the mirror can cater to the content of the content and the needs of them. Therefore, it is also important to look at the information that the mirror can provide and the contents of the information protection and information protection, and the composition and operation of the functional mirrors considering the contents of the mirror.

I would like to call those featured mirror as a smart mirror in primitive stage.

2. Functional mirror utilization and security

Smart mirror can be used in public areas, private areas, businesses, or industrial areas. GE developed 3D fitness tracker with full-length 3D scanning mirror, which is a scale that doubles as a turntable and mobile app and sold in the market[3]. This is a kind of medical devices.

Public uses are like public bathroom, underground space, public transportation, etc. The South Korean government's plan to install public Wi-Fi in public transportation is an

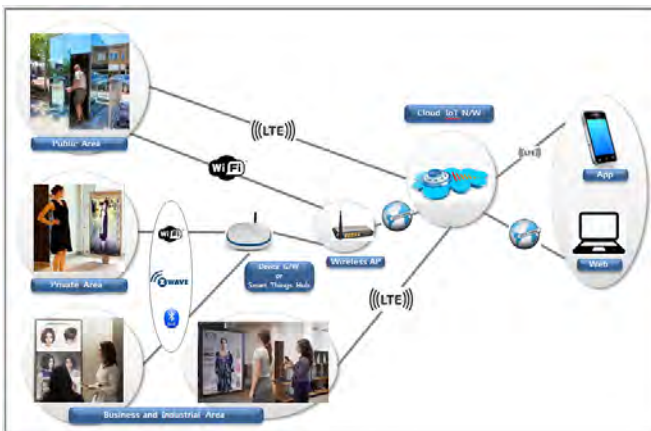
exciting environment for the implementation of public safety objectives with smart mirror. In the public areas, the smart mirror can serve to public interests, but special cases where hold both public and private purposes[4,5]. However, if a smart mirror is installed under the desire of malicious purpose, the current domestic legislation shall be protected by the public authority of the Personal Information Protection Act, which aims to protect the individual's freedom and rights. This regulation will be enforced from 2018 in Korea. Smart mirror be dealt with to secure individual security. I assume that by laws the smart will be the center of personal protection in public area furthermore.

Private sectors used in private areas include houses, private chambers, and personal offices. Usually, a house is equipped with multiple mirrors, but in the bath rooms, it is not suitable for smart mirror to post. Private areas with high utilization of smart mirrors are private chambers, because mirror would be owned by personal basis. In this case, smart mirrors can be connected to beauty salons, designers, and managers, depending on the features and choices from private contract. This mirror is a kind of remote terminal of any specific business. Security in private areas should always be aimed at preventing hackers in case. Personal Information Protection Act applies even if the individual chooses. I think private contract stay ahead the Act in these application areas.

Smart mirrors applied to business or industrial areas are a function of safety, and they serve as a so-called salon for commercial purposes. In this case, the service by smart mirrors may be chosen selectively to maintain economy of scale or to maintain economies of scale in order to maintain economies of scale. However, in any case, the information of the individual consumers involved in the contract should be protected. Subject to contract with customers or visitors, personal information may be part of the business's big data, but it may still be controversial.

3. Functional mirror configuration and operation

As mentioned earlier, the composition of the smart mirror depends on any application intention. However, the smart mirror be concerned with security more seriously than any other IoT devices.



(Fig. 1) A Secured Smart Mirror

Figure 1 is a smart mirror with network security features. Initial security will be applied with current level of security

technologies, and gradually enhanced block chain types or distributed mutual agreement[6].

As shown in the figure, smart mirrors should be operated organically, so that they function faithfully according to their utilization space. For example, the functions of smart mirrors in public places differ from the purpose of the other application of smart mirrors. The service scenario should be also different. I think the smart mirror services will be diversified based on the customer needs.

Currently, it is being constrained on the Internet, until the Internet is just equipped with connection. But it is simultaneously included in the networks of individuals, groups, public and business purposes, but those are largely dependent on the majority of the provider's services[7].

We keep the full capability from the developing experience of basic function of smart mirror.

4. Conclusion

In this thesis, we designed smart mirror systems with high acceptability of the emergence of intelligent reflection of image, which is far advancing legacy mirror. Because the IoT is expanding to use privately and publically, the value also adopt smart mirror in every field of life is rising up.

We suggest how to protect personal information when we use smart mirror in the public and business, sometimes in the private. We enlarge the smart mirror could be secured highly by adopting block chain.

With following studies, smart mirror will be a hub of collection information to secure safety and business, if there are lots of marketable services in diverse industrial field. Also, this smart mirror sets can be applied by customization.

Reference

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