



# A WHOLE NEW WORLD

*Application of 5G in Smart Campus*

*Emerging Technology on Network  
Infrastructure*

*5G, Wifi6 and Emerging Network  
Technologies (HUAWEI)*

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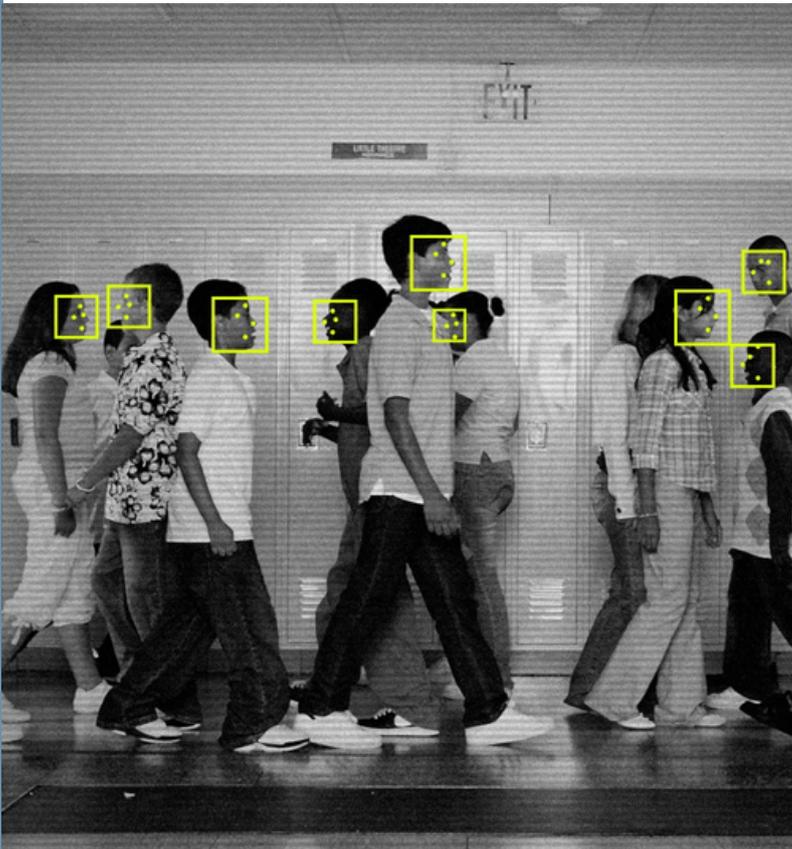
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# 5G SMART CAMPUS

## Face Recognition Technology

Building a safe campus environment and ensuring the study and life of teachers and students has always been the focus of the education department and all walks of life. In recent years, with the help of 5G, big data, AI, face recognition and other technologies, education is undergoing in-depth change and promotes a new educational ecosystem. It was reported that many universities have introduced 5G, MEC, NFV, AI, face recognition, cloud computing and other advanced technologies in the new semester, making teachers and students able to rapid, efficient, safe and free access to school resources or websites, and enjoy a low delay, high security internet experience. It is conducive to improve the efficiency of teaching, promote 5G smart campus construction and create a convenient and efficient campus life and face recognition technology as one application of 5G in smart campus can be as strong power to safe guard the security of smart campus.



Besides, with the face recognition technology in school, dormitory attendance can be optimized. Students only need to swipe their faces in front of the face recognition terminal that installed at the entrance of the dormitory. Once the scanned face information is matched with the stored one at the dormitory system, the gate will automatically open and upload relevant data in time. In this way, dormitory supervisor or teacher can understand the dynamics of student accommodation, regulate student dormitory in and out personnel management, and solve the occurrence of night or non-student stay.

As you may know, one of the main advantages of face recognition technology is strengthen personnel management. Face verification is an alternative way to the original campus card identity authentication. Using the face recognition terminal can not only quickly record students' attendance, but also effectively verify the identity of in and out personnel to ensure campus security. In virtue of the 5G communication, the attendance data can be timely uploaded to the school management platform, thus both school and parents can know students' dynamic. In addition, visitor permission registration, blacklist, early warning, dynamic control can be set at the face recognition terminal, in response to reduce the possibility of off-campus personnel disturbing the normal order of the campus and improve the campus security capability.



In virtue of face recognition technology, the issues of taking an exam for somebody can put an end as the face recognition terminal supports witness comparison function. Hence, appearance of cheating phenomenon can be prevented and the work pressure of teacher during the supervision can also be reduced as face recognition terminal can automatically identify the examinee and ID card information. As a result, the quality of examination can be improved.

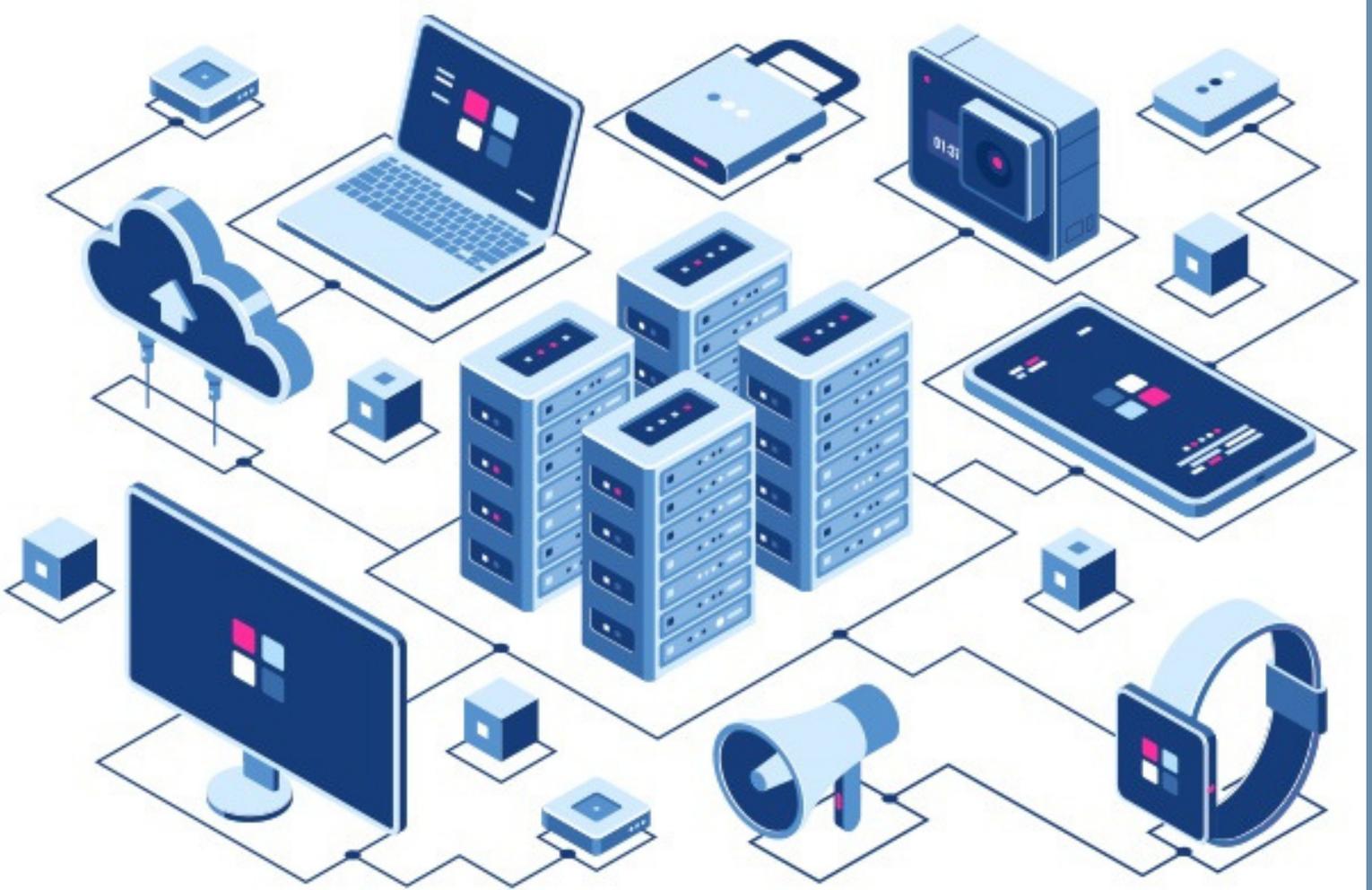


**I**n an age with rapid development of 5G, artificial intelligence based on Internet of Things applications has received unprecedented attention, and face recognition technology as an important application of artificial intelligence has also been popular and welcomed especially in education. In promoting the construction of smart campus, using face recognition technology has become a necessary option. With the help of 5G, face recognition technology provides data support for smart campus and improve the informatization level of campus. Besides, it also effectively prevents illegal personnel and foreign irrelevant personnel from entering, improves the safety management of the school, and also improves the convenience for teachers and students to enter and leave the campus, library, classroom and dormitory. On the other hand, this application also helps campus to effectively solve the problem that there are too many people on campus to manage, simplify the management process and achieve more precise management. The application of face recognition technology on campus not only speeds up the efficiency of campus attendance, but also reduces the probability of violent incidents around campus, calls the police and draws materials in time, and helps the police to investigate. As a conclusion, the application of face recognition will be the inevitable development trend of smart campus in the future. By using more intelligent, flexible and efficient face recognition access control to create more intelligent and safe campus management to improve teaching quality, talent training level, optimize management process and digital campus.



## REFERENCES

- <https://www.telpo.com.cn/blog/5g-face-recognition-campus-smart.html>



# EMERGING TECHNOLOGY NETWORK INFRASTRUCTURE

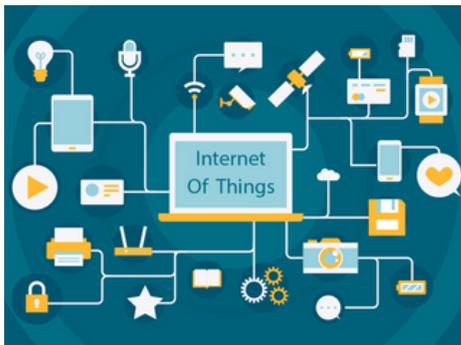
**CommScope helps design, build and manage wired and wireless networks around the world. Since its founding , Commscope has innovated continuously to come up with solutions that make communication networks easier to design , simpler and faster to deploy , and more efficient to operate .**

Network infrastructure comprises hardware and software, systems and devices, and it enables computing and communication between users, services, applications and processes. Anything involved in the network, from servers to wireless routers, comes together to make up a system's network infrastructure. Network infrastructure allows for effective communication and service between users, applications, services, devices and so forth.

# THE DEVICES USED

There are few devices used in the network infrastructure such as access point, switches and the core switch.

Mobile phone, laptop and other gadget or devices are required to connect through the access point to access to the internet. The access point will have one cable connected to the switches which is an equipment to connect all the devices such as access point, desktop, printer, smart tv and other devices. The switches has a dedicated cable to link to the core switch. The core switch normally located in data center and there is where the internet get terminated or access to the internet. Ofcourse in the data center there is not only core switch, it also has servers, firewall and other technology.



## EXAMPLE OF DOMAIN

Over the past few years, IoT has become one of the most crucial technologies of the 21st century. Now that we can connect everyday objects such as kitchen appliances, cars, thermostats, light bulb, smart lock, CCTV and sensors to the internet. Thus we can see communication is possible between people, processes, and things.

## REFLECTION

The information that I gain from the industrial talk 5 which was presented by Mr. Goh Bih Der is the technology advancement. With all the smart living, smart learning and smart safety we will be able to bring greater life experience.

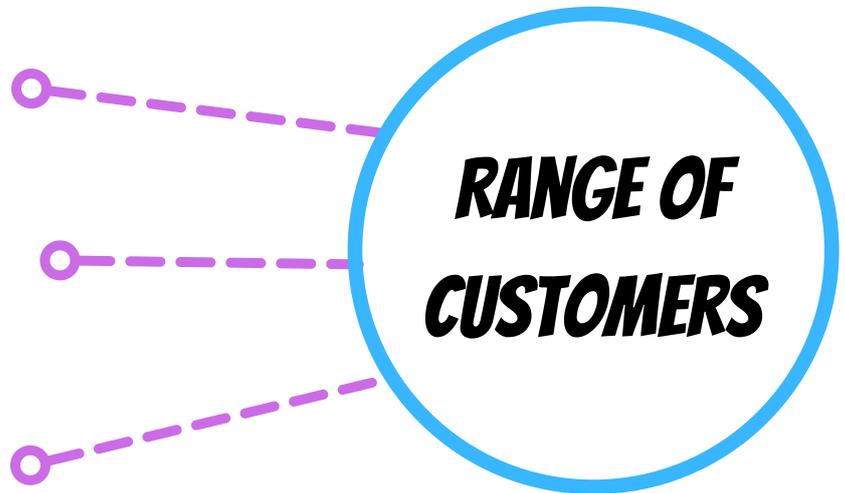
There are lots of examples of IoT we use in our daily life such as IoT healthcare applications and voice assistants (Siri and Alexa). Smart home has become a trend nowadays, where all the appliances, thermostats, light and other devices are able to be controlled remotely using a smartphone or tablet through an internet connection.



## **WHAT IS HUAWEI?**

A lot of people around the world only know Huawei as a company with smart devices such as smartphones, watches, and laptops. In reality, Huawei is more than what think they are because this company is also a provider of ICT Infrastructure & Smart Devices.

Consumers  
Carriers  
Government &  
Enterprise  
Customers



## **WHAT DOES HUAWEI DO?**

They have a few devices created by themselves which are smartphones, wearables, and smart home devices. They also produce intelligent automotive components where we can relate with autonomous driving, intelligent sensing, and vehicle cloud service. Plus, information transmission is via connectivity like wireless network and also allow consumers to transport, access as well as the core network. And last but not least, computing & and cloud services are also provided.



5G is a internet with faster speed than any other previous generation also delivered via fiber-optic cables. For example, movies that took minutes to download with 4G will take seconds with 5G. There are few advantages that 5G can give to the world which is lower latency, more reliable, more flexible where it can support a wider range of devices.

A great example of 5G that is applied widely now is VR which is also a creator of the founder of Facebook, Mark Zuckerberg. The chipset in VR uses Qualcomm Snapdragon 820 with VR optimization. There is also a VR terminal as well as content producers such as Facebook Surround 360, Google Jump, or Nokia OZO. Finally, VR also includes a broadcast platform for people around the world to have an easier way of streaming their video which is applied in Facebook VR Platform and Youtube VR Platform. Why is VR important for us? This is because it has a high throughput for Retina Experience VR and has a low latency which can avoid motion sickness.

WIFI 6 supports much better broadband than the previous one which is WIFI 4 & 5. The standard of WIFI 6 is 802.11ax. Since 2019, the terminals already have the WIFI 6 tag in their phone set up. The advantage of WIFI 6 is it can improve performance capability and increase subcarriers. A few new WIFI Standards are coming up which are 1024 - QAM, OFDMA, UL/DL MU-MIMO, BSS Coloring, and TWT.

