Development of 5G Technology

monthly magazine

Application of 5G in Smart Campus

Emerging Technology on Network Infrastructure

5G, Wifi6 and Emerging Network
Technologies (HUAWEI)

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Application of 5G in Smart Campus

Facial recognition

Facial recognition uses technology to scan and recognize a human face. Facial recognition can store information and data of students and staffs. Facial recognition makes school runs easier and more convenient. After the camera capture a face, the system will extract the feature and compare to the preferred list that is stored in the system. If the face match with the preferred list, the barrier gate will open automatically. Students no longer needs to bring a stack of cards just to move around the campus. For example, library card to borrow books and cafeteria card to buy food. Instead, students can just scan their face and they can go anywhere in campus. They can enter library, cafeteria, enter the school building and car parks by just scanning their faces.

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Facial recognition with student information system can automate and digitize attendance which make scanning attendance easier. Lectures do not need to call the name of student one by one to take their attendance which make the attendance more accurate and can save more time. Facial recognition can improve the safety of campus. Students must scan their face in front of the facial recognition camera to enter the school building or anywhere in campus. Students who had been blacklisted by the system are not allowed to enter. Visitors who want to enter the school building must scan their face at the facial recognition system before entering the school building.

Reflection of the application

In the future, 4G will be replaced by 5G and 3G will be eliminated. Therefore, we must be prepared to welcome the era of 5G so that we will not fall behind the others. Facial recognition in school campus is very useful and convenient as it can increase the efficiency of checking the visitors and recognize the students and staffs. Facial recognition can also increase the security of school campus to ensure the safety of students. Each school campus should include facial recognition in the school compound so that they are one step nearer in reaching 5G smart campus.

Emerging Technology on Network Infrastructure

Description of the infrastructure

In daily life, smart lighting is an advanced way to control the lightbulbs and light up your home. Smart LED bulbs contain software that connects to an app such as Home for IOS. You can download the app in any smart accessory so you can control your light anytime and anywhere, without the needs of wall switches.

In education, virtual lab is a teaching and learning lab simulator. Virtual labs are interactive and can do almost everything that physical laboratory can do. Compare to traditional lab, virtual lab is safer as nothing gets broken and students can see things in a different way. Students can also do their lab on their own at anytime, anywhere and can do as many times as they wanted.

Device used in Network Infrastructure

Network switch is a hardware that can connects to devices such as computer and printers and allows them to forward data packets. Access point is a wireless network device that allows Wi-Fi devices to connect to wired network. Wireless edge is a network component that provide physical connectivity and connect local network to external network.

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Smart lighting in Smart Home Management

Smart homes are an element of developing a smart city. Smart homes taking an important role to make people's lives much more convenient. Nowadays, the ability of smart home management to combine and control devices has increased and developed significantly. We can easily control the lighting system and the cooling systems in our home by using the internet, for example we can switch on the lights and the cooling systems when we are on our way to home by clicking few keys in our mobile phone. There are also some light with the motion sensor which detect movement and trigger an action. So that we do not need to switch on the lights by ourselves and the lights will be opened when it senses our movement.

Reflection

In this modern era, the emerging technologies on network infrastructure is getting better day by day. The network nowadays is in continuous harmony with the changing needs of the organization and adapt to the emerging technologies, for example automation and artificial intelligence. Virtual lab are emerging technology which bring a lot of benefits to the human, we are able to interact with the lecturer and do almost everything physical lab can do especially during this covid pandemic, so that we can gain real-life experience not just knowledges. Besides, the smart lighting systems can provide many convenient to us, when we forgot to turn off the lights during a hangout we can easily turn it off by using the network so that we don't need to pay for the extra electric bills.

5G, Wifi 6 and Emerging Network (HUAWEI)

Description of the infrastructure

Huawei is one of the leading provider of ICT infrastructure and smart devices in the world. Huawei aims to bring digital to every person, home and organization for an intelligent world. It is the largest ICT provider which serve about 90% of Malaysia's population.

5G is the fifth generation of wireless technology systems. It provides the fastest speed compared to the previous generation. 5G meant to deliver higher multi-Gbps peak data speeds, it has ultra low latency, more reliability, more flexibility and a massive network capacity. With high speeds, superior reliability and negligible latency, 5G will expand the mobile ecosystem into new realms.

Wifi 6 is the next generation of Wifi, it is getting faster and has more additional technologies to connect you to the internet more efficiently. Instead of boosting the speed for individual devices, Wi-Fi 6 is all about improving the network when a bunch of devices are connected. It supports better multi-user experience and could reduces the power comsumption by 30%.

Devices uses 5G and Wifi 6

Autonomous vehicles
Smart house system
Live-stream broadcast
AR/VR based Virtual Education
E-sports acceleration

03

5G and Wifi 6 in E-sports acceleration

5G and Wifi 6 connectivity and performance will fuel the growing e-sports industry. 5G and Wifi 6 have low latency which is very important to the esports game. Latency is extremely important to a gaming experience. Latency, otherwise known as ping, determines how quickly your input on a controller or mouse is registered through the Internet and actually executed on screen. Low latency can cause severe lag and seriously delay your gameplay. A single millisecond of latency can be the determining factor between victory and defeat for even the best gamers. 5G is able to provide latency of close to 0 milliseconds, the fastest that has ever been commercially available. Besides, high-bandwidth multi-device support can be addressed without performance impacts due to technology's ability to deliver highcapacity at low latency with 5G and Wifi 6.

Reflection

The technologies is improving day by day to match the people 's lifestyle in this modern era. 5G and Wifi 6 will take an important place in our daily life, we could get a better experience while surfing the internet or playing games due the the 5G and Wifi 6 's low latency and zero packet loss. With 5G, we could have a high throughput for retina experience VR, VR experience is very important especially during this covid pandemic. We can explore the beauty of the world with the VR technology without having a step out from our house, 5G and Wifi 6 can provide a perfect network and low latency to avoid motion sickness in the VR. Apart from that, 5G and Wifi 6 also can provide a HD video teaching for the online learning program, so that we don't need to worry about connection problem during online classes. We could understand the syllabus better and gain more knowledges.