checkerboard images in advance to meet the needs of inaccurate reconstruction on civilian non-professional equipment; secondly, get rid of the limitation of communication distance. Consumers can use civilian wireless communication network control to achieve 3D scenario reconstruction real-time; thirdly, convenience for use and portability. We also improved the generality of 3D reconstruction solutions. The solutions can be portably migrated to any moving body platform (human, vehicle, aircraft, robot, etc.).

Based on above mentioned advantages, it allows ordinary consumers to experience the technology brought by 3D reconstruction on non-professional equipment with simple cameras. The proposed 3D reconstruction solutions have great practical value in various fields, such as constructing 3D models for buildings to achieve architectural acceptance, constructing 3D models of the interior in human body for monitoring metrics of human health, and so on.

References

1. Z. Z. Liang, Y. Tong. Current situation of the development of high-precision maps at home and abroad and countermeasures. / Liang Z. Z, Tong Y // Science and Technology China, Vol. 2021, No. 1.

2. R. Mur-Artal, J. M. M. Montiel and J. D. Tardós. ORB-SLAM: A Versatile and Accurate Monocular SLAM System / Mur-Artal R. et al. // IEEE Transactions on Robotics, Vol. 31, No. 5, pp. 1147-1163, Oct. 2015, doi: 10.1109/TRO.2015.2463671.

3. J. Fang, I. Guizilini. Vasiljevic, V.C. Ambrus, R. Shakhnarovich, G. Gaidon, A. R. Walter. Self-Supervised Camera Self-Calibration from Video. / Fang, J. Vasiljevic, I., Guizilini, et al. // 2022 International Conference on Robotics and Automation (ICRA), 8468-8475.

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TALK ABOUT THE DEVELOPMENT OF 5G MOBILE COMMUNICATION TECHNOLOGY IN BELARUS

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Summary. *With the rapid development of the mobile Internet, the emergence of new services and services, and the explosive growth of mobile data service traffic, 4G mobile communication systems are difficult to meet the soaring needs of mobile data traffic in the future, and we urgently need to develop the next generation of mobile communication (5G) systems*

The fifth generation of mobile communication technology (5th Generation Mobile Communication Technology, referred to as 5G) is a new generation of broadband mobile communication technology with high speed, low latency and large connection characteristics, 5G communication facilities are the network infrastructure to realize the interconnection of human machines and things, mainly to serve the communication needs between "things and things" and "people and things". That is to say, for the first time, human beings have elevated the "Internet of Things" to the same level as the "Internet of People", or even higher than the "Internet of People". This means that human cognition of communication has undergone fundamental changes. The purpose of communication has changed, and the technology and architecture of communication have also changed. Simply put, the emergence of 5G has changed our life mode, strictly speaking, mobile data and human life have a higher degree of adhesion, and it will revolutionize the working mode and lifestyle of various industries. At present, 5G has brought breakthroughs to the following five areas:

1. The network speed is fast, and more secure, efficient and low energy consumption.

2. The Internet with the emergence of 5G network, with the support of its strong transmission speed, the development of Internet technology will have new breakthroughs in the next few years.

3. Unmanned driving technology. The arrival of the 5G era will surely promote the further improvement of driverless technology.

4. Smart home. Smart home is more perfect than driverless technology in real life, and with the development of 5G, the future home will be more intelligent.

5. Smart city.

Table 1 – The following is the development status of 5G internationally

Korea	Samsung announced that it has made a breakthrough in 5G communication technology exhibition, can be a movie in one second
Japan	High-speed 5G network that surpasses 4G network carrying capacity by 1000 times the network carrying capacity, and the transmission speed is increased to 10Gbps
China	Enjoy a commercial 5G mobile network of 20Gbps
European Union	The European Union established METIS and invested in research on 5G communication technology
United Kingdom	The 5G Research Center of the University of Surrey in the United Kingdom broke the wireless transmission rate record of South Korea's Samsung per second, and can play 30 high-definition movies per second

Following the footsteps of the times, ZTE and Belarusian operator A1 deployed the "5G + UAV" intelligent inspection solution in A1 Solar Park, one of the largest photovoltaic power plants in Belarus. The solution uses drones as the carrier to realize the automatic collection of power inspection data through 5G SA (independent networking) network, which greatly reduces the cost of manpower and time, and creates a new mode of unmanned inspection. The Alfa Orion drone deployed by inspectors can carry out full-coverage inspections of solar panels and other equipment. Relying on the large bandwidth and low latency characteristics of 5G, the drone can transmit high-definition video and images to the management background in real time. This is the first time Belarus has used a 5G network to control a drone and collect and transmit the required data in real time. Through the A1 5G SA network remote control of the drone, it can maximize the technical advantages of 5G network such as low latency, high reliability, network slicing, etc., compared with non-independent networking (NSA) 5G network has obvious technical advantages, can get rid of the shackles of 4G/LTE network infrastructure. On September 30, 2020, Huawei signed a trilateral agreement on cooperation and transfer of 5G equipment between the government of the China-Belarus Industrial Park. The signed document indicates that Huawei has successfully transferred the device. The parties agreed that under unified leadership and an agreement with the Ministry of Communications and Information Technology of the Republic of Belarus, the parties concerned will develop plans and measures for the creation of a 5G test zone.

The 5G application test in the China-Belarus Industrial Park on January 14, 2021 was successfully concluded on the same day. According to reports, the 5G test carried out in the industrial park used Huawei base stations to test technologies such as unmanned driving, facial recognition, campus road traffic light monitoring, and industrial robots in the 3.6 gigahertz (GHz) band, and the maximum transmission speed reached 1.235 gigabits per second during the test. As the first 5G application test platform in Belarus, the industrial park has promoted rapid research progress and commercial value of the 5G test project.

As a new type of mobile communication network, 5G not only solves human-to-people communication, provides users with more immersive and ultimate service experiences such as augmented reality, virtual reality, and ultra-high-definition (3D) video, but also solves the communication problems between people and things, and meets the needs of Internet of Things applications such as mobile medicine, Internet of Vehicles, smart home, industrial control, and environmental monitoring. Ultimately, 5G will penetrate into all industries and fields of the economy and society, becoming a

key new infrastructure to support the digital, networked, and intelligent transformation of the economy and society.

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ARTIFICIAL INTELLIGENCE INFINITE POSSIBILITIES

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Summary. *Artificial intelligence has infinite possibilities. With the continuous development of artificial intelligence, it will certainly provide great convenience to human life. In the future, artificial intelligence technology can be combined with smart homes.*

Artificial Intelligence, abbreviated as AI. It is a new technical science that studies and develops theories, methods, techniques and application systems for simulating, extending and expanding human intelligence. Artificial intelligence is a branch of computer science that attempts to understand the essence of intelligence and produce a new kind of intelligent machine that can respond in a similar way to human intelligence. Research in this field includes robotics, language recognition, image recognition, Natural language processing and expert systems, etc. Since the birth of artificial intelligence, the theory and technology have become more and more mature, and the application field has also continued to expand. It is conceivable that the technological products brought by artificial intelligence in the future will be the "container" of human intelligence.

Applications of AI include healthcare, automotive, banking and finance, surveillance, social media, IOT, and more. AI is a dynamic tool used across industries to make better decisions, increase efficiency, and eliminate repetitive work.

Artificial intelligence has infinite possibilities. With the continuous development of artificial intelligence, it will certainly provide great convenience to human life. In the future, artificial intelligence technology can be combined with smart homes. For example, through artificial intelligence technology, people can enter the room through face recognition and prevent theft through face analysis. People can automatically control the switch and degree of home appliances only through voice recognition. For example, voice recognition can be used to adjust the switch and temperature control of room air conditioners, control the switch of curtains, adjust the temperature of water heaters, control the switch of TV, adjust the volume and so on.

Artificial intelligence makes people's lives more colorful. But at the same time, people also need to consider the drawbacks of artificial intelligence. How to solve these drawbacks is a big topic that need to explore.