

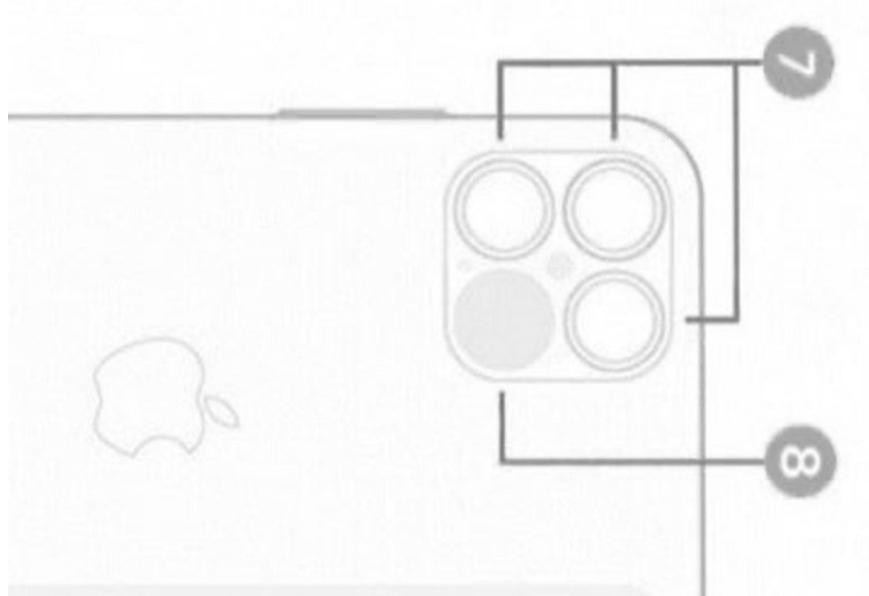
Why when the whole smartphone village is racing zooming 'crisis', the number of dots is Apple bringing Lidar on smartphones?

The top Android phones have established the camera phone trend for this year. But based on leaked information, Apple will not follow this trend, instead pursuing a technology that is still quite strange to smartphone users: Lidar.

2020 is the year of huge numbers. On the dotted front, Samsung and Xiaomi are both providing 108MP sensors for the new flagship generation while OPPO and Huawei have touched 48MP and above. With the zoom, Samsung can enlarge the frame to a maximum of 100X, OPPO serial at 60X. Most notably, the size of the sensor has been increased to Android record levels: Samsung and Xiaomi have 1 / 1.3-inch sensors (Xiaomi bought sensors from Samsung), OPPO bought Sony sensors separately with size. 1 / 1.4 inch size and Huawei once again is "king of the numbers" when using 1 / 1.28 inch sensor for P40 Pro.

But perhaps, at least one big man will stand outside this trend: Apple. For years, Apple has kept the number of "dots" below 16MP. The iPhone's sensor is always quite small, only about 50% of its competitors. And based on the latest leaks, the iPhone 2020 will focus on a completely different improvement: a fourth sensor.

The first iPhone had 4 cameras



Drawings extracted from the leaked iOS 14 prototype have revealed the fourth sensor in the new iPhone camera cluster.

Based on information obtained by iPhone Concepts and Twitter account Choco_bit from the source code of iOS 14, the new iPhone generation will have four cameras on the back. The newly added sensor will not be a ToF camera (depth measurement) as Android manufacturers often do today, instead of a Lidar sensor.

"Lidar" stands for "Light Detection And Ranging", roughly translated: Light Detection and Measurement. The technology works in a similar way to radar: transmitting to objects and measuring the time it takes a wave to calculate the distance from the object to the sensor. Lidar uses laser light in the blue frequency range that is not visible to the human eye while radars use radio waves. On large devices, Lidar can be used to allow computers to "see" objects, digitizing the entire space around the sensor.

As technology is very familiar on self-driving cars, Lidar is currently not available on smartphones. However, since the newly launched iPad Pro already has this sensor pre-installed, it is probably sooner or later that Apple will put Lidar on the iPhone.

What is lidar used for?



Working with a radar-like principle, Lidar makes it easier for iPad to recreate real space.

First of all, let's answer the question: What does Lidar do. As you might have guessed, this is the technology that makes a computer "see" the environment - most importantly, 3D rather than 2D. Compared to previous 3D "viewing" technologies, typically using a dual camera (iPhone 7 Plus) or dual pixel (Google Pixel 2), Lidar offers a much higher level of accuracy.

In the tech world, Lidar is not a new technology. This technology is frequently mentioned in self-driving cars when used on vehicles of Tesla, Google or Bosch sensors. Areas that require machines to build 3D models in space, such as geology, agriculture, security, etc., are also studying the application of Lidar.

For Apple, Lidar has also become an extremely useful tool for augmented reality (or AR), a technology that CEO Tim Cook has been praising for years. In AR, virtual objects are arranged on top of the real environment. To do this, digital devices first need to "see" the exact location of each physical object in space. The iPad, which didn't need Lidar, was able to support AR, but the presence of a new sensor will certainly help make a big leap forward for this technology on Apple-labeled devices.



Tim Cook once said AR will "deeply penetrate" into people's lives.

Why is Apple not racing big numbers and using Lidar?

If it were a regular manufacturer, Apple would probably have followed Samsung and other Android manufacturers to "emulate" the camera. But Apple is not a "casual" brand. For years, despite losing to rivals when the hardware parameters or DxOMark rankings, iPhone has been the hegemony of the premium segment.

iPhone 2020 will also be no exception, when users only need the camera "good enough" and not the "best" camera. Although DxOMark scores are far behind those of Huawei, Samsung or Xiaomi, iPhones still dominate the worldwide best-selling smartphone rankings.

Therefore, Apple does not need to put too much emphasis on image quality anymore. And Lidar cameras in particular and AR technology in general offer an entirely new advantage: this will be an experience that Apple is focusing solely on mobile devices at this time. AR technology of other brands is now mainly developed on separate devices (such as Microsoft glasses); Android AR mostly exists only on a few small Google research projects. Even Pixel smartphones do not yet have the AR feature yet, despite having a radar sensor on the front.



This is an opportunity for Apple to rise to mastering an experience that has not been paid much attention in the smartphone world.

With this unique experience, Apple can fully expect the same success as the iPhone X, the smartphone that has forced the whole world to gradually switch to full-screen touch control. The only problem remaining, is that with the current Covid-19 epidemic, will the vision revealed through iOS 14 be up to date on the iPhone 2020?

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