

AR (AUGEMENT REALITY) AND ITS POSSIBILITIES

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Annotation

The article provides information about AR(augement reality) technologies and its capabilities, and you can find out what the augmented reality itself is and in what directions it is used.

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Nowadays, together with the rapid development of information technologies around the world, both types of virtual technologies are developing with rapid snapshots. Including:

- augmented reality (AR)
- Virtual reality (VR).

Augmented reality (AR) seems theoretical and abstract, but in fact it is quite simple: real life and current, relevant information. Some examples to clarify the concept:

- We walk through London and we see a wonderful piece of architecture. What is this wonderful building? Who was the architect? We want to know more, but the building is closed and there is no information about it at all. So we quickly take pictures with our mobile phone. The phone uses a built-in GPS system to find out where we are, and quickly searches for similar photos from Google. In a few seconds, the building will be determined, and the Wikipedia page will open, where we can read everything.
- You are a combat aircraft pilot, flying across the war zone with anti-aircraft fire. You really need to concentrate, and all the indicators on your dashboard will distract you. Fortunately, you wear what is called a home screen (HUD). These are glasses that automatically design instrument measurements so that they "float" in front of your eyes.

You go somewhere on the highway and get hungry. Blink twice with your right eye, and the list of restaurants located nearby will be reflected in your windshield. Wink to choose your preference so that your device shows you the way.

You can see that augmented reality is actually a mixture of real life and virtual reality. It also often takes complex reality called. The most important point is that the additional information that AR offers is very relevant and corresponds to that place and time.

How does AR tracking work?

When you are out of mobile in real life, it is easy to get information: just open Google and write down a

few words. In the new world of augmented reality, this is easier: you will receive additional information automatically. This means that your cell phone will automatically find out where you are or what you are looking at. This is known as surveillance.

1. The simplest form of tracking is when the device uses GPS to automatically determine your location. It is also relatively easy to obtain tracking information using Wi-Fi hotspots. But when you are somewhere in an art gallery or museum, you want to get information about each photo or exhibition that automatically appears on your mobile device. GPS is (yet) not accurate enough for such an application. In general, there are two solutions: marker-based and marker-free tracking.
2. Marker-free tracking: you can redirect your phone to any photo, and the pattern recognition program will try to identify it. This is how our sensory systems work. Our eyes will see things and our brain will know what we are seeing, and then cause background information. Our brain is incredibly good at this. For a computer, this is a very difficult problem, since the best systems of recognition are only part of it than ours.
3. Marker-based tracking: a simpler option is to display QR codes next to each displayed object in the museum. Then when you just redirected your phone's camera to the QR code, your phone would change the barcode and the browser would display a web page containing additional information.
4. Marker-based tracking is currently the most popular option because it is very easy to implement. But in the long run, tracking without a marker will win, because it will suit our visual systems. We automatically recognize our friends without them QR codes have on their foreheads.

Reflecting the rising Reality Virtual Reality remained on a much more limited scale than expected. This is because it is difficult to "immerse" people in a computer-generated world. Ideally, you should wear a headset that will replace the real world with the world depicted on the computer. With augmented reality, the problem is different: there, the computer-generated data overlaps with what we can see. When augmented reality was introduced, it was thought that we would all wander around with head-lift displays like fighter pilots. AR now focuses on smartphones with cameras. This may change in the future. Currently, researchers are working on contact lenses with which computer screens are installed. For example, they can place Web pages in our field of view. Another option can be glasses with a built-in transparent screen.

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