

Microsoft unveils HoloLens 2: twice the field of view, eye tracking

Enlarge / Microsoft HoloLens 2.

reader comments

84 with 59 posters participating, including story author

Share this story

As expected, Microsoft today launched HoloLens 2, the company's second generation augmented reality (AR) headset. The new hardware addresses what were probably the two biggest issues with the first generation device: the narrow field of view, and the comfort when wearing the device.

Microsoft says that the field of view has been doubled, without any reduction in visual quality. Both first and second generation devices aim to produce around 47 pixels per degree. This resolution is around the limit of human visual acuity (the Varjo VR-1 headset also aims at around this level, though it offers 60 pixels per degree), such that individual pixels can't be discerned, and curves look smooth even without extensive anti-aliasing. Each eye has about a 2,000×1,500 display, so while Microsoft doesn't seem to include an actual field of view measure on its spec sheet, that comes out at around a 53 degree (diagonal) field of view.

Enlarge / HoloLens 2 field of view, with first generation HoloLens field of view represented by the bright rectangle in the center.

Details of the new display system were lacking, but it appears to be a Microsoft-designed, custom-built MEMS (microelectromechanical system) display, with a tiny little electromechanical mirror used to bounce laser light around.

Comfort is also greatly improved. The original HoloLens was very front-heavy, with the optics, sensors, compute unit, and other heavy elements, all at the front of the device. The new HoloLens moves the integrated computer to the back of the device, and the front part is built of lightweight carbon fiber, making the headset much better balanced. It also looks much easier to put on and take off. In the new device the optical portion also flips up, out of the way, so you don't need to take the entire headset off to give people around you your full attention—just flip the visor out of the way.

Enlarge / Exploded view of the HoloLens 2.

Beyond this, the new version adds two key new features. First, it has eye tracking, so it knows where you're looking. This can be used to drive certain interactions; for example, scrolling a document when you're looking at the bottom of the page. The eye tracking hardware is also used to provide iris scanning biometric authentication.

Second, there's been a substantial upgrade to the tracking of your hands, with the system building a fully articulated model of both hands and all your fingers. This provides a significant improvement in interacting with the virtual 3D objects. With the first generation, interacting with an object to, say, resize it, required looking at its resize handle, and then making an "air tap" gesture. For the second generation device? You'll be able to simply grab the resize handle directly, and use it to stretch the object to the size you want.

The company didn't speak much about the internals, either. The new device uses a Snapdragon 850 processor, with Bluetooth 5 and 802.11ac 2x2, along with a second generation "Holographic Processing Unit;" this is a custom chip built from Tensilica DSPs among other things. Battery life remains about 3 hours.

The new system retains the enterprise focus of the first generation, and accordingly, it has an enterprise price: \$3,500 for the commercial headset, down from \$5,000 for the first generation. If that's too steep, bundles that also

include Dynamics 365 Remote Assist will start at \$125 per month. Microsoft is also working with third parties to produce specialized hardware for certain industrial roles. The first of these is a HoloLens 2 from Trimble, which integrates all the HoloLens 2 hardware into a hard hat.

Enlarge / The Trimble XR10 integrates HoloLens 2 and a hard hat.

<https://arstechnica.com/?p=1463571>