These slick new AR glasses project shockingly high-quality visuals

Like virtual reality before it, augmented reality is the newest, hyped-up technology ripped straight from science fiction that technology companies worldwide are trying to bring to life. But unlike most fledgling companies in the burgeoning AR space that are still dealing in half-finished prototypes and experimental proof-of-concepts, Chinese startup Nreal has arrived on the scene this week with a surprisingly capable pair of AR glasses scheduled to hit the market later this year.

I got to try an early version of the company's product and came away impressed with what I saw. There are two selling points to Nreal's glasses. The first is that they don't look awful and you might actually feel comfortable wearing them in public, or at the very least in front of your friends or family at home. On the technical end, it's also quite the feat that Nreal packed all that projection gear, sensors, and cameras into a frame that's way slimmer than, say, the Vuzix Blade glasses. Nreal says the glasses weigh just 85 grams, or less than one fifth of a pound.

The second is that the glasses push 1080p projection through both lenses with a 52-degree field of view, letting them achieve something much closer to the Magic Leap One headset or Microsoft's HoloLens than what we've seen most AR glasses shoot for in the past, which tend to be nothing more than a jazzier heads-up display. (The FOV on Nreal's device actually beats that of both the Magic Leap and HoloLens, although the next HoloLens will supposedly include a much improved FOV.)

Photo by Nick Statt / The Verge

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I will say that I was shocked at how high-quality the visuals were. As someone who has recently tried demos on the Magic Leap One, these were almost as good in a much less obtrusive package. I was able to try a few experiences, the first of which let me project a screen onto the wall and resize it with a small circular controller. The second demo featured a trio of virtual dancers on the table in front of me. Both featured incredibly crisp visuals, and the wide FOV makes a huge difference when it comes to actually enjoying what you're looking at instead of having to spend half the time making sure you don't clip part of the image off by moving your head.

So as a video-watching device, the Nreal is quite capable. But the whole promise of AR is to understand your surroundings and blend the virtual images with real-world objects. That's where the Nreal isn't nearly as good as Magic Leap, at least based on the demos the company is showcasing. The other demo I tried was a cute little laser-pointer and AR kitten experience that let me send a virtual car around the room as I pointed the controller at various spots. Nreal programmed the demo so the cat would recognize the tables in front of us and jump on them, but I couldn't get the cat to hop onto the chairs, suggesting the glasses might have some trouble doing real-time mapping and object recognition at the same level of sophistication as Magic Leap.

Nreal has high-quality visuals, but it’s lacking when it comes to spatial mapping

Similar to Magic Leap, Nreal’s device requires a cable into a separate processor pack that’s designed to go into your pocket. It’s of a similar size as Magic Leap’s and it appears to get just as hot or perhaps even more so as it’s running, which is certainly a consideration when for any AR glasses that will want to remotely attempt to deliver all-day use or at the very least any experiences that last more than a few minutes. One neat feature is that the motion controller for Nreal’s glasses is a small circular puck that connects magnetically to the processor pack.

Nreal tells me that because the processor pack uses USB-C, you’ll be able to simply use your phone to power the glasses. However, the company says it’s only working with Samsung right now to make that feature work, and it’s unclear if you’ll be able to use other phones or if the feature will arrive without any hiccups at launch. Still, that’s a smart idea and it could make such AR experiences more accessible and portable.

Image: Nreal

As for specs, the Nreal glasses have a Qualcomm Snapdragon 845, 360-degree spatial sound through two speakers, and built-in microphones to enable future voice control and smart assistants. There are other built-in sensors for providing full 3D movement through 3D scenes, known as 6DoF (six degrees of freedom), while the wireless controller is only three degrees of freedom, so it can’t provide the same level of hand interaction as you’d get in a VR headset like the Oculus Rift.

On the front, you have two cameras that are used to perform what’s known as SLAM, or simultaneous localization and mapping, which is the computer vision technique that lets both self-driving cars and other similar AR headsets map a scene and also track objects as they move through it. That last bit

is crucial for AR, and the fact that Nreal is only using two cameras, where as Magic Leap has three on each side of the front of its One headset, is likely why it’s not as adept at mapping environments and enabling interactive AR features.

Even given those issues, Nreal glasses certainly don’t look and feel like a product from a company that’s less than two years old. The device is slated to ship some time around the third quarter of the year for a price likely under $1,000. The big issue, of course, will be what will actually run on it, as there’s no existing library of AR content save what Magic Leap is investing in building itself and with its gaming partners and the low-key apps that exist for iPhones and Android devices. But Nreal is certainly a company to keep an eye on as the AR industry marches toward viable products we may one day actually want to buy.

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