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EYENETRA

2013 Nominet Trust 100 Winner

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A MOBILE PHONE ATTACHMENT THAT CAN MEASURE YOUR OPTICAL PRESCRIPTION.

By MIT Media Lab

Project URL: eyenetra.com

Project Twitter: [@medialab](https://twitter.com/medialab)

- Health
- Data
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- Physical Computing

Over half a billion people around the world need glasses but don't have them. Blurry vision is not just an inconvenience: it translates into lack of effective education, low literacy, limited employment and near certain poverty.

NETRA is a clever and cheap way to address one vital part of this problem: making available cheap eye tests using an easily adapted mobile phone.

Developed by MIT Media Lab, NETRA, which means 'eye' in Sanskrit, is a clip-on eye piece that can be attached to the top of a mobile phone and connected to the phone's LCD display.

Looking into the eye piece, the user has to use the keys on their phone to align a series of dots on the screen of their mobile phone, until they appear to all overlap each other. This process is captured by an app in the phone which then calculates the extent to which the person's retina is out of alignment. That calculation can then provide a prescription for glasses.

NETRA, which costs as little as \$2, is a brilliant example of frugal innovation using digital technology. No trained professional is needed, nor a visit to an eye clinic: the phone's owner becomes an amateur optician. Whereas traditional diagnostic kits are heavy and cumbersome, the NETRA is portable and robust, and because it clips on and off it can be used on multiple phones.

The transformation of a standard phone into a digital eyesight tester has been made possible because standard LCD displays now have high enough resolution to allow us to watch our favourite films and YouTube clips in marvellous high definition. The term 'retina display' often invoked to sell these screens comes from the fact that they are judged strong enough to be used for retina analysis. So by pursuing higher definition screens to make entertainment available to a mass mobile market the phone companies inadvertently also created the possibility of a new kind of eyesight test.

NETRA is now used in many countries around the world in collaboration with eye clinics and NGOs. It's a great early example of using mobile technology as a scientific instrument, not just as a communication or computing device, part of a growing area of hardware-based mobile apps that are leveraging existing digital technologies to support social inclusion and reduce disability and poverty. NETRA's creator Ramesh Raskar likes to point out more people have mobile phones than toothbrushes.

In 2014 the project 'spun out' into its own venture, EYENETRA, with a team of 10 staff developing both the product and its use in the field. To date the device has been used to make more than 27000 eye examinations, and they are working on a fully developed 'launch' product to make commercially available.

Image courtesy of NETRA

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