

FutureWatch: The Eyes Have IT

by Kevin D. Murray, CPP, CISM, CFE, CDPSE

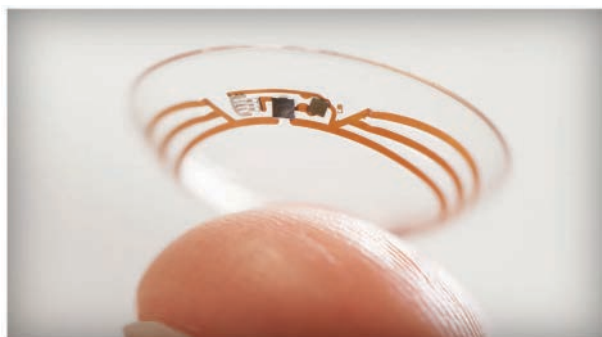


One of the more interesting aspects of Technical Surveillance Countermeasures (TSCM), or sweeping for bugs, is looking into the future. Seemingly an exercise in entertainment at first glance, looking forward has a serious purpose—staying ahead of the bad guys, not one step behind (as some TSCM'ers seem proud to say).

Taking a look at “future vision” we see...

1. Scientists have been working on this one for a while now...

“Graphene smart contact lenses could give you thermal infrared and UV vision. A breakthrough in graphene imaging technology means you might soon have a smart contact lens, or other ultra-thin device, with a built-in camera that also gives you infrared heat vision.” [more](#)¹



Other contact lens advancements include...

2. “At CES 2021, the company (InWith Corp.) unveiled a method to place augmented vision display chips into the soft hydrogel contact lenses that millions of people wear daily. [Smart contact lenses](#)!² In early 2020, the company announced a partnership with Bausch + Lomb, showing flexible electronic circuitry embedded directly into lenses. ...Smart lenses could also **interject different data before your lenses, giving you super-binocular vision, or infrared vision.** Heck, researchers have already science'd up [supermice with infrared vision](#).³ [more](#)⁴

3. “Scientists have taken inspiration from X-Men's Cyclops and created **a contact lens that points a red laser at whatever the wearer is looking at.** The regular-size contact lens is fitted with a vertical cavity surface emitting laser (VCSEL) which points in the direction the user is looking. French engineers used off-the-shelf components to create a working prototype which can be used for gaze recognition.” [more](#)⁵

4. “Three new patent applications for novel extended reality eyewear with features for those with visual and auditory impairment. (This one is particularly interesting.) **Novel microphone technology** is coupled with gaze tracking and hearing devices to assist the auditory impaired in **gaze-guided microphone channel selection along with real-time, gaze-guided voice**

¹ <https://www.extremetech.com/extreme/178593-graphene-smart-contact-lenses-could-give-you-thermal-infrared-and-uv-vision>

² <https://inwithcorp.com/envisioning-reality/>

³ <https://www.digitaltrends.com/cool-tech/mice-vision-infrared-nanoparticles/>

⁴ <https://www.digitaltrends.com/features/augmented-reality-contact-lenses-vision/>

⁵ <https://www.dailymail.co.uk/sciencetech/article-8717859/Scientists-develop-real-life-cyclops-lens-laser-pointer.html>

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recognition closed caption text presentation in the extended reality display eyewear.” [more](#)⁶

How will smart contact lens technologies of the future be relevant in the world of TSCM?

It looks like there will be applications on both sides of the fence.

- Super-binocular vision, for example, has obvious spy-craft applications.
- Thermal (IR) / ultra-violet (UV) contact lenses would enhance the TSCM inspection process.
- Let’s call contacts with built-in cameras a dual-use technology.
- Red laser emitting contacts, hummm. A great party trick, but I’ll leave that application to your imagination.

For those of you who can’t wait for the future, [near-infrared contact lenses](#)⁷ are already here!

They are mostly used by card sharks and magicians. However, if you are a TSCM technician, you might want to start marking your electrical outlet screws with IR ink instead of UV ink. Checking your secret screw positions when conducting re-inspections will go a bit faster with these *almost* smart contact lenses.

Bonus... The smart bad guys know of TSCM’ers historically use of UV ink for secret marking purposes. IR ink may escape their notice... Uh, until now. Doh!

⁶ <https://www.prnewswire.com/news-releases/innovega-expands-patent-filings-for-assisting-the-sensory-impaired-301262945.html>

⁷ <http://www.howtomarkcards.com/store/p45/infraredcontactlenses.html>

⁸ <https://counterespionage.com/about-murray-associates/electronic-eavesdropping-detection/>

⁹ <https://counterespionage.com/tscm-technology/x-ray-analysis/>

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[Murray Associates](#)⁸ is an independent security consulting firm, providing eavesdropping detection and counterespionage services to business, government and at-risk individuals. While we don’t have smart contact lenses yet, [we do have X-ray vision](#).⁹

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