**Augmented Reality: Here’s Looking at You**

Smart glasses may have a big future at work

Ahead of its time or just plain weird? Whatever the answer, Google last year stopped selling consumer prototypes of its controversial Google Glass, a camera-equipped head-mounted display resembling a pair of spectacles. Using a process known as augmented reality (AR), Glass can display in the viewer’s line of sight information about what they are looking at, among other things.

What consumers found unusual, factories and other businesses may not. Workers are often required to wear odd-looking safety equipment, such as helmets and protective glasses. It is more normal to be filmed. And indeed, the workplace is where AR equipment is taking hold, which is why Google is revamping Glass with business uses in mind.

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Schneider is doing this with headsets and tablet computers, both of which superimpose information onto an image of the object on either the lenses in the headset or the screen on a tablet. The system uses image-recognition software, and sometimes a bar code stuck on equipment, to determine what the piece of kit is. It then wirelessly fetches any data relevant to it, such as its optimum operating temperature, fluid levels and maintenance history.

Software then "sticks" that information to the image on the screen, so that it disappears if the camera is turned to something else. The data reappear if the equipment comes back into view. Early results from China suggest AR can slash the amount of time engineers spend looking for information to about a tenth of current levels, says Mr Dedieu.

**One in the eye**

In America, ITAMCO, an Indiana-based engineering company, has found similar benefits. Some of its operators use an AR system with Google Glass headsets. Having data automatically pop into their field of view saves enough time for two machine operators to do work that previously required three or four, says Joel Neidig, an ITAMCO technologist who has helped clients including Caterpillar and General Electric set up similar systems.

The use of AR systems in Europe is proving more difficult to implement because some unions deem the technology to be a sneaky way for management to monitor workers, says Mr. Neidig. He maintains management wants to reduce accidents by ensuring workers see proper procedures and danger alerts.

Some European firms are using the technology. Siemens, a German engineering giant, is using JoinPad, an Italian firm, to set up an AR system to help with a number of tasks, including the prevention of hazardous and costly oil fires in high-voltage transformers. Productivity gains from AR are not always dramatic, but 20% or more is typical, says Nicolas Pezzarossa of JoinPad.

The technology still has room for improvement. Around 200 workers using AR on tablets at Newport News Shipbuilding in Virginia don’t yet rely on it to find the exact location to install critical equipment. But it still beats flipping through lots of paper diagrams and determining if one piece of equipment has to be installed above or below another, says Patrick Ryan, an engineer overseeing the roll-out of AR in building an aircraft-carrier and half-a-dozen submarines for the US Navy. Once the price of headsets come down, the firm may well start using them as well as tablets.

Headset prices are getting keener. Atheer, a Silicon Valley firm, will begin shipping its Air Smart Glasses to industrial users within a few months for some $4,000; a current model for software developers costs $9,000. The Smart Helmet, an AR headset made by DAQRI, a Los Angeles firm, is being used at KSP Steel in Kazakhstan. It costs $10,000, but also doubles as a hard-hat and eye shield. It automatically switches off instructions if hand movements detected by the camera suggest that the user has learned what to do.

Headsets can also augment communications. Microsoft’s HoloLens, an AR headset that is being used on the International Space Station, sends video of the astronaut’s field of view to a tablet at mission control on Earth, where a technician can draw on the touchscreen – putting, say, a circle around a switch that has to be flipped – and have that circle appear in the astronaut’s view. Vuzix, an American firm, is developing smartglasses for use in a variety of business locations, from warehouses to field training.

Augmedix, a San Francisco company, is developing a Glass-based system for hospitals and clinics. The idea is that rather than burying their head in a computer screen when a patient walks into the consulting room, a doctor will be able to look at them and see that person’s medical history, prescriptions and other information in his field of view. Augmedix reckons the system can increase a doctor’s productivity by more than 30%.

Whether people become comfortable with such devices in everyday life remains to be seen. It is not unusual for new technologies to take off in business first, as mobile phones did and Apple Watches are with some firms using them to send employees messages. In the workplace, smart glasses are already less of a spectacle.