Beyond Google Glass: The Practical Applications of Smart Glasses for Business

Bonus Article by Lindsay Konzak, Editor

APX Labs Inc. has built a software platform that allows companies to build apps for smart glasses. While consumer applications of this technology are most visible – for example, using Google Glass – Ed English, APX Labs' chief product officer, says that businesses are the ones driving adoption of wearable technologies forward.

MDM Editor Lindsay Konzak recently spoke with English about the business case for smart glasses.

MDM: Tell me about APX Labs.

Ed English: APX started in 2010. We started by building systems for smart glass devices for the U.S. military. We really called the first application euphemistically "Terminator Vision." It was evocative of what the solution and what the experience was. It was overlaying information right on top of your field of view and viewing it through these transparent smart glasses so soldiers and combat medics can get data while they're working hands-free right into their vision in real-time. We did this in 2010 before anyone had ever heard of Google Glass. And it was at that time on the very edge of wearable technology.

What has happened since then is a couple of really important things:

One is that Google has announced Google Glass and really helped to catalyze the whole category of smart glasses and wearable technology even more broadly. I would imagine if you walked down the street and asked someone if they have heard of Google Glass, odds are that 90 percent of them would say yes.

The category itself has really matured and exploded in the last couple of years.

And also the advances in the underlying technology have continued to evolve because most are based on what has been going on with smartphones. They are getting more powerful, cheaper and more available. So in the last few years we've gone from advanced military technologies to something that is practical, affordable and available for a lot of different use cases.

APX started in 2010 and since then have built a set of software products that we sell into enterprises.

MDM: That's a quick evolution.

English: The product is called Skylight. It is used by multiple customers, including many Fortune 500 companies including those in the logistics, supply chain and warehousing industries but others, as well. The vision we have is to create a set of software that enables what we call deskless workers to do their jobs better, faster, cheaper and safer.

Deskless workers are people like nurses, doctors, manufacturing linemen, people out on oil rigs, up on utility poles, and people in warehouses and things like that. Anyone that needs to work hands-free and get real-time data like we provided with Terminator Vision. That's what we built our product for, and that's what Skylight does.

MDM: Do you think a lot of what you do – the more practical application of this technology for businesses – gets overshadowed by press surrounding the consumer applications built for smart glasses like Google Glass?

English: I share that view, but I would talk about it like this. Smart glasses will be adopted first and strongest by businesses for a couple of reasons. The first is that you already know what the killer apps are for big enterprises … that's to be able to work hands-free, get access immediately to expert help and get continuous data from the world around them. Those things can't be done with any other device. You can't use smartphones, tablets and voice-picking systems and get the same types of capabilities that you can deliver with smart glasses.

Because those kinds of applications are really valuable and doable today, enterprises will adopt it – the economics make so much sense. You can make every worker as good as your best worker. That's a compelling story for a business owner.

Consumers will take a long time to reach full adoption. But eventually I believe they will. The types of applications you really need hands-free and that you need real-time with overlaying data as a consumer will be different. It's not as clear what the killer applications are going to be.

MDM: Because it's still an emerging area, can you give me a sense of how quickly the interest is ramping up for this technology?

English: I absolutely can. Literally we have companies in just about every industry that you can think of that are already using or looking to use our software and smart glasses. It really is a case where the leading companies are already doing pilot projects. And they are taking the view that better people and

better performance mean competitive advantage.

Another thing we're seeing is that a lot of the leading legacy system vendors who build warehouse management systems or ERP applications are already talking with us to extend their systems to take advantage of these new capabilities that smart glasses enable. There has already been movement and investment by a lot of companies across different industries.

But it is early. The adoption trajectory is in motion but we're still at the beginning. … But it's been pleasantly surprising how quickly a big range of companies have started investigating this stuff. It's my suspicion that at this time next year companies will be starting to roll out full-scale deployment.

MDM: Are there particular industries where you're seeing more interest than others right now?

English: There are a couple of big categories where the most activity is happening. One is what we broadly call logistics or supply chain. The whole supply chain from manufacturing, wholesale, distribution and retail. Anyone that has to move physical goods – finding, moving, placing physical objects. Smart glasses are really powerful there.

The second big area would be what we call field service – installation, repair, monitoring out in the field. People who need to work in a field doing transactional tasks like that make up the second bucket.

The third would be health care – doctors and nurses who need data and are up and about.

The last area would be complex manufacturing, people on the assembly line but installing, configuring and making complex goods like cars, planes and ships.

Distribution is one. One of very first non-military customers was a major retailer who is using our technology in their distribution centers. That was one of the early adopters. It's very straightforward if I can make someone pick, receive or stock faster, that's a pretty clear economic case to do. If I can make every employee better, the bottom half as good as the top half, it's a simple value proposition to get across.

MDM: Give me a practical example to drive home what your software can do.

English: If I walk into a distribution center and put on smart glasses, what do I see? I can get information about my current task. … The glasses know where you are and where you're looking, so it can

give you directional guidance. I see a map that says I'm at this location, and I need to go pick this item from this spot. I can get optimized routing if it's a large complex environment. I get my path and directional guidance – and maybe an image of the item comes up. … Depending on what it is, maybe I scan that box with the onboard camera on the glasses, and it completes that picked item and it shows me where to pack it.

Maybe I have to drop it off on the drop-off bay or pack it into a particular bundle of packages. I get directions to the drop-off location. As I'm going along I might get a message from a supervisor to say: "Stop, don't pick that. I want to change this order, expedite this or drop this order instead to bay 35." In real time the supervisor can change my work on the fly – if I get to that place and maybe there's a problem– or there is some breakage – I can active the onboard camera on the smart glasses and do a two-way video feed with the supervisor who might be at headquarters 1,000 miles away. .. They can communicate with me right then and problem solved.

MDM: Are there hurdles you're trying to overcome to improve this technology?

English: One of the things we found when you have an experience that's on a wearable device, it's part of your personal space, you have to have a high-performance user experience for the application. We tried different things, and thanks to our military guinea pigs so to speak we were able to refine to make it easy to use and adopt.

Users get accustomed to wearing the device and using the systems very fast.

The biggest challenge is power. Any wearable device will have a battery associated with it. We're dealing with scenarios where people are working for hours at a time and all of that requires power. Our biggest challenge is to make sure that our software is as power-efficient as possible. … We work with a lot of smart glasses, some of which have different power profiles and external power packs and things like that.

It's a practical challenge, not a user challenge. There are ways around that.

MDM: Are there a lot of smart glass makers out there?

English: There are about 30 different companies that build smart glasses of different types. But there are two broad categories, and we support both. One being like Google Glass with a single optical display element that you look at when you need the information.

The other piece is what we call dual lens overlay glasses. Those are glasses you wear that are transparent that put information on top of your view. A good example would be glasses made by Epson – they make really great

smart glasses.

Those are the two types; our software works with both. Some glasses are better than others depending on the use case. We've made it a priority for us to work with every type of smart glass out there.

MDM: So what's the cost?

English: The cost equation is something that most people will be most surprised about in many ways. Smart glasses hardware and software are generally going to be cheaper than what you find for purpose-built devices, be it handheld scanners or things like that that are used today.

The hardware will be between $800 and $1,600 per device. More importantly those costs I can reasonably expect to decline over time. The reason is smart glasses are built on the guts of a smartphone. The same processes, the same sensors and cameras and chip sets for smartphones is the same technology used in smart glasses. All the economies of scale from mobile phone manufacturers and the innovation, all of those benefit smart glasses. They are not small-volume hand-assembled things that are going to stay at the high price. That's why we think there's so much promise.

… Our rule of thumb is that every deployment of a smart glass system for a customer, we always expect to have a 100 percent payback period of a year or less. Hardware, software, the works – it should pay off in a year or less. We're finding that it is the case.

Learn more about the applications of smart glasses in the May 10, 2014, issue of MDM Premium: Bridging the Digital & Physical Through Augmented Reality at www.mdm.com/ar.

Learn more about APX Labs at www.apx-labs.com.