

“AI and Wearables increase production efficiency”

AI Alert:
Work Order #107
is delayed

wo-170 Google Glass reached the consumer market in 2013, and are now experiencing a “second life” in the manufacturing world. Worn by manufacturing process operators in production units, and driven by artificial intelligence, they offer direct access to production data, and constitute another tool to increase production efficiencies and improve quality. Plataine and Google Glass talk to us about their collaborative work and the potential it offers composite part manufacturers.

with

JAMES LEE
HEAD OF SALES & PARTNERSHIPS
GOOGLE GLASS
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PLATAINE



JEC Composites Magazine: Can you describe your respective careers and responsibilities at Google and Plataine

JAMES LEE: I serve as Head of Sales and Partnerships for Google Glass. I have worked at Google for 9 years in various sales leadership roles including Google Cloud, Apps, Chromebooks, Android, and now Glass. Part of my job is to talk about how Google Glass is enabling greater productivity for the hands-on worker in today’s most complex manufacturing environments.

AVNER BEN-BASSAT: I’m the President & CEO of Plataine, a leading provider of Industrial IoT and AI-based optimization solutions for manufacturing. My role is to lead Plataine’s vision and global business strategy as well as maintaining its leading position in the industry. My background is Mathematics and Computer Sciences and I hold an MBA from Duke University.

How does Google Glass help the digital transition of industries? How can this transformation be initiated?

J.L.: In industrial enterprises, Glass Enterprise Edition is a new class of device that empowers the hands-on worker, such as those who build commercial jets, wind turbines, and combine harvesters. Static work instructions stored in manufacturing execution systems are now viewed in Glass, and dynamic, AI-based, alerts and recom-

mendations are provided by Plataine. So now workers can instantly access these instructions through Glass instead of having to walk 10 feet to a laptop or worse to a binder full of paper printouts. Glass allows these hands-on workers to maintain their focus on their tasks, greatly reducing error rates and the necessity for costly rework.

A.B.: In today’s Manufacturing era, operators need to consider hundreds of parameters in a short amount of time in order to perform their jobs. The need for smart-digital assistants for every employee is becoming more and more crucial. Google Glass can bring those digital assistants to the operator, empowering them to make better decisions, faster. Glass is wearable, allowing the operator to be hands-free, keeping the entire manufacturing process digital. Every employee now has an intelligent, trusted advisor right next to him...

What are the impacts on operators on a daily basis? What range of services does Google Glass offer during a production phase?

J.L.: Glass Enterprise Edition has helped workers in a variety of industries—from logistics, to manufacturing, to field services—do their jobs more efficiently by providing hands-free access to the information and tools they need to complete their work. Workers can use Glass to access checklists,

view instructions or send inspection photos or videos, and our enterprise customers have reported faster production times, improved quality, and reduced costs after using Glass.

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Which companies have adopted this solution? What is their feedback? (e. g. influence on productivity, work stress)

J.L.: GE’s mechanics now use Glass running software from one of our partners, which shows them instructions with videos, animations and images right in their line of sight so they don’t have to stop work to check their binders or computer to know what to do next. Since using Glass, they estimate that they have not only reduced errors at key points in the assembly and overhaul of engines, but that they have improved their mechanics’ efficiency by between 8–12%.

GE was one of the first businesses to experience the benefits of Glass in the workplace. Now, there are more than 50 businesses, including AGCO, DHL, Dignity Health, NSF International, Sutter Health, The Boeing Company, and Volkswagen, who have been using Glass to complete

their work faster and more easily than before.

How was Google Glass integrated into Plataine's digitalization solutions?

A.B.: The integration with the Plataine solution was done using various Google APIs including Google's Dialogue Flow, speech APIs and Google device hardware. The product uses Google's NLP (Natural Language Processing) technology to understand voice commands and requests. Plataine's AI then address the users' requests or questions to give them optimal recommendations and instructions on the fly. In addition, Plataine's AI proactively 'pushes' predictive alerts to the relevant users in real-time.

The users get Plataine's alerts and recommendations both visually and via audio.

By combining hardware (Google Glass) and software (Plataine's digital solution), have you obtained the Holy Grail of Industry 4.0?

A.B.: I would say that a true-enterprise level solution requires the integration of multiple software, and hardware technologies, not only to directly generate positive business impact, but to also accelerate user adoption and enable digital transformation. We have definitely started a revolution and released a first powerful product, and we continue to collaborate with Google to further develop more capabilities, so this is an ongoing innovation process that will continue to evolve.

The training of highly skilled operators is a crucial point for the composite materials industry. Does your combined solution improve and shorten training time?

J.L.: Absolutely, AGCO, an early Glass customer, now uses Glass to start training new employees from day one instead of being showing dozens of videos and reading binders full of procedures. By using Glass during training, and then again during the actual work of building combine harvesters, AGCO has been able to:

- reduce inspection times by 30%, with the elimination of paperwork and manual uploading;

- reduce production time on low volume, complex assemblies by 25%; and
- reduce learning curve for new hires by 50%

Why is the integration of Google Glass particularly interesting for industries using composite materials?

A.B.: Composite part manufacturing is complex for a number of reasons: the industries that manufacture composite parts such as Aerospace & Defense and Automotive, require compliance with strict quality standards and regulations. The materials are expensive and require constant condition monitoring of temperature and humidity that determine parameters like material shelf-life and expiration date.

Additionally, the dynamic nature of the industry, the growing demand for lightweight composite parts and structures impose further challenges and complexity on manufacturers.

J.L.: Glass Enterprise Edition 2 has a camera that has been optimized for computer vision use cases where being able to intelligently interpret the surrounding environment is critical for the wearer to properly do their job. For example, we have an aerospace customer who works with complex composite materials. Essential to their manufacturing process is the need to recognize what these materials are and to determine

whether or not they still have their protective peel-ply layer attached, which must be removed before assembly. Glass in conjunction with Google Cloud's computer vision APIs now have the ability to scan a composite material's surface and instantly detect the presence of the peel-ply layer as good as or better than the human eye can.

Digitalization of flows, augmented reality and interface, cobotics... what are the next technological advances that will make up the factories of the future?

J.L.: All of these are areas that will undoubtedly have a role in the future of manufacturing. When they do, Glass can act as the "dashboard" for all of these new technologies enabling the operator to monitor, control, and receive data from these platforms.

A.B.: In addition to the above, AI is already taking on a more significant role driving the factory of the future. AI should provide smart recommendations and instructions that allow the operators and managers to navigate multiple complicated production processes. The result is unprecedented performance of advanced, agile factories, resulting in improved throughput and quality at a lower manufacturing cost. □

More information :
www.google.com/glass/start/
www.plataine.com/



Operators don't have to stop work to check their binders or computer to know what to do next