

Keysight On-Site Now!

Reducing tester downtime remotely

Connect → View/Listen → Resolve

Introduction

Smart factories have embraced the technologies brought forth by Industry 4.0 evolution to proliferate automated manufacturing. Everything from the management of the operational status of the smart machines to predictive maintenance is being implemented to realize lights-out manufacturing where the whole production line is fully automated with little or no human intervention.

Are machine uptime and maintenance services advancing in tandem?



The Challenge: Machine downtime is painful

The motivation of automating manufacturing is to increase productivity and efficiency in machinery and manufacturing processes towards a manufacturing platform that is more reliable, consistent and efficient than before. Modern factories often employ a distributed control system (DCS) with supervisory control and data acquisition (SCADA). Is it possible to fully automate everything?

One area that will need more technologies to be enabled before it can be fully automated is machine servicing.

With any production, machines require regular maintenance to enable it to continue functioning at optimum levels. It is also expected that the machines will encounter faults and require servicing. Minor faults are usually serviced by in-house technicians, but major faults usually require expert help from the machine vendor or from an outsourced servicing company. In these cases, it can take hours for the expert technician to arrive at the factory to resolve the issue.

In the meantime, the machine is down and since it is an automated line, the whole production line may be down and a massive effort to divert the material to other lines may ensue. The cost of a line down in automated lines is huge. Estimates of the cost of manufacturing disruptions could be in the order of \$10k per hour according to some studies. Manufacturers do not want production to stop.

So, how can we reduce the down time of a machine while waiting for the expert to arrive? In many cases, it is not possible to determine when the fault will occur. We cannot avoid it. How do we shorten the time-to-response?

The Solution: Better service, Faster Expert Response

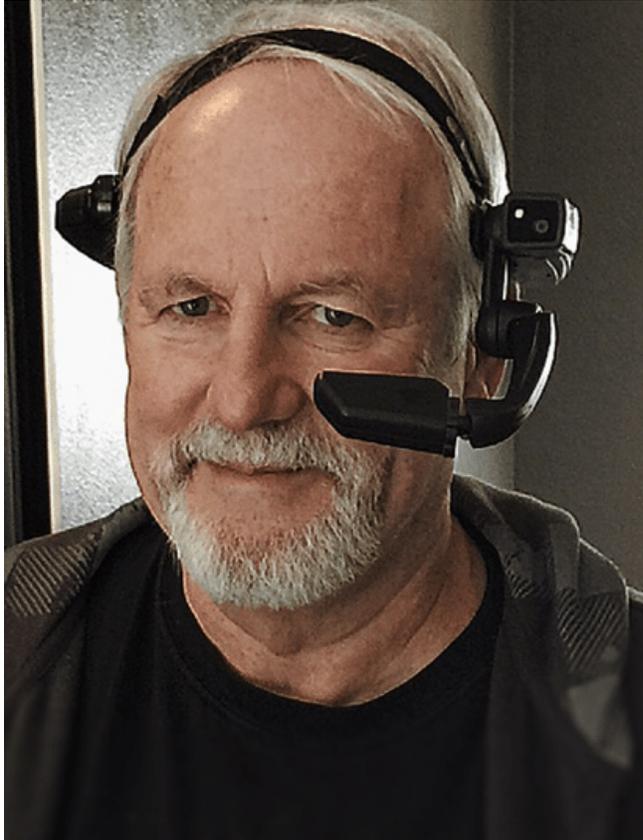
Advancements in internet technology has made streaming videos possible and more accessible. Immersive videos in high definition quality are being transmitted and viewed on the mini-computer in your hand, the mobile phone. How can we harness this capability in our workplace? How can we enable to immerse someone into our environment with sound and sight?

Keysight is increasing our level of support with an add-on to our Cooperation service with Keysight On-Site Now!. Keysight On-Site Now! improves our response time for an expert consultant enabling him to be virtually on-site with the user. Instead of waiting many hours for the expert to arrive, the onsite engineer just needs to put on the Keysight On-Site Now! glasses to quickly connect an expert consultant.



Faster expert consultant response

- No transit time wasted
- Connect remotely yet hear and see in real time
- Free to use both hands
- Secure connections



The Keysight On-Site Now! glasses enable the expert consultant to see and hear whatever the onsite engineer is seeing and hearing at the moment. Being a headgear that is worn by the onsite engineer, both the onsite engineer's hands are free to work and not be distracted by the need to hold on to a video or photo capture device. The camera on the head gear can be focused on exactly what the wearer is viewing, so even when turning the head in a tight spot at the bottom of the machine would not be a problem since the head gear fits snugly on the wearer's head and is equipped with a flashlight enabling dark areas to be illuminated for better visibility.

Equipped with a sensitive microphone, any bumps or knocks emitted by the machine during operation will be picked up and transmitted to the expert consultant on the other end. This could trigger the expert consultant to advise the onsite engineer to locate the sound, which could be the cause of the problem. Being able to see and hear

in real-time is a very underestimated factor in finding quick resolutions to problems.

In many troubleshooting scenarios, photos of the situation are taken and transmitted to the expert consultant to be used as a means of understanding the whole situation better. However, the photo was taken at the onsite engineer's perspective and may not be capturing the correct angle or detail. Which could present an inaccurate picture to the expert consultant. With the Keysight On-Site Now! glasses, the expert consultant can see what the onsite engineer sees in real-time and can direct the onsite engineer to view the correct part or angle when needed.

Mobile phones are an obvious alternative to using Keysight On-Site Now! glasses, however, mobile phones can be a security concern. Firstly, personal mobile phones may not be allowed onto the manufacturing floor as part of the company's security protocols. Then, using the personal accounts on the mobile phone and mobile phone network could also be a security risk.

The Keysight On-Site Now! glasses use augmented reality technologies with a lot of potential to evolve into other efficiency improvement areas. This is Keysight's first foray in using augmented reality technologies to improve manufacturing efficiency, and not our last. Augmented reality technologies have huge potentials to be used in many other applications in areas such as training, learning, and marketing communications.

Conclusions: Faster Response

Using the Keysight On-Site Now!, instead of waiting hours for the expert consultant to travel onsite to the troubled location, the expert consultant was able to connect with seconds and could get working on the issue almost immediately. This saves the hours of downtime. From this, the manufacturer was able to save on time wasted due to the unexpected problem, management effort needed to redirect the board flow to alternative machines and people effort needed to implement the new flow.

With the Keysight On-Site Now! glasses, real-time audio and visuals of the troubled situation can be streamed directly to the expert consultant. With this additional information, the expert consultant is able to better instruct the onsite technician to resolve the issue faster.

Without the Keysight On-Site Now!, the onsite technician would have to rely on alternatives like mobile phones, which would pose a security issue or would not be as easy to use as the Keysight Glasses.

With the Keysight On-Site Now!, Keysight can provide quicker expert consultant response to resolve your production issue faster.

Web Resources

For more information go to <http://www.keysight.com/find/onsitenow>

For more information on Keysight's manufacturing test products go to www.keysight.com/find/ict

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

