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Augmented reality – enabling more efficient access to engineering expertise

Gothenburg, Sweden 08 June 2017:

During the last few years, virtual reality technologies have taken global consumer markets by storm. However, their industrial use has been limited, mainly because they only enable the user access to a digital model, without taking actual surroundings into account. But with the advent of augmented, or mixed reality devices, the game is changing, especially for industrial end-users.

Programmers at SKF's software development center in Gothenburg, Sweden, are working hand-in-hand with application engineers and product specialists to develop mixed reality solutions that make SKF's engineering competence more accessible and efficient.

Fredrik Magnusson, Head of SKF's software development center, explains the team's ambitions: "Imagine having access to an SKF application engineer or service technician on-demand, in real-time. If you are in a paper or steel mill close to an SKF Solution Factory, that's not a problem. But the majority of our customers are based in remote locations. Our goal is to give them the same – or even better – access to our expertise, on-demand."

Changing the percetion of traditional industrial companies
One challenge for companies like SKF is the market's perception of their competence and role in developing new, digital technologies.

"SKF has been at the heart of rotating equipment performance since 1907. We were one of the first companies to industrialise and develop condition monitoring solutions and we have also been leading the development of sensorised bearings. For us, developing augmented reality solutions is a natural next step in our digital journey. However, many of our development partners saw us as a traditional "steel and grease" bearing company. Positioning ourselves as a software development company, as well, was a key challenge for us to overcome," says Fredrik Magnusson.

Giving customers engineering access at their fingertips
Irrespective of the proactive maintenance steps they take, industrial end-users still have a need for access to application engineers – either on a planned or more urgent basis. Providing the man-power for this is a growing challenge, not least with travelling between locations taking up much of an engineer's time. Augmented reality solutions remove this inefficiency almost completely, allowing engineers to spend more time directly supporting customers.

"With augmented reality, the environment you see before you is combined with a digital model that overlays technical data, instructions and real-time machine performance. When your head moves to the left, to look at a different part of the machine, so the digital overlay also adjusts – showing you the data you need to take informed decisions and corrective action. At the same time, it also shares what you see with SKF's engineer, based at a remote location. Together, they can take decisions that will help avoid unplanned and costly failures," explains Fredrik Magnusson.

"Imagine the possibilities that this creates – for customers and for us. Instead of spending time travelling between sites, an engineer can be accessible and share her knowledge and expertise with exponentially more customers than before, without leaving the office. All that's needed are a few pieces of relatively standardized hardware, internally developed software and a solid Wi-Fi connection on-site."

Combining augmented reality with other services is where the real value lies
Simply using augmented reality solutions on their own will not be enough to create significant value – either for customers or for service providers. The real value lies in combining the possibilities of hardware such as Microsoft's Hololens with other machine health solutions, condition monitoring, automated lubrication systems, sensorised bearings and cloud-based analytics solutions such as SKF's recently launched Enlight Center.

"In many ways, augmented reality tools are an enabler. For our customers, they enable access to large amounts of data, in an aggregated form, that allows for smarter and quicker decision making. For SKF, they enable a closer, more efficient working relationship with our customers, as well as an ability to do more with the data generated by our bearings," Fredrik Magnusson concludes.

Aktiebolaget SKF
(publ)

SKF is a leading global supplier of bearings, seals, mechatronics, lubrication systems, and services which include technical support, maintenance and reliability services, engineering consulting and training. SKF is represented in more than 130 countries and has around 17,000 distributor locations worldwide. Annual sales in 2016 were SEK 72 787 million and the number of employees was 44 868. www.skf.com