

Solar construction 4.0 - Greencells develops Augmented Reality solution for use on worksites

Saarbrücken, 05. January 2021 - The construction industry is still considered to be one of the least digitised sectors, but this is now rapidly changing through advances in information technology. With tools such as robotics, 3D printing and AI being adapted to the sector, some experts predict that ‘Construction 4.0’, blending traditional and new, digitised ways of working, will be a reality soon.

A technology lending itself to use in construction is Augmented Reality (AR). Its working principle is to combine real-time images captured by camera with computer-generated information. On construction sites, AR has the potential to reduce the gap between planning information and operational reality. Uses for AR include sharing of project documentation such as notes and comments, running through checklists, hands-free working, or giving live support remotely for critical decision-making.

Building on this opportunity, Greencells has developed its own AR Remote Assistance Solution which will be used systematically on more remote worksites from end of 2020.

“Most projects run into situations where senior engineer advice is needed”, explains Andreas Gisch, Head of R&D at Greencells. “Working in remote locations in Asia and the Middle East, we wanted to find a better way of supporting our teams and managers on site from our German HQ. The question was: How can we solve technical issues in real-time, without having to fly engineers out to the actual site or spending time sending emails or photo footage back and forth? Over the last year, we developed our own AR solution which will allow us to give senior engineers a real-time view on any area of our worksites, opening up a communication channel with their colleagues as if they were physically on site.”

“We have many tech experts around here at Greencells and are fortunate enough to have a dedicated R&D department with very experienced colleagues,” adds Patrick Clemens, Greencells’ Chief Operating and Chief Technology Officer. “Thanks to our deep knowledge of the industry, we were able to establish technology partnerships with different component suppliers over the years and have developed our own technological solutions in-house, including a bespoke mounting structure. We need to remain on the cutting edge, so taking this a step further to develop our AR solution was very logical for us.

Using the AR solution, Greencells’ senior engineers in Germany will be able to provide instant assistance to worksites anywhere in the world. Integrated in a pair of AR glasses is a camera which shows the exact perspective of the team member on site to the engineering colleague in the headquarters. Senior engineers can then assess the issue and assist onsite teams in real-time, giving both graphic indications via the display integrated in the glasses and verbal feedback via an audio channel. Ultimately, this means instant troubleshooting, ensuring quick project progress and quality monitoring.

The solution was trialled at one of the Group’s current worksites in Malaysia. With Corona virus measures posing an unexpected challenge to the construction of the plant, the AR solution soon turned into a communication lifeline.

"Malaysia closed its borders to foreigners in March and suspended works on construction sites. After worksites were allowed to resume operations in July, we were able to give remote assistance to our colleagues on the worksite, making sure works could partially continue despite the fact that we did not have the possibility to fly in engineers as scheduled. It was a tough but very realistic test for our solution, and we were glad to have it on site right at that point in time," says Andreas Gisch.

Patrick Clemens can imagine further use for the technology: "Using AR for remote assistance is a starting point for us. As we get our first usage experiences in, we will look into applying the technology also for commissioning of power plants and providing operation and maintenance (O&M) support services."

About Greencells GmbH:

Greencells GmbH is a global provider of EPC and O&M services specialized in utility-scale solar power plants. Together with its sister company Greencells Group Holdings Ltd. (together “Greencells Group”), which is active worldwide as a solar project developer, the company has the know-how in all project phases to optimally plan, finance, implement and operate solar projects. Greencells GmbH, founded in 2009 and headquartered in Saarbrücken, has around 70 employees as well as several hundred skilled workers at the active construction sites. As one of the largest European providers of solar power plants.

Greencells Group has already been successfully involved in the construction or planning of over 2.1 GWp capacity in more than 25 countries.

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