CASE STUDY

European Active Projects Ltd pioneers world-first Veesus SolidWorks plug-in

Challenge	Solution	Results
▶ Needed to accurately measure large sites quickly ▶ Unable to work with point cloud data natively in SolidWorks	▶ Veesus Point Clouds for SolidWorks plug-in ▶ Full range of editing features, and instant and accurate measurements	▶ Easily able to work with a 2-mile scan of a harbour to plan new building work ▶ Combining as-built data with designs enabled team to gain planning permission faster

About the company – EAPL

European Active Projects Ltd (EAPL) is a construction and fabrication company specialising in marine, offshore and land-based projects including fabrication for the quarrying, renewables, and construction industries. With offices and facilities across the UK, EAPL also has its own CAD department working out of its Southampton office, creating designs and production drawings for all its projects using SolidWorks.

The Challenge –
Overcoming the disconnect between 3D scanning and CAD

As part of its design work, the team at EAPL often has to measure sites ahead of creating designs – something that Ben Ayling, CAD Designer at EAPL, had to do by hand. Though this wasn't a big problem when working on small-scale projects, working on larger sites made measuring by hand both impractical and difficult.

Though the team persevered and worked to a high standard, measuring large sites manually allowed small errors to creep in – which required extra site visits to rectify. Ben explains,

"I remember one site in particular, which was about 2 acres and was essentially impossible to measure accurately by hand. Going back to re-measure areas where we'd found discrepancies slowed the project down – it was clear that measuring this way just wasn't feasible on larger sites."

To solve the challenge, Ben and EAPL looked into 3D scanning technology to gain accurate measurements of sites. They invested in FARO scanners, but then encountered another challenge – how to work with the point cloud files generated by the scanners, in SolidWorks. For their first project, EAPL's partner Solid Solutions converted the point clouds into mesh models that Ben and the team could work with in SolidWorks.

"It was very helpful," says Ben, "but we wanted to go one step further. We wanted to be able to work with point clouds natively in SolidWorks – the meshes we were using as a workaround often contained lots of irrelevant data that we couldn't get rid of, and just weren't as versatile as point clouds."

A close up of the foundations from a previous building in the harbour, which EAPL used as the basis for their new building.

A close up of EAPL's proposed buildings in situ alongside as-built data from the point cloud.

> The scan had caught lots of data we didn't need – including hundreds of birds in the harbour. With Veesus it was so easy to remove all that extraneous data, and just focus on what we needed.

Ben Ayling
CAD Designer at EAPL

The Solution –
Veesus Point Clouds for SolidWorks plug-in

Luckily for Ben, Solid Solutions suggested a new way to solve the challenge – a SolidWorks plug-in from point cloud experts Veesus. The plug-in enables CAD designers to work with point clouds of any size natively within SolidWorks, with no need for meshing or other workarounds.

"We'd looked at one or two other solutions, but none of them enabled us to work with point cloud data natively in SolidWorks – they all needed to convert point clouds into meshes first, so what Veesus was offering was really exciting," Ben explains.

After meeting with Veesus and seeing the solution, Ben and the team decided to sign up to trial the beta version of the plug-in. From their very first trial, Ben was impressed. They uploaded a 2-mile wide scan of Ramsgate Harbour, in order to plan new buildings on the site, and were instantly able to navigate through the entire scan, including the dockside, ships in the harbour, and the buildings around it. The plug-in gives the user full manipulation of the point cloud, including the ability to clip portions out – which Ben found especially useful.

"The scan had caught lots of data we didn't need – including hundreds of birds in the harbour. With Veesus it was so easy to remove all that extraneous data, and just focus on what we needed."

The Results –
Faster, more accurate site measuring, and a bright future for point clouds

The scan of Ramsgate Harbour enabled Ben to get incredibly accurate measurements of the harbour and plan the new buildings with ease. Ben comments,

"When measuring by hand, there's always the risk you forget to measure something and have to go back to site to rectify the issue. With the point cloud, I can take any measurement I need from my desk – it's been such a time saver."

The point cloud data has also helped EAPL to gain planning permission from the local council for their project. By working with scan data in SolidWorks, Ben has been able to show what the proposed buildings will look like next to the existing buildings.

"I've even been able to plan the building to match the foundations of a building which was previously there, thanks to the detail in the scans," he adds, "which is a useful thing to show the council."

Looking to the future, Ben is keen to see the Veesus plug-in used on more projects. As well as the time-saving benefits and the added accuracy that comes from using point clouds, being able to leverage 3D scan data will help EAPL increase safety when scanning sites. The team often measures sites such as quarries while they are still operational, which presents a safety risk to those doing the measuring.

"Now that we can easily work with point clouds, we can simply scan those areas that are dangerous to measure by hand, getting accurate data safely," Ben affirms. "It's just one of the many exciting things that the Veesus Point Clouds for SolidWorks plug-in has enabled us to do – and I'm really excited to see where the partnership takes us in the future."

Veesus

For more information:

Call: **07542 137335** Email: **info@veesus.com** Visit: **veesus.com**