Effortless 3D Introduces Affordable Lidar Scanner

Effortless 3D have announced the E3D MKI, an integrate lidar scanner and HDR imaging system. At a cost just under £6,000, the E3D is aimed to perform on-site progress monitoring and capture to surveyors who want to fill out their reality capture tool kit with a more portable option.

The E3D weighs 2kg and comes in a diminutive 240×110 mm package. It includes two 360° HDR cameras that capture at 10MP and a 360° lidar sensor with a range of 0.1-20 metres, resolution of 0.25°, and accuracy rated at 30mm.

A gap in the market

Richard McCormack, Effortless 3D founder, said "On the affordable end of the market, you have low-cost scanners built with structured-light sensors. These products are great for smaller, indoor environments, but lack the flexibility to operate in indoor and outdoor environments." Until recently, you had to buy an expensive terrestrial lidar system to get that flexibility.

The idea for the E3D was to make a scanner that splits the difference. It hits a new low price point *and* uses a lidar sensor. "That choice," McCormack explains, "means our users can be confident they will capture the consistent 3D and high-quality visuals they expect, regardless of their environment or lighting conditions."

You also won't be locked into an expensive license. "We are advocates of data neutrality," McCormack says, "and believe that a user should be able to do what they like with data they capture."

User friendly field registration

E3D comes bundled with software that is designed to help users monitor the scanning process to ensure good results. "Thoroughly understanding a scanning project as it is underway is vital to ensuring you capture everything you need," McCormack says. "This is particularly true for non-technical users who may not be familiar with the shadowing that can result from scanner positioning. That's why we've integrated a live 3D map into our control application, which gives the user a comprehensive understanding of the data they've captured and where they need to capture next."

One component of that understanding is field processing, which is why E3D comes with a tool that offers semi-automatic field registration of point clouds on a mobile device. "There's no 3D point-picking involved," he says, "the user simply clicks on a few objects in the panoramic imagery that match-up between scans, and our cloud-to-cloud algorithms do the rest."

For novices and experts

For novices, McCormack compares the E3D to a "point and shoot" camera because "the user simply initiates a scan, then monitors progress from an app as the scanner proceeds to capture the entire scene." This processing includes automatic adjustment of white balance, fusing of exposures for an HDR image, and automatic colorization of the point cloud. On the point cloud side, the system automatically corrects for scanner tilt, filters noise, and registers the new scan. The whole process takes about 30 seconds.

Expert users can get "finer-grained control" by turning off the filters, and exporting the scans to other software where they can perform more complex registration workflows.