



Location

Hamburg,
Germany



Scanned

163
Apartments



Scan size

Apartment
Building



Scan time

25 minutes
per scan



Industry

Surveying

Creating 3D digital assets of 163 apartments in the heart of Hamburg

Danish-based digital modelling company, Eseebase, works to digitise building assets globally. They collect relevant, accurate data and information, with the aim to make the maintenance of buildings more effective. During the lifespan of the company, they've created digital assets for more than 9 million square metres of space and over 400,000 flats within the housing sector.

This case study will dive into a recent project, that required the need for fast and accurate data capture, using GeoSLAM handheld scanners.

Mapping a residential apartment block in Hamburg

SAGA, controlled by the State-City of Hamburg, is Germany's 3rd largest housing company and has nearly 140,000 residential units. They required up-to-date information and measurements of a large apartment building. Upcoming renovations to the apartment block meant that the information needed to be accurate and returned in a timely manner.

SAGA tasked Eseebase to capture the data. The team's goal was to create up-to-date CAD drawings and a 3D model (BIM) of the apartment block.

The residential building has 163 apartments and 13 staircases that span across 7 floors. Furthermore, residents currently live in the apartments, so speed and professionalism were a priority. To limit disruption, the team had a few hours per day to scan the building. As a result, a requirement for an accurate and time-efficient method of data capture was essential.

Finding a solution in handheld LiDAR

Eseebase opted to work with GeoSLAM technology, as they are familiar with the solutions and workflows. For this project, the team obtained a ZEB Horizon scanner. They also made use of the ZEB Vision camera claiming the bubble walk-through feature from the 360o panoramic images were a useful reference when modelling.

The ZEB Horizon's walk and scan method was a simple way of capturing an environment without any difficult setups. It also was a less intrusive way of obtaining data, benefitting the residents in the apartment blocks.

Additionally, the laser scanner transitioned well between apartments to hallways and stairwells, as well as from indoors to outdoors. The ZEB Horizon's ease of use meant training was minimal, and there was a reduction in time spent in the apartment block.

The ZEB Horizon's speed of capture also allowed Eseebase to scan the building's interior in under three days, carrying out 7-10 scans per day that lasted 25 minutes each.

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The ZEB Horizon is the most versatile scanning device we have found when it comes to using one system for Outdoor scanning, Indoor scanning and scanning in very confined spaces like cellars and addicts

Ernst Koppensteiner | Head of Data Registration and Quality Assurance at Eseebase

Conclusion

With the interior captured, the team focused on the exterior of the building. A close-up walk around the building gathered the necessary data, and a wider loop helped to capture the roof. A large body of water surrounds one side of the building, therefore Eseebase had to get creative and scan from a small boat they hired. The mobility of the scanner overcame this problem, whereas other mapping solutions would struggle due to their cumbersome nature.

Eseebase used GeoSLAM Connect to process the final point clouds and they automatically merged the 23 individual datasets into one large point cloud.

Autodesk ReCAP produced RCP files from the point cloud, which was then imported into Revit where the CAD Drawings and 3D model was created.

In just three weeks Eseebase had presented the final deliverables back to SAGA. The speed of capture the ZEB Horizon provided cut down the overall delivery time, and the mobility saw that the process didn't largely affect the residents.

Eseebase found GeoSLAM's technology so efficient and beneficial that they have recently acquired the ZEB Horizon RT. They plan to use it, with the ZEB Vision, for future projects in Germany following similar workflows.

Ernst Koppensteiner, Head of Data Registration and Quality Assurance at Eseebase, says "Capturing a building of this size comes with its difficulties, especially when scanning multiple staircases and rooms over several floors. The ZEB Horizon allows us to easily capture the necessary data quickly and with no issues".

