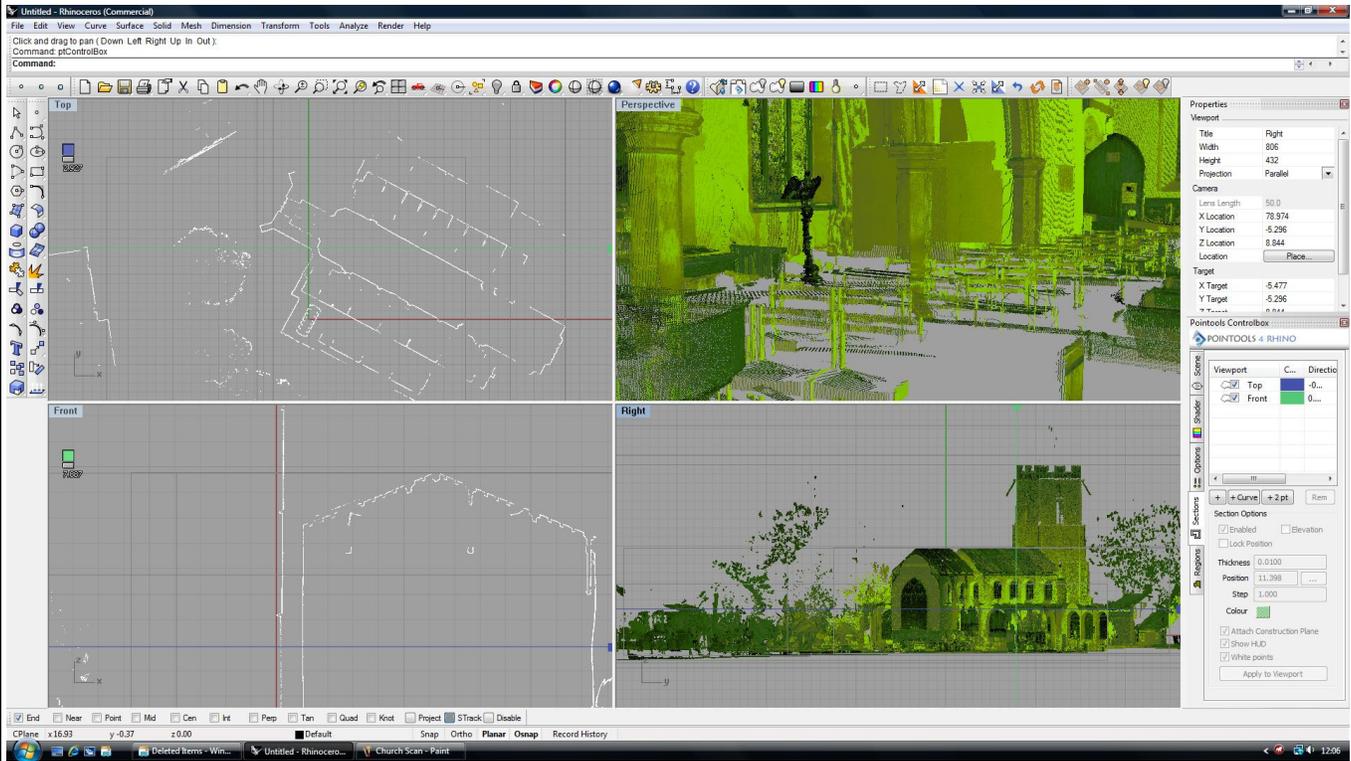


3D Laser Scanning



Scanning offers unrivalled performance and detail. Gone are the days where site revisits were necessary to pick up a missed feature. Scanning offers a complete solution producing point cloud data containing millions of points, all drawn to scale and offering deliverables in 2d or 3d for use in point cloud software and AutoCAD or for export to various other software packages. Vast amounts of data can be stored in a fraction of the time taken by conventional methods

Please read on to see the benefits of 3d Laser Scanning

Applications



Architecture +
Construction



Automotive



Railway +
Highway



Mining + Tunnel



Chemistries +
foods



Heritage



Forensic + Accident
research



Large Products



Power plant +
nuclear industry



Petrochemical
industry



Process -
automation



Forestry +
Landscape

Examples



Example Cross Section produced from scanned floor plan data



Scanning an elevation



Scanned Floor Plan

Architectural Uses

- As-built drawings of Bridges, Industrial Plants, and Monuments
- Documentation of historical sites (Heritage)
- Site modelling
- 3d Flythrough
- Highway Redesign
- GIS (Geographic information system) maps
- Highly Detailed Elevations & Street Scenes
- Floor Plans
- Sections



Industrial applications of laser technologies, such as 3D laser scanning, have revolutionised the planning and construction of surface buildings and other structures. Construction plans, instead of following a traditional construction drawing, are now based on a CAD model, calculated from 3D data gathered through a FARO Photon Laser Scanner. Reverse engineering, the digitalization of existing buildings, again carried out by applied laser technology, has made this type of virtual construction engineering possible. Digital building plans of an outbuilding can be easily adapted, allowing the necessary alteration to be made swiftly and efficiently.

As a result, portable FARO laser technology helps reduce construction costs within the building industry and civil engineering, where road construction, canalization and bridge building are all undertaken with the aid of advanced laser technologies.

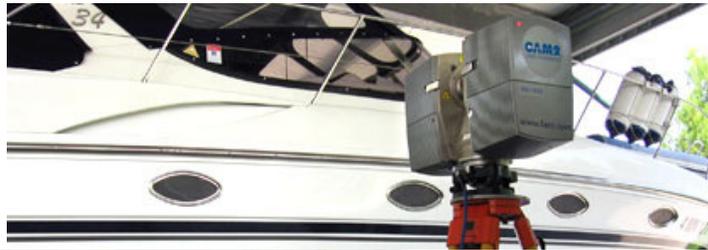
Road & Rail



Road and rail construction naturally needs precise mobile measurement systems, like portable laser scan and measurement devices, which can scan the entire project, and tailor made software solutions that can deal with the size of this information. The FARO Scene software, a high end 3D analysis software developed by FARO, works with the portable FARO Photon Laser Scanner to translate data gathered by laser scanning during and after highway construction into point cloud data.

Motorway construction, rail track construction and tunnel systems appear challenging to most measurement systems by the sheer size of the infrastructure alone. The FARO Laser Scanner is ideally suited to work of this kind, as it can operate mounted on a vehicle. Civil engineering further routinely employs portable measurement devices such as the Laser Scanner and Laser Tracker in construction engineering, bridge building, tunnel construction work and urban street construction.

Boats & Yachts



Professional ship construction work everywhere relies on modern 2D and 3D measurement and documentation to ensure continuous high quality boat building, yacht construction and sailboat construction from the drawing board stage to actual manufacture. A previously conceived construction template, designed from measurement data gathered the Photon Laser Scanner enables precision engineering of all parts of a ship during boat construction.

FARO's state of the art measurement technology has become indispensable in boat repair as well, allowing for precise alignment and verification. Reverse engineering, where existing models are measured and the data calculated to design an exact construction template, has also become a major constituent of boat fabrication.

Thanks to the possibilities offered by modern measurement technology (tactile and laser technology), any ship anywhere can be duplicated to exact measurement.

Aerospace



Aeronautical engineering, and today, aerospace engineering, have historically placed difficult demands on precision, inspection and calibration during assembly and construction. Measurement technology, such as the 3D Laser Scanner Photon used in conjunction with digital resources like CAM2 Software, helps manufacturers worldwide maintain excellent standards.

Aviation relies on good quality airplane manufacturing, and computer aided measurement aided aircraft construction has been a key feature in improving quality control.

The space engineers of the aerospace industry place notoriously high demands on alignment and metrology, which aerospace manufacturing has met by employing modern measurement technology for aerospace inspection, alignment, reverse engineering and quality control of aerospace components for construction.

Entertainment



Modern portable 3D measurement technology by FARO has become a steady feature in making movies and games. 3D models, obtained from data gathered by a sophisticated 3D laser scanner through a process of digitalization, allow modern animations to come ever closer towards reality. As directors enjoy the creative freedom possible only in virtual reality, motion pictures today have come to rely on the virtual world in a way that would have seemed unthinkable only decades ago.

And at the heart of this revolution is 3D measurement and modelling technology which uses a laser scanner to translate precise 3D data gathered by this ultra sensitive system into a CAD model that can be introduced into the artificial environment of not only a blockbuster movie, but also a modern computer game.

Technological solutions such as the FARO Photon Laser Scanner have become an integral part of creating virtual reality, called virtuality, in a modern simulation, where the virtual representation is often taken directly from nature by way of reverse engineering.

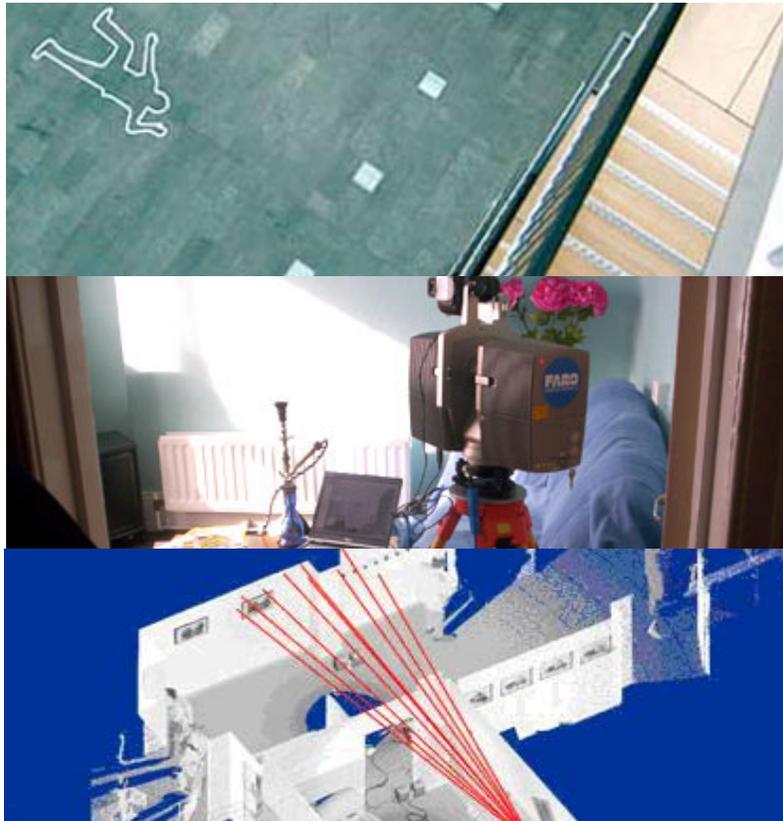
Mining



Inside a mine careful and continuous analysis of the structural integrity is essential to ensure a safe working environment. The FARO Laser Scanner LS has been employed in this field to examine changes in the form of the mine over time. By comparing one scan to another over time and using known reference points and alteration which may imply structural weakness can be seen. This can assist in the positioning and quantity of the support structures necessary. Through the addition of the colour option as seen in these example scans, the rock strata can be identified and any cracks or fissures recorded. Continuous 3D documentation of the mine area can highlight any potential areas of concern.

By analysing the volumes of the mine from the scans taken the specific quantities of rock can be assessed. This way the mine can conform to the parameters set of how much rock is to be extracted and can evaluate the optimum amount of explosives necessary.

Forensics & Accident Reports



Gathering forensic evidence at a crime scene or after an accident has occurred, is vital for accident and crime scene investigation. Reconstruction of events leading to the accident or crime is crucial, yet the accident scene needs to be cleared in a relatively short time, and the crime scene often decays before a forensic investigator can complete a thorough forensic investigation.

Forensic tools need to be both accurate and fast. Digital forensics employed both in crime investigation and accident reconstruction, solve the problem by using a laser scan and reverse engineering for speed and accuracy, and for securing of evidence for further digital forensic analysis. The FARO Scene Forensic Package includes state of the art data recovery software, and a non-contact measurement device like the portable FARO Photon Laser Scanner can pinpoint forensic evidence quickly and with laser precision. When using a laser scan to carry out the accident investigation procedure, an accident report is also available in a relatively short time.

In addition the Laser Scanner can also be used for crime and terroristic attack prevention by scanning public places and buildings to define sensitive areas and to set up evacuation plans.

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