Line Inspection:

A range of integrated solutions for inspecting power lines

on foot

in a 4x4

by helicopter

TRANSMISSION & DISTRIBUTION EUROPE

... towards secure, sustainable and profitable energy delivery

11-13 March 2008

Passenger Terminal Amsterdam

In 2004, the founders of Albatroz Engineering were, for the first time, exposed to the inspections of power lines at labelec (group edp, www.edp.pt), a company with an extensive maintenance program that inspects approximately 20000 km of overhead power lines (10kV-400kV) per year.

Albatroz contributed to labelec's thermographic inspection routine by integrating an innovative automatic track clearance inspection system.

Contacts with major utility transmission and distribution entities worldwide have led to the conclusion that power grid maintenance concerns are nearly identical. The inspection techniques, however, vary significantly depending on the desired levels of quality of service, regulatory demands, economic conditions, ecological considerations, and the size of the grid.

Consequently, Albatroz Engineering decided to extend the integrated line inspection solution to include thermography, visual registers, and track geometry from off road vehicles so that all companies may benefit from a **complete**, **cost effective**, f**lexible solution** providing results in **real time**.

At this time, Albatroz Engineering provides power line inspection solutions:

On foot for sporadic inspections of line sections**,**

In off-road vehicles including boats and airboats. This solution provides comfort and efficiency when inspections can be performed from underneath the lines**,**

From aircraft usually a helicopter. This solution is the fastest inspection method and is suitable for maintenance inspections on extensive grids or inaccessible grid sections (eg. ecological reasons)

With these efficient solutions maintenance inspections can be performed on overhead power lines from medium voltage (>1kV) to very high voltage. The software interfaces directly with maintenance management software and GIS to optimize resources throughout the maintenance program.

Albatroz Engineering offers a complete set of solutions that share tools and interfaces. We listen to the needs of each client and design an appropriate solution for each situation, with a constant evaluation of the inspection results in order to optimize our clients' investments.

Three-dimensional reconstructin of St. Domingos church in Lisbon

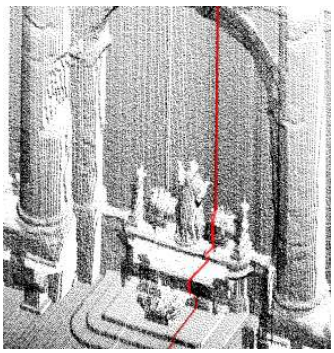
The church of St. Domingos has been an integral part of Lisbon life since the 16th century. Once part of an influential convent of dominican monks and church of the royal family, it has adapted and evolved throughout its long history. The effects of the earthquake of 1755 and the great fire of 1958 are still visible in its baroque nave whose dimensions (75 x 18 x 25 m) and serenity impress the many visitors it receives everyday.

An accurate 3D model of the church, especially the nave, is of great value for conservation efforts and architectural records. Albatroz Engineering collected data using the same equipment used for power line inspections (see images on page 1) and customized 3D reconstruction software developed in-house.

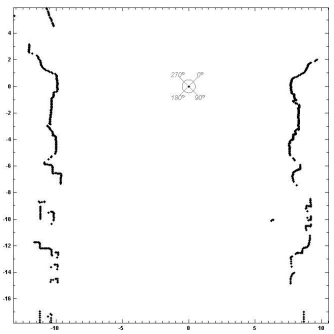
In this case, the laser sensor and camera were installed on a small, slow moving robotic platform that traverses the area of interest along a beam (see figure above).

The sensor performs circular sweeps (image on left) as the platform traverses the beam and captures details of the scene with centimeter precision.

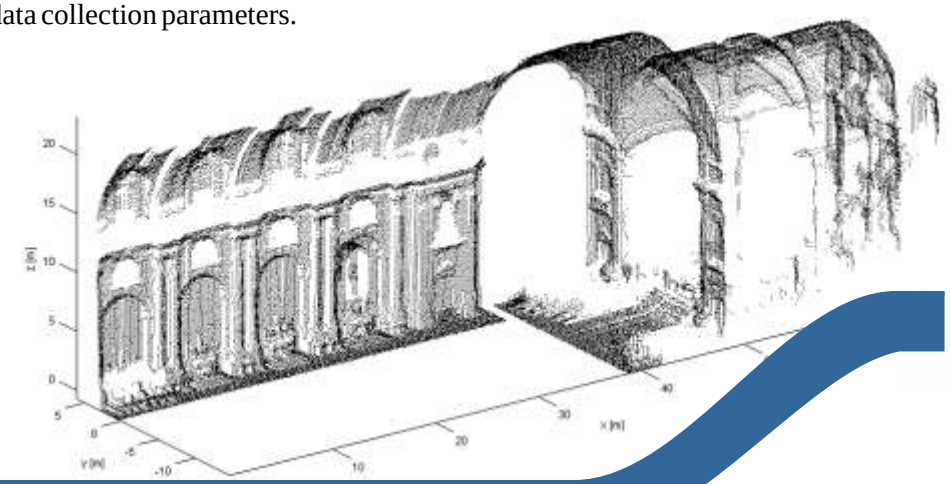
Data collection was completed in approximately 2 hours. Preliminary 3D models were viewed on-site in order to optimize the data collection parameters.



Three-dimensional models from planar sweepings



floor plant at 1m height



Visite us at TD Europe 2008

Amsterdam, 11-13 March

Albatroz Engineering will present its power line inspection solutions at Transmission and Distribution 2008 (www.td-europe.eu), stand 241, taking place at the Passenger Terminal of the Amsterdam Harbour in Holland.

At the confrence you will find power line inspection solutions for transmission and distribution, explore pertinent scenarios and encounter qualified professionals who helped to inspect over 2000 km of power lines in 2007.

The solutions presented will focus on:

Thermography to detect mechanical failures**,**

Detection of visual defects,

Ecological evaluation and registry,

3D modeling of the line track with obstacle detection in real time and

Integration with **GIS** and **maintenance management software.**

In addition, you are invited to try an operational demonstration (on a smaller scale scenario) of the real time track clearance inspection solution.