

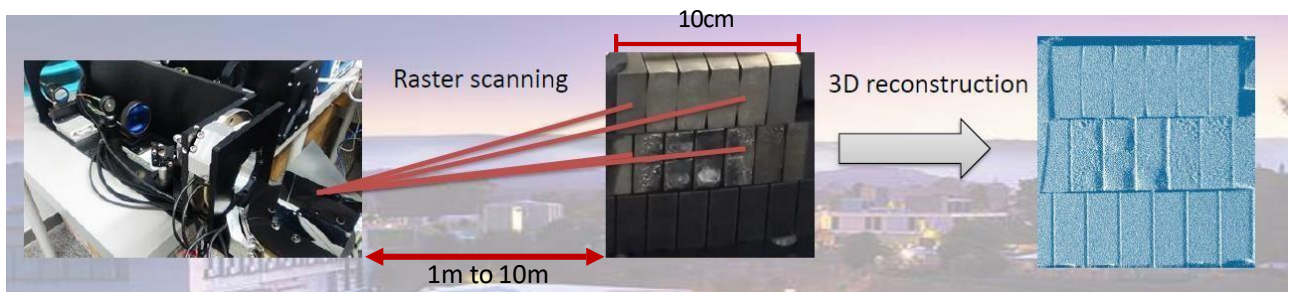


High-precision dimensional inspections

F4E and ASE Optics Europe have developed an innovative optical prototype system to scan and to 3D reconstruct high precision components at large distance with high accuracy for inspection and quality control. Applications in dimensional analysis of large-scale manufactured goods and finished products (rivet inspection) are considered.

The technology

Developed for the inspection of the ITER machine, the technology is based on a Frequency Modulated (FM) LIDAR for absolute distance measurements and amplitude modulated (AM) LIDAR for surface viewing. Its final objective is to perform 3D mapping of the elements to detect any damage or erosion of components that occurs during operations. An optical test bed with reduced dimension prototype has been built to validate these performances.



Scanning small objects at large distance with high accuracy

This solution offers the possibility to measure small objects at large distance with high accuracy through raster scan and 3D reconstruction. Current instrument's performance show a depth accuracy down to 0.006mm and a lateral resolution between 0.1mm and 1mm for a measurement range of 10m at 2000 data points per second. These requirements can be customised according to application and it is also possible to increase the compactness of the measurement head for easier integration.

High accuracy at long distance for any dimensional inspection

This viewing and metrology system could be used for any dimensional quality inspection requiring high accuracy at long distance or over large volumes. Promising new applications of the technology could be considered in the fields of Aerospace (for rivet inspection for instance), Automotive, Energy or Industry (high precision large manufactured goods or finished product dimensional quality inspection) are now considered.

Collaboration opportunities

The technology package is available for use, licensing opportunities and adaptation to new environments. ASE Optics could also offer an optical inspection service based on this new solution for those who will need a partner in their product development.

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