LASER 2000

Designing, Developing and Manufacturing

Customized Solutions

Customized Solutions by Laser 2000

Thanks to our experience in photonics in general and in machine vision in particular, we have carried out studies and customized projects for our customers in the last two years. This covers all steps from needs analysis, evaluation of different solutions based on available components, prototyping, small series production, etc.

Do not hesitate to let us know your current demands. Our engineers look forward to working with you and helping you develop your future projects.

Our core skills:

- Expertise in Photonics
- Optical measurement
- Mechanical design
- Electronic integration
- Software development

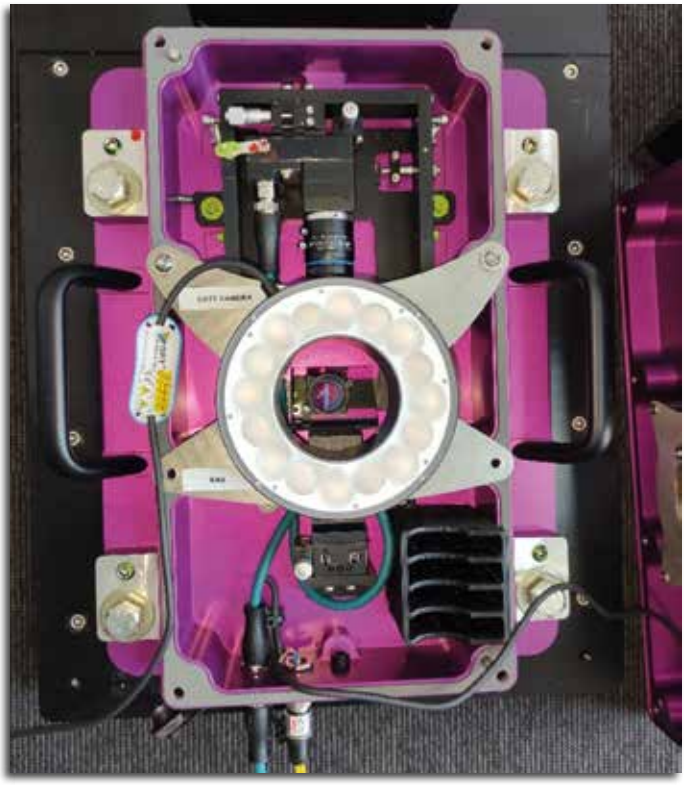
Our team can help you iteratively and agilely produce proofs of concept using off-the-shelf components, CAD and 3D printing for rapid prototyping.

"All operations went smoothly, and the tools fully fulfilled their functions. I wanted to renew my compliments on the quality of the delivered solution."

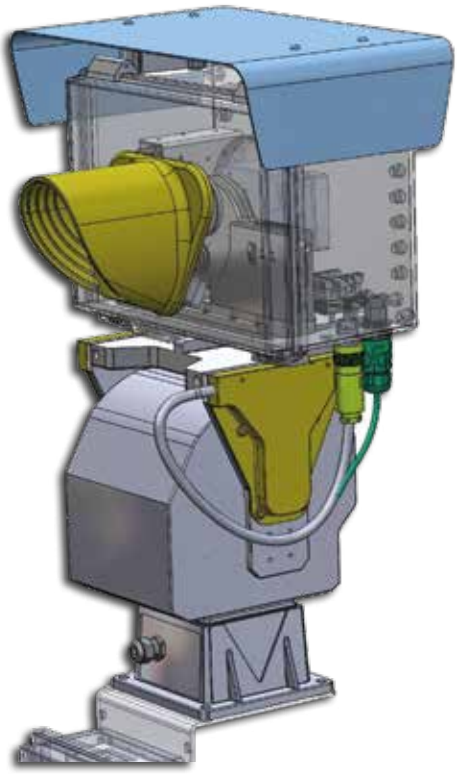
Ariane Group

„From the initial review of our requirements to the calibration of the complete system, we were very confident working with Laser 2000 on this project."

WaltR



Ariane Group



WaltR

Vision System for Ariane Group

The Ariane Group entrusted us with the development of a vision system for aligning the boosters of the Ariane 6 launcher on their pallet. The goal was to guide the operator during descent and position it precisely on the pallet. By placing two vision systems at 90° to each other on the pallet and two sights on the booster, the operator positions a 165-ton element with an accuracy of 0.1 mm. For this, we developed the mechanical interfaces, the optoelectronic system and the visualization software interface used in the operating area thanks to a customized PC embedded in a flight case.

The Challenge

The required accuracy (0.1 mm) and the large depth of field were the main challenges. In addition, the required documentation and mechanical drawings had to be very detailed, and comply with the quality assurance measures and rules set by the customer. The mechanical specifications also had to not exceed the available volume to accommodate the light, camera and lens.

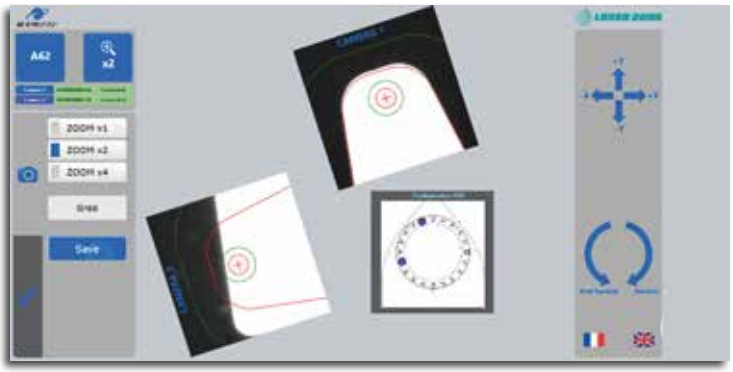
- Position accuracy 0.1 mm
- Long depth of field
- Complete documentation and drawings based on customer's demands
- Compact mechanical integration

Camera and light placed on the pallet and target on the booster

The Solution

By using a high-resolution camera and a strong light, we were able to achieve great accuracy and visualize the target of the booster from its highest position to its final position on the booster. By applying agile methods and adapting our solution to the customer feedback, we developed the ideal software tool for this project.

- High-resolution camera
- Calibration bench for alignment and 3D measurement for perfect alignment
- Customized powerful light
- Integration of a mirror and its mount to reduce the footprint



Software interface for real time visualisation.

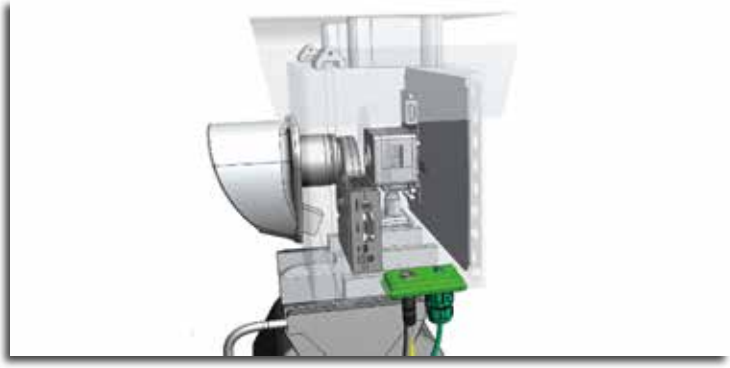
Detection and Measurement of Air Pollution for WaltR

This project was about detecting and measuring air pollutant concentrations in real time. To do this, we first conducted a study of the components available on the market to help our customer select and develop a possible solution.
Then, we performed a proof of concept to validate the selection and design the full solution.
Finally, we developed a prototype that includes all the necessary functions, from camera calibration to automatic image acquisition and remote transmission of the results.

The Challenge

The most challenging part was to integrate several components and systems together to provide the needed functionalities. Also due to the application, Air pollutant concentrations measurement based on imaging, the system needed to be be fully calibrated to transform without deviation digital values from a camera sensor to real luminance.

- Integration of camera, filter wheel, filters, pan-tilt system, rain sensor, vibration sensor and a computer
- Calibration of the camera and optical path
- Autonomous software to perform image acquisition automatically

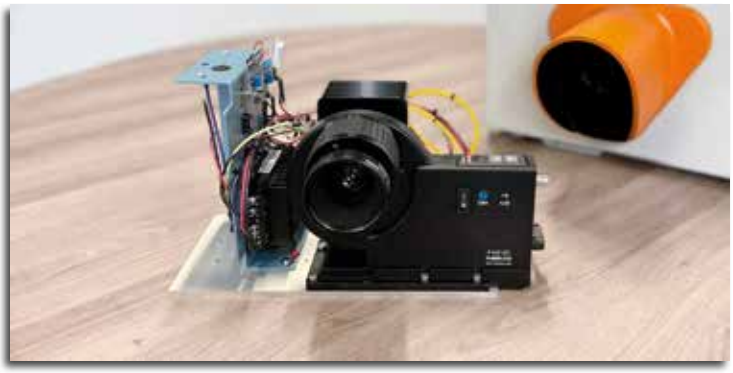


3D drawing of the system

The Solution

By identifying components available on the market and adding the required functions step by step, we designed, built and delivered a complete system within 8 months.

- Standard optical components as filter wheel, bandpass filters, and CMOS UV camera.
- Compact system, fully integrated to endure all the year weather and tough conditions.
- Low maintenance needed due to the standard pieces which have been already qualified.



Optical and electronical setup for WaltR

Special Products for Customized Solutions

Machine Vision Lasers

- Compact design
- Developed according to your specifications
- Numerous control options

Industrial LED Lights

- Customizable
- Suitable for integration
- Wide range of specifications

VIS-SWIR CQD Cameras

- High-resolution cameras
- 400 nm to 2100 nm in one camera
- Low noise

IR Cameras

- Low noise cameras
- SWIR, MWIR and LWIR cameras
- Packaged & OEM modules (easy integration)

Hyperspectral Pushbroom Cameras

- For Indoor and outdoor applications
- Software with SDK available
- High-resolution

Specific Industrial Cameras

- Wide range of cameras
- Packaged & OEM modules for 2D and 3D
- Embedded processing

Laser Safety for your Application

Comprehensive solutions from the specialists

Lasers have become indispensable in many areas of industry, medicine and research. Proper laser protection is therefore essential for the safe handling of these intensive radiation sources of different wavelengths, powers and types of radiation. According to the German occupational safety regulations OStrV and the TROS Laser Radiation, it is mandatory to take protective measures when operating lasers of class 3 R or higher in order to protect persons outside the laser area and to ensure that the limit value of laser class 1 is not exceeded there.

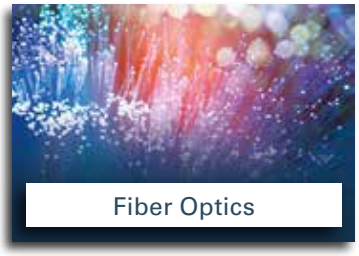
Your complete laser safety package:

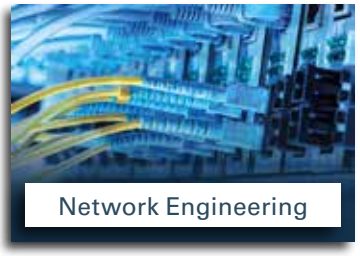
- Laser safety goggles
- Warning lights & Shutters
- Electronic room protection
- Separation of laser areas
- Laser safety cabins & enclosures
- Training courses & Software

All Photonics Products from a Single Source

Experts in Photonics

Since 1986, we have supported well over 100 international photonics manufacturers as a leading partner in covering the European market. In doing so, we are an important link between users, integrators and suppliers. Our success is based on our solution-oriented consulting, the close exchange with our partners as well as our profound product and application understanding.





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