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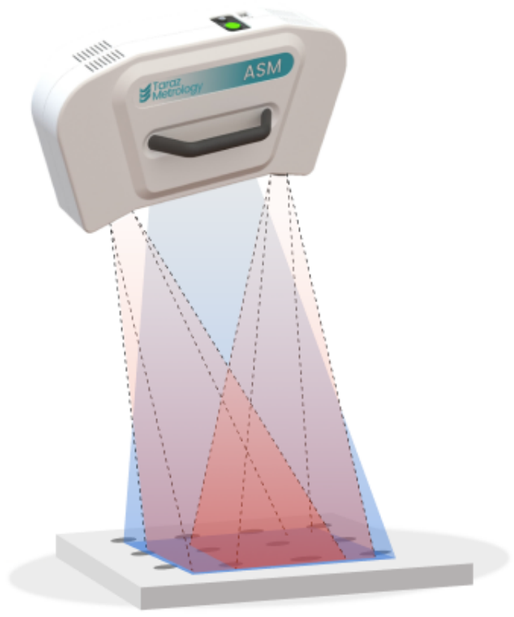
Advances in Optical Technology; The Process

Introduction

Metrology is the science of measurements. Optical metrology is a branch of metrology that focus on using light-based techniques to precisely measure various physical quantities. It encompasses a wide range of methods and technologies that utilise properties of light such as reflection, refraction, interference and diffraction to measure parameters like distance, shape and surface roughness.

Set Up

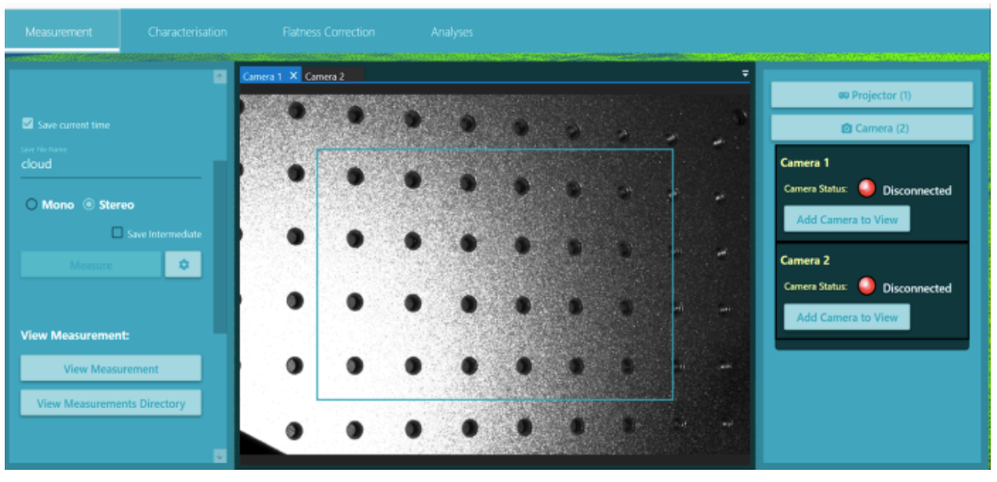
Our hardware product, notably the ASM, comes with a projector and 2 cameras. Turning on the machine will cause the projector to light up. By ensuring the measuring object to be within the projected area, the initial setup is completed. User can then see through the camera view shown in the software to make more minute adjustments.



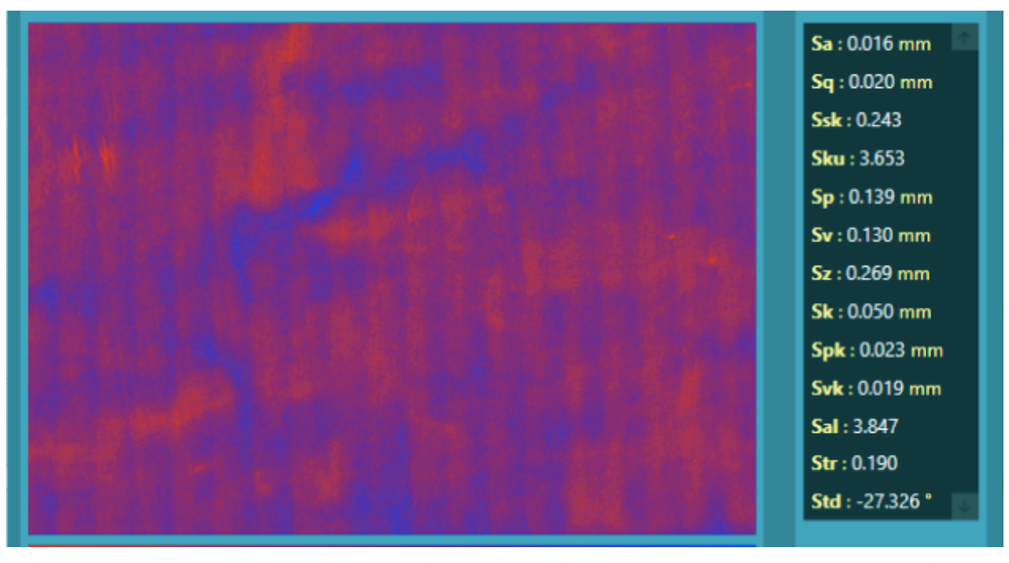
An illustration of our ASM machine and its optimal working area, where the projected area and camera viewing areas overlap

Software

Taraz has developed a metrology engine for handling complex calculations for metrology. Our UI utilises this engine to provide useful information to the user. They will be able to monitor the alignment of the measured objects and the status of the equipment. It also has easy access of the measurement files.



View from Taraz Sharp for measurement control of a metallic part

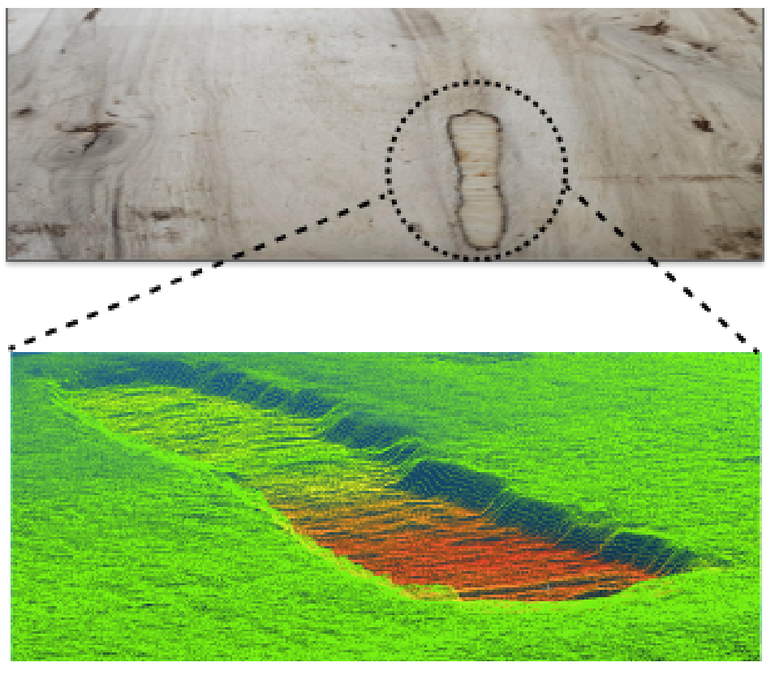


Surface measurement results of a metallic surface obtained with Taraz Sharp in accordance to ISO-25178 part 600

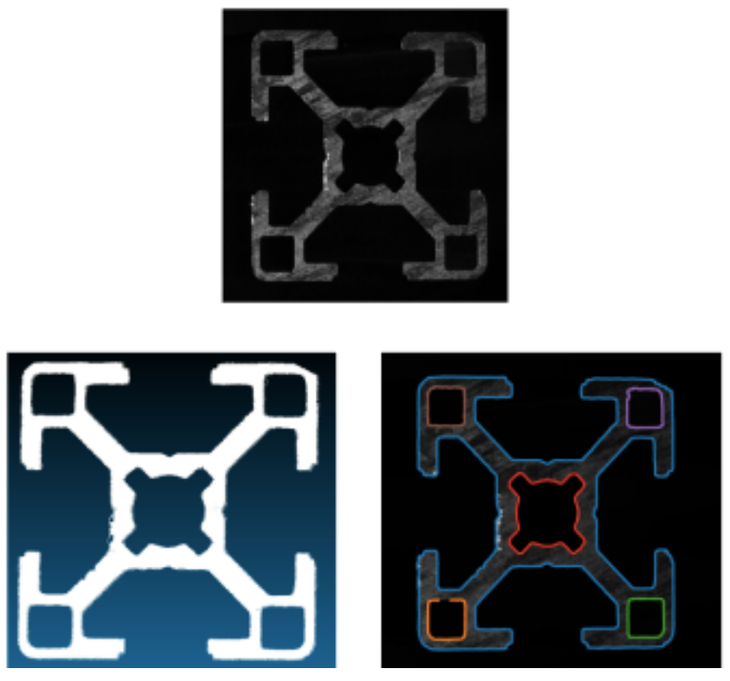
Use Case

Some notable use-cases of the ASM:

- Height maps of different materials, including but not limited to composite, metallic and ceramic surfaces
- Profiles and dimensions of aluminium extrusions cross-sections
- Measurement of holes and countersinks
- Surface defects



Measurement of defect on a wooden part



Measurement of cross section of aluminium part with enhanced edge-detection and automatic feature detection