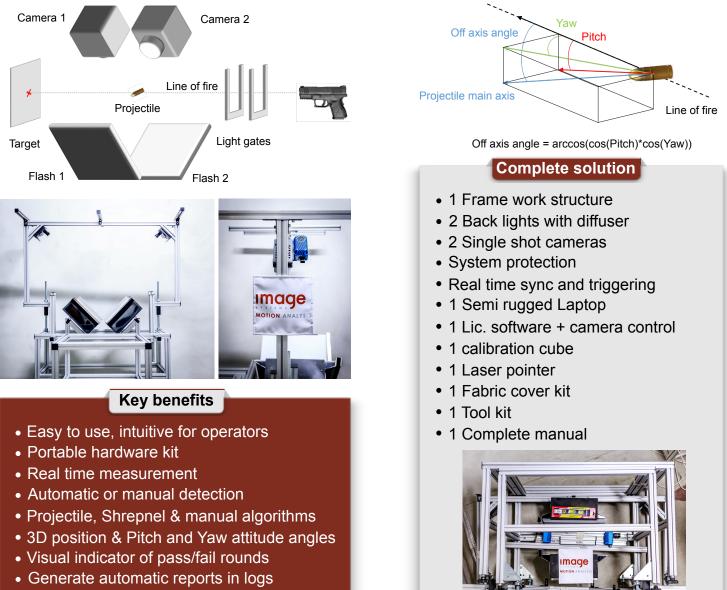


The obvious solution to projectile orientation measurement

The **Projectile Orientation Measurement** system has been specially developed to measure in **real time** the **3D position and orientation** (offsets yaw and pitch relative to the line of fire) of a projectile in flight approaching a target and right before the impact. The system in accordance with **STANAG 2920 and 4569** consists of two calibrated cameras, opposed by light sources, and placed at right angles in a measuring construction of approximately 1m*1m. The cameras and light flashes are triggered by light gates to simultaneously create and capture one shadow image for each view of the approaching bullet.



• Compatible with all major HS cameras

POM SYSTEM

| Input Data | | | | | | | | | |
|---|--------------------|-------------------|-------|----------------------|---|---|---|-----------------------------------|------------------------|
| Test Identification: Demons | tration in 5,7 001 | | | | | | | | |
| Fitle: POM | | | | | Camera Parameters - Left cam | | | | |
| Test Manager. Thomas | | | | | Focal Length | 130.00 | mm | • | x = 2000 |
| User: TE | | | | | Pixelsize | 10.000 | μm | • | y = 2000 |
| Date: 06/12/20 | 16 | | | | | | | | |
| Fest Coordinate System: | X (m) | Y (m) | Z (m) | Observations | Image Size: 4 | 008 * 2672 pi | xels | | |
| Calibration Survey Point (B1 |): 19.5 | 0.02 | 0.03 | cube 1 | Absol | Absolute Orientation - Left cam | | | |
| Target 20 | | 0.04 | 0.05 | target | Camera Position Camera Orientation | | | | |
| est data location | | | | | v - | | Pit | ch = | |
| | | | | as | z = | RMS Re | Ya sidual = | w = | |
| Farget File | | | | | | RMS Re | sidual = | w = | |
| arget File | | ESYSTEMS/Desktop/ | | as/POM_CALIBRATION/c | z = | RMS Re | sidual = | w = | - Optical Ce |
| arget File | | | | | | RMS Re meters - Rigt | sidual = | w = | Optical Ce x = 2000 |
| arget File C: | | ESYSTEMS/Desktop/ | | as/POM_CALIBRATION/c | Camera Para | RMS Re meters - Rigt | sidual = ht cam | | |
| arget File C. xport server > address | | ESYSTEMS/Desktop/ | | as/POM_CALIBRATION/c | Camera Para Focal Length Pixelsize | RMS Re meters - Rigt 130.00 10.000 | sidual = ht cam mm µm | • | x= 2000 |
| arget File C. xport server 2 address tefault unit ength Unit m | | ESYSTEMS/Desktop/ | | as/POM_CALIBRATION/c | - Camera Para Focal Length | RMS Re meters - Rigt 130.00 10.000 | sidual = ht cam mm µm | • | x= 2000 |
| farget File C: Export server P address Default unit ength Unit m Jnit precision | | ESYSTEMS/Desktop/ | | as/POM_CALIBRATION/c | Camera Para Focal Length Pixelsize Image Size: 4 Absoli | RMS Re meters - Rigt 130.00 10.000 008 * 2672 pi ute Orientatio | sidual = ht cam mm μm xels | • • | x = 2000 y = 2000 |
| arget File C. xport server | | ESYSTEMS/Desktop/ | | ss/POM_CALIBRATION/c | Camera Para Focal Length Pixelsize Image Size: 4 Absoli | RMS Re meters - Rigl 130.00 10.000 008 * 2672 pi ute Orientatio mera Position | sidual = ht cam mm µm xels n - Right ca n _ Ca | Im Imera Ori | x = 2000 y = 2000 |
| rarget File C. | | ESYSTEMS/Desktop/ | | as/POM_CALIBRATIONC | Camera Para Focal Length Pixelsize Image Size: 4 Absoli | RMS Re meters - Righ 130.00 10.000 008 * 2672 pi ute Orientation mera Position | sidual = ht cam mm µm xels n - Right ca Ro Ro | • • | x = 2000 y = 2000 |
| arget File C: xxpot server a ddress C befault unit engft Unit [m hit precision hisplay coordinates with 3 bisplay angles with 3 scuracy | | ESYSTEMS/Desktop/ | | decimals | Camera Para Focal Length Pixelsize Image Size: 4 Absolt Cai X - | RMS Re meters - Rigl 130.00 10.000 008 * 2672 pic ute Orientatio mera Position | sidual = ht cam mm µm xels n - Right ca Rc Pit | Im Imera Orio | x = 2000 y = 2000 |
| Export server - P address Default unit | | ESYSTEMS/Desktop/ | | as/POM_CALIBRATIONC | Camera Para Focal Length Pixelsize Image Size: 4 Car y - | RMS Re meters - Righ 130.00 10.000 008 * 2672 pt ute Orientatio mera Position | sidual = ht cam mm µm xels n - Right ca Rc Pit | im imera Orio III = ch = | y = 2000 |

POM Preferences

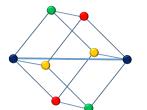
The preferences window allows the operator to enter all information related to the test description.

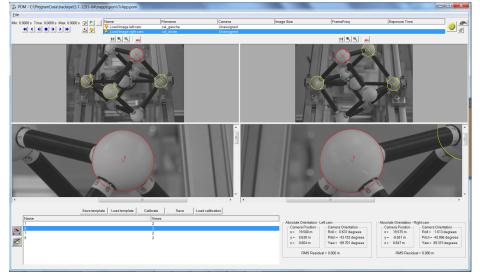
Calibration files and export directory paths can be specified for various projects.

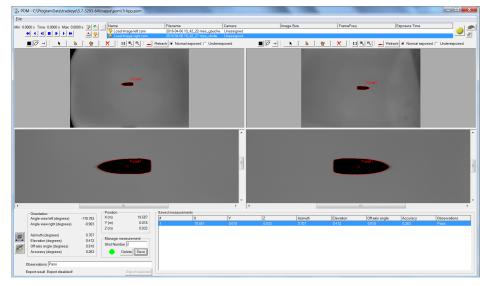
Accuracy and unit precisions which define what is a successful/fail test are entered here and will be directly implemented in the header of the end result report.

POM Calibration

Images of a calibrated cube are used to get the 3D position and orientation of the cameras. All points of the current target model are shown in the point list and the circle tracker is activated when placing points on the image or zoomed view. At least 4 points need to be placed and locked by the circle tracker to ensure a successful calibration.







POM Measurement

Measurement images can be downloaded directly from the cameras, a server or from a directory specified in the preferences. The outline of the projectile is automatically detected in both left and right images.

Measurement data is calculated and displayed for the considered round and accuracy and off axis angles are compared to the threshold values entered by the user in preferences. A green or red light indicates if the results meet the specified requirements.

Comments to a test can be added in the observation field and before appending the measurement to the report in the form of a log file.

Know more



