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Fraunhofer Institute for Applied Optics and Precision Engineering IOF

goCRASH3D

Robust and compact high-speed 3D sensor

Onboard sensor for shape measurement in dynamic situations

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Cover: 3D sensor goCRASH3D

Top: goCRASH3D onboard a crash car measuring the impact of a crash test dummy on the airbag

Applications

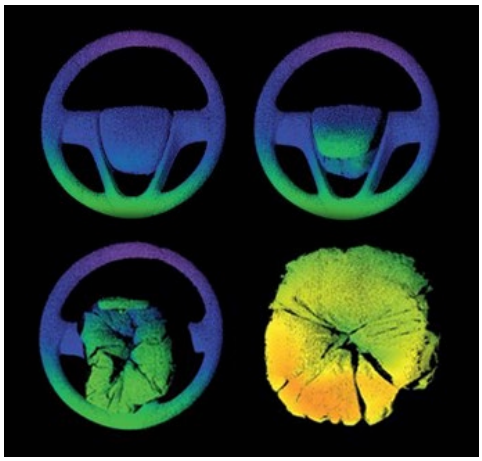
- Onboard deformation analyses, e. g., crash tests
- In-line 3D shape control and defect detection

Measuring principle

- Triangulation-based 3D measurement system with active illumination
- Stereo vision-based image acquisition using high-speed cameras
- High-speed projection of aperiodic fringe patterns

System parametrers

- 3D frame rate: up to 12 kHz (depends on camera type)
- Illuminance: up to 15 klx
- Measurement field: 0.7 × 0.7 m² (customizable)
- Measurement distance: 1.0 m (customizable)
- Number of 3D points: up to 512 × 512 per 3D frame (depends on camera type)
- Sensor size: 330 × 170 × 160 mm³
- Software interface for machine integration



3D measurement of an airbag explosion

Features

- Onboard measurement of high-dynamic crash scenes
- Time-resolved shape analysis
- Illuminance up to 15 klx, depending on LED type
- Different LEDs mountable depending on application
- Mechanic stabilized high-speed fringe projection system
- Robust setup, suited for accelerations of up to 60*g*
- Small form factor allows integration in narrow spaces
- Eye-safe due to incoherent projection
- Adaptable to different field of views

Contact

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