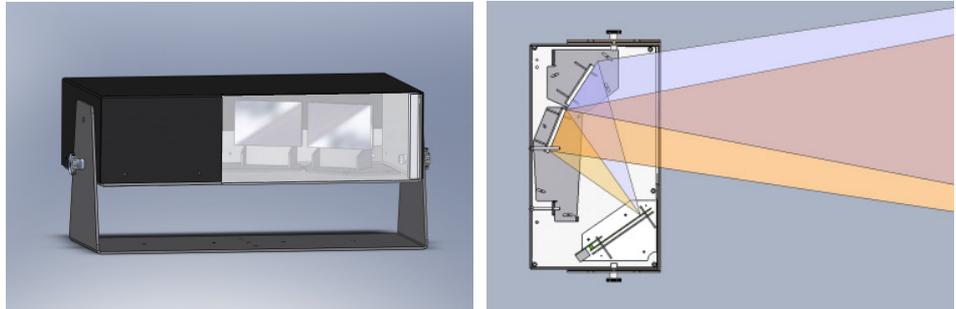




Single-chip 3D camera



The INSENSIV single-chip 3D camera is a stereo camera using only one camera sensor. The specially-designed mirror technique splits the image such that two virtual cameras are projected onto the left respectively right half of the sensor.

Through the mirror optics the virtual cameras are aligned in such a way, that their fields of view overlap in the main working distance. This maximises the information needed by the stereo analysis.

The main advantage of this system is the fact, that only one sensor / camera is required. This reduces differences in brightness as they might occur with two separate camera sensors. Furthermore no communication between separate cameras is necessary to acquire the stereo image and so the 3D analysis can begin just after the image has been grabbed. Through the mirror system no camera synchronisation is necessary when moving objects shall be analysed.

Due to the usage of an embedded camera having a powerful processor, the 3D analysis can be performed by the camera itself and no additional PC is required. Only the essential 3D data will be send to the superordinate controller via Ethernet or RS232. This makes it possible to build cost-effective 3D systems for online 3D analysis.

Application areas are – among others – automatically guiding systems for agricultural vehicles as well as the measurement of persons or objects. Here for example a height resolution of about 7 cm in a distance of 3.5 m can be achieved, when a 5 MPx camera sensor is used.

In general the INSENSIV single-chip 3D camera is scalable and by specifically selecting the required camera and optics, the single-chip 3D camera can be used in many application areas.

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