Title: Concept and applications of 3D-TOF cameras

Abstract:

In manufacturing-automated quality control, identification, navigation and danger space monitoring the fast and contactless 3D-shape measurement possess a key function. In the first part of the presentation different contactless shape measurement methods are compared and the pros and cons are discussed. Subsequently, the Time-Of-Flight (TOF) range measurement method using PMD-Technology is described. The influence of single noise sources on the SNR and the range resolution is derived and a way of calculating the optical power of the desired illumination source is shown. At the end of the seminar industrial application examples are presented.

Biography:

Stephan Hussmann received his ME and PhD from the School of Electrical Engineering and Information Technology at the University of Siegen in Germany in 1995, and 2000, respectively. He worked as a Research Associate at the Center for Sensor Systems (ZESS) in real-time signal processing, 3D object recognition, and multisensor systems. From 2001 to 2003, he worked as a Lecturer in the Department of Electrical and Computer Engineering in the area of computer Systems Engineering (CSE) at the University of Auckland in New Zealand. In 2004 he worked for the company PMDTec GmbH as a project leader responsible for the embedded system design for innovative 3D-cameras. Besides he was lecturing in the International Postgraduate Programme (IPP) at the Center for Sensor Systems (ZESS) in the area of embedded control and multi-sensor systems. Since the end of 2004, Stephan Hußmann has been a full time professor at the University of Applied Sciences Westküste (FHW) in the area of microprocessor technology and electronic systems. He is a co-founder and shareholder of the Institute of Applied Technologies and Engineering Services (ITD GmbH).

His research interests include wireless optical sensors for the industrial environment, low-cost multi-sensor system design, real-time image processing, embedded systems design, and engineering education. He has consulted widely with industry and published over 40 refereed journal and conference papers in these research areas.