Obstacle Detection and Object Size Measurement for Autonomous Mobile Robot using Sensor

Abstract

Different types of sensors are often fused to acquire information which cannot be acquired by a single sensor. Sensor fusion is particularly applicable for mobile robots for object detection and navigation. The techniques that have been developed so far for detecting an obstacle are costly. Hence, a new technique is proposed which can detect an obstacle, judge its distance and measure the size of the obstacle using one camera and one ultrasonic sensor. The technique is cheap in terms of sensor cost and in terms of computational cost.
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- Tsai-Hong Hong, Steven Legowik, and Marilyn Nashman, "Obstacle Detection and Mapping System," Intelligent Systems Division, National Institute of Standards and Technology (NIST).
- G. Benet, F. Blanes, J. E. Simó, P. Pérez, "Using infrared sensors for distance measurement in mobile robots," Departamento de Informática de Sistemas, Computadores y Automática, Universidad Politécnica de Valencia, P. O. Box 22012, 46080 Valencia, Spain Received 9 August 2001; received in revised form 27 March 2002 Communicated by F. C. A. Groen.
- Shunguang Wu, Member, IEEE, Stephen Decker, Member, IEEE, Peng Chang, Member, IEEE, Theodore Camus, Senior Member, IEEE, and Jayan Eledath, Member, IEEE, "Collision Sensing by Stereo Vision and Radar Sensor Fusion," IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS, VOL. 10, NO. 4, DECEMBER 2009.
- Parallax, Inc. • PING)))TM Ultrasonic Distance Sensor (#28015) • v1. 3 6/13/200.

Index Terms
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**Keywords**

- Sensor fusion
- autonomous mobile robot
- obstacle detection
- navigation