Abstract

Obstacle detection is a main key of autonomous vehicles. When communicating with huge robots in unstructured background, resilient obstacle detection is required. Few of the existing methods are mainly suited for the backgrounds in which the ground is comparatively flat and with roughly the same color throughout the terrain. A novel procedure proposed in the work presented here uses a monocular camera, for real-time performance. We compute the
homography between two successive frames by computing the fundamental matrix between the two frames. Estimation of fundamental matrix is followed by triangulation so as to estimate the distance of the object from the camera. An obstacle detection and distance estimation system based on visual particular attribute and stereo vision is hence discussed in the presented work.

References

- M. Veloso, E. Winner, S. Lenser, J. Bruce, and T. Balch, "Vision-Servoed Localization and Behaviors for an Autonomous Quadruped Legged Robot"; Artificial Intelligence Planning Systems, 2000
- Long CHEN, Bao-long GUO, Wei SUN, "Obstacle detection system for visually impaired people based on stereo vision"; Fourth International Conference on Genetic and Evolutionary Computing 2010.

Index Terms

Computer Science

Image Processing
Keywords
Image Segmentation  Centroid  Thresholding  Fundamental Matrix  Triangulation.