Abstract

Reliable classification of the 3D driving environment is critical for obstacle detection applications. An efficient obstacle detection algorithm using stereovision, and based on U-V-disparity maps analysis is presented in this paper. Obstacles detection through U-V-disparity is based on the calculation of the disparity map generated from a stereo matching step. Our algorithm is based on novel horizontal and vertical obstacles alignment's extraction with road plane estimation. U-V-disparity enables to classify 3D road scenes into free regions and non transversal areas or simply obstacles. Validation results demonstrate the efficiency, and the robustness of the proposed algorithm in different environments (indoors and outdoors), weather conditions and light illuminations (day or night)