Thesis Title	A Method to Define and Avoid Obstacles for Blind People
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Abstract

To help the blind people navigate, it is necessary to know the position and size of the obstacles in front of the blind people, especially very close obstacles (those not exceeding ten meters distance). This thesis proposes a method to define and avoid obstacles for blind people. The method defines the outlines of an obstacle by using stereo vision where two cameras are installed in front of the blind people. The differences in an object on the left and right images will determine whether the object is an obstacle (that is, it has height or depth). Close obstacles will be determined by blurring backgrounds of the two images. Blurring is performed by dividing the left and right images into small blocks. The size of small blocks are obtained by the range in which blind people may need to know the existence of an obstacle. Next, the average value of the brightness is calculated in each block. Then the same blocks on the left and right views are compared with each other. If they are similar, it means that the obstacle is located beyond the used range . Otherwise it reveals that the obstacle exists within the range. In the experiments carried out indoors which obstacles were located at five and seven meters, the results revealed that the obstacles were extracted correctly, and the backgrounds were separated.

Keywords : Define Obstacle / Small block / Blurring / Average Brightness Value