

# Computer vision-aided walking assist system for blind persons

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## ABSTRACT

"Vision" for the most rely on human perception of moving organs, can help people determine the road conditions ahead, such as whether there are obstacles, moving objects close to the object distance, and so on. Visually impaired may be congenital or acquired loss of people that rely on "visual", Can not accurately determine the road conditions, which led to road safety. Visually impaired to use the traditional white cane, guide dogs and other assistive devices, and can get very limited information, and the latter training is costly. Therefore, this study expected to computer vision technology to simulate human judgments and reaction behavior, to help the visually impaired to reduce barriers between the road. In this study, on the road in front of the object is divided into two major categories of mobile and fixed obstacles were handled in different ways to detect and determine the barrier properties, and calculate the position and distance of obstacles, to provide the visually impaired to avoid the march route, and to provide the voice of warning to the visually impaired, in order to avoid obstacles and assist the visually impaired and other safe walking alone in the target. Way to simulate shooting situations the user in front of the road conditions were simulated in order to avoid the eyes and eye cover walking, then set the camera hanging around his waist, shooting a total of 90 segment analog display, and then use the experimental system to make judgments on the simulation film. For the front of the object can be judged 92% of the barrier position.

Keywords : computer vision、 obstacle detection、 obstacle avoidance、 distance measurement

## Table of Contents

中文摘要 . . . . .	iii	英文摘要 . . . . .	
. iv 致謝辭 . . . . .		. v 內容目錄 . . . . .	
. . vi 表目錄 . . . . .		. xi 圖目錄 . . . . .	
. . . . . x 第一章 緒論 . . . . .		. 1 第一節 研究背景與動機 . . . . .	
. . . . . 1 第二節 研究目的 . . . . .		. 3 第三節 系統流程 . . . . .	
. . . . . 3 第四節 研究範圍與限制 . . . . .		. 6 第五節 論文架構 . . . . .	
. . . . . 6 第二章 文獻探討 . . . . .		. 7 第一節 移動物體位置偵測 . . . . .	
. . . . . 7 第二節 物體追蹤 . . . . .		. 10 第三節 物體測距 . . . . .	
. . . . . 12 第三章 移動障礙物偵測與判定 . . . . .		. 16 第一節 物體偵測 . . . . .	
. . . . . 18 第二節 移動物體偵測 . . . . .		. 20 第三節 移動物體軌跡判定 . . . . .	
. . . . . 24 第四節 移動障礙物特性判定 . . . . .		. 26 第四章 固定障礙物判定 . . . . .	
與測距 . . . . . 29 第一節 固定物體區塊判定 . . . . .		. 30 第二節 固定障礙物 . . . . .	
距離與位置特性判定 . . . . . 33 第五章 障礙資訊理解與警示 . . . . .		. 36 第一節 障礙物 . . . . .	
資訊 . . . . . 36 第二節 障礙物警示 . . . . .		. 38 第六章 實 . . . . .	
驗結果與討論 . . . . . 39 第一節 實驗結果 . . . . .		. 39 第二 . . . . .	
節 討論 . . . . . 48 第七章 結論 . . . . .		. 50 . . . . .	
參考文獻 . . . . .	52		

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