車牌追蹤與辨識之準確度提升

石乃碩、曾逸鴻

E-mail: 360554@mail.dyu.edu.tw

摘 要

隨著經濟活動的蓬勃發展，交通建設日趨完善，使得國民擁有的車輛數目大幅提升，衍生出的交通管理問題也相對增加。以往的車牌追蹤以及辨識，必須以人工方式在眾多的視訊影像中找尋目標，不僅費時也相當費力，因此本研究藉由模擬人腦智能之方式，透過連續的視訊影像畫面分析自動對目標車牌進行定位追蹤與辨識，以提升整體辨識效果。 本研究透過連續的視訊畫面對車牌進行追蹤辨識，由於採用固定式攝影機，因此在前景物體偵測方面使用背景相減法來偵測出前景物體，再透過Sobel邊緣點偵測以及霍夫直線轉換定位出車牌位置，在完成車牌定位之後對車牌進行特徵抽取，在車牌追蹤部分，以一開始定位之車牌位置為中心向外擴大範圍，搜索車牌在下一張影像中的位置，同時找出車牌移動之方向，其後追蹤便以該方向定義為追蹤範圍的依據，提升車牌追蹤準確率。在辨識的過程中，本研究加入了特定字集的辨識核心以及特定字串的檢索機制，透過特定字集的辨識核心技術，能夠有效的減少辨識的時間，並且提升辨識準確度；而特定字串的車牌檢索機制，則是用於找尋特定車牌的快速搜尋方法，利用此兩種方法來有效的提升整體辨識效率。實驗結果在導入特定字集辨識核心之後，其辨識準確率能夠達到96.4%，而時間的花費上也能夠節省達26%，證明本研究所提方法能確實提升辨識準確度且能夠減少辨識時所花費之時間。

關鍵詞 : 視訊監控系統、特定字集、特定字串、車牌追蹤與辨識

目錄

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