SoPC為主題之馬達控制器研製-使用新型最佳化輸出回授可變結構控制理論

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摘 要

可程式系統晶片(SoPC)為基礎之可變結構控制器(VSC)將在本 論文中實現，其應用在馬達的控制上有相當良好的性能。除此之 外，針對可變結構系統，我們提出一個最佳切換平面的設計方法。 不但可以將切換平面做最佳化，而且可以保證系統在順滑模式下為 漸進穩定並且有良好的性能。一個改良式的輸出回授可變結構控制 器可確保順滑模式的建立，系統的狀態不必全部取得也不需估測系 統狀態。 我們使用複雜型可程式邏輯元件(CPLD)來建立可程式系統晶 片並實現可變結構系統(VSS)控制器。由於CPLD 的技術發展的相當 成熟且非常容易取得，所以我們將可變結構控制器數位化，並且將 它建立在ALTERA CPLD 實驗平台上。所有的週邊電路及控制器都整 合成為一個新的可程式系統晶片，可縮短電路的製作時間並且可達 成快速雛型化的目標。 可變結構控制器將由我們所設計的可程式系統晶片來實現，並 且應用在馬達的控制上。如此一來控制器將擁有良好的性能及低價 的優點還可以減少系統的複雜度。

關鍵詞 : 可程式系統晶片，可變結構控制，最佳切換平面，可變結構系統，複雜型可程式邏輯元件

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