Development of hub motor drive and on-road verification for PGO electrical scooters

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ABSTRACT

In recent years, as the environmental protection cost has risen and global warming, it is important to slow down the environment from pollution. How to cherish the earth has become the main topic of discussions. In Taiwan, motorcycle density is among the top countries in the world, environmental pollution results in serious. For that reason, it has low pollution, low noise and energy saving of the green transportation-electrical scooters becoming the rising stars. This study used a PGO's electrical scooter, named E-BUBU, as the main test vehicle. The electrical scooter is configured with two hub motors. Electric control system used by digital signal processor (DSP) as a control core. The hardware circuit units including the isolation circuit, the driver circuit, the power module and the protection circuit. By using development and integration of software and hardware, a hub motor drive is developed successfully in the thesis. After the drive design to complete, an electrical scooter platform testing and on-road verification is also established. On-road verification includes flat-road testing and slope testing. According to the results, it shown this study developed hub motor drive can really meet the electrical scooter's riding demand.

Keywords: electrical scooter、hub motor、digital signal processor (DSP)、on-road verification

Table of Contents

第一章 締論

1.1 研究動機與背景

1.2 文獻回顧與研究方法

1.3 內容大綱

第二章 無刷直流馬達數學模型與控制理論

2.1 無刷直流馬達簡介

2.2 無刷直流馬達數學模型

2.3 無刷直流馬達控制理論

2.3.1 矩形波驅動

2.4 六步方波控制策略之實現

第三章 輪轂馬達驅動系統硬體電路架構

3.1 隔離電路

3.2 閘極驅動電路

3.3 功率模組電路

3.3.1 功率電晶體的選擇

3.4 保護電路與週邊處理電路

第四章 基於TI DSP 320LF2407A系統軟體架構

4.1 TI DSP 320LF2407A 介紹

4.2 一般功能I/O介紹

4.3 中斷介紹

4.4.1 一般功能(GP)計時器

4.4.2 比較單元

4.4.3 脈波寬度調變

4.5 類比/數位轉換器(ADC)介紹

4.6 基於DSP 2407A之驅動器控制系統實現

4.6.1 啟動開關以及馬達運轉異常指示燈

4.6.2 馬達位置偵測

4.6.3 脈波寬度調變(PWM)的使用

4.6.4 類比/數位轉換器(ADC)的應用

4.7 馬達驅動器控制系統程式流程圖

第五章 實測結果

5.1 電動機車動力平台測試

5.2 實車道路測試

第六章 結論與未來展望

第2章 文獻摘選

REFERENCES


