

應用控制器區域網路實現之主動式噪音控制系統

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摘要

本論文主要是描述一種利用控制器區域網路 (Controller Area Network Bus, CAN bus) 為基礎的集中控制系統 (Concentrate control system), 以發展一具有強健性和維護性高的分散式控制架構 (distributive control structure), 並以此系統實現主動式噪音控制。本研究重點分為兩個部分, 第一部份為控制者區域網路系統的發展, 這個部分包含點火訊號電路的設計與實際車輛網路的實現。第二部分是運用控制器區域網路實現之主動式噪音控制 (active noise control, ANC) 系統, 在這個部分當中將主動式噪音控制建構於控制器區域網路平台上, 並且使用三種不同適應性控制法則來實現引擎排氣系統之主動式噪音控制以消除引擎排氣系統之週期性噪音。控制器區域網路技術結合適應性控制演算法, 此演算法是利用有限脈衝響應濾波器來實現, 並以數位訊號處理器 (digital signal processor, DSP) 來實現即時控制。

關鍵詞: 控制器區域網路, 主動式噪音控制, 引擎排氣系統。

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