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非接觸式供電系統關鍵技術之開發---總計畫

Key Technologies Development for Contactless Power Supply System

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摘要

本整合型計畫共包含 6 個子計畫擬以 2 年的時間發展一非接觸式供電暨馬達驅動系統之關鍵技術，計有非接觸式高頻供電迴路監控暨飛輪式電壓補償關鍵技術（子計畫 1）、電壓驟降監控及補償系統關鍵技術（子計畫 2）、非接觸式高頻交流電源供應轉換關鍵技術（子計畫 3）、非接觸式供電系統之不斷電關鍵技術（子計畫 4）、非接觸式馬達驅動與伺服控制關鍵技術（子計畫 5）、非接觸式電能拾取及電池充電關鍵技術（子計畫 6）。其中電壓驟降監控及補償系統關鍵技術（子計畫 2）、非接觸式高頻交流電源供應轉換關鍵技術（子計畫 3）、非接觸式供電系統之不斷電關鍵技術（子計畫 4）構成一兼具不斷電功能與高可靠度之非接觸式高頻弦波電源供應系統，而非接觸式馬達驅動與伺服控制關鍵技術（子計畫 5）與非接觸式電能拾取及電池充電關鍵技術（子計畫 6）可建立非接觸式自動倉儲系統與無人搬運車之關鍵技術。最後，非接觸式高頻供電迴路監控暨飛輪式電壓補償關鍵技術開發（子計畫 1）可確保整體非接觸式供電暨馬達驅動系統

的電力品質。預期本整合型計畫可成供開發一 3KW 之非接觸式供電系統。

Abstract

This 2-year integration research will investigate the contactless power supply system. There are six subprojects in this integration research: Subproject 1: Monitoring and Flywheel Voltage Compensating System for Contactless High-Frequency Power Transmission, Subproject 2: Key Technology Development and Implementation of Voltage Sag Monitoring System and Compensation System, Subproject 3: high efficiency, high frequency AC/DC converter techniques, Subproject 4: The Development of Key Technique of Uninterrupted Power Source for Contactless Power Systems, Subproject 5: Contactless Motor-Driven and Servo Control Techniques, Subproject 6: Contactless Electric Power Pick-Up and Battery Charging Techniques. Subprojects 2, 3, and 4 construct an uninterrupted and high reliability high frequency sinusoidal power supply system. Subprojects 5 and 6 construct a contactless automatic storage with unmanned vehicle technique. Subproject 1 is responsible for monitoring the power quality of the entire contactless power supply system. The objective of the integration research is to develop a 3KW contactless power supply system.