國立臺灣大學技術行銷表

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產品/技術名稱	可側向傾斜之雙輪移動平台
發明人/單位	林沛群、鄭智中 國立台灣大學 機械工程學研究所
產品/技術說明	本平台係一左右配置雙輪的移動平台，藉由對雙輪進行獨立的驅動，使平台可進行前後左右與原地迴轉等三個自由度的全向性運動，具有高度的靈巧性。同時，並加入側向傾斜的機構，使平台在過彎時可改變重心的位置，保持系統的穩定性，進而達到平台可高速運動與過彎的目地。
應用範圍	輕型載具的發展在台灣逐漸盛行，同時，也由於電子與控制技術的進步使 X-by-wire 的概念也漸漸在載具中成形。本平台結合以上兩種概念，發展以電控方式操作的雙輪可高速移動的平台，未來可應用於雙輪輕型載具或是移動機器人上。
產品/技術優勢	將本體側傾為載具在運動時保持穩定性一個有效的方法，在一般前後排列雙輪的載具上是倚賴人的操控來達到側傾的功能，而市面上所見三或四輪的載具，部分也具有本體可側傾的設計，使載具可更穩定的高速過彎，但不論二輪、三輪或四輪，目前輪的排列架構使載具在移動上並未具有機動性(如不可往側向方向移動等)。左右側排雙輪的載具為近幾年來發展的一個新方法，具有在任意點往任意方向前進的機動性與靈巧性，但礙於平衡技術，這類載具目前均為低速行駛。 本技術建構一可側向傾斜之雙輪移動平台，藉由雙輪的配置和側傾的機構，使載具同時具有靈巧性與高速性。平台的側傾方式有別於傳統的被動方式(由人體本身的傾斜來控制)，而採用電控(steer-by-wire)的概念，除了減輕了機構所造成的重量，也於未來發展上更具競爭力。
市場潛力	輕型載具的概念和自主移動機器人在這幾年逐漸受到重視，相信具高度靈活性可高速移動的雙輪平台會成為發展的方向之一。
產品/技術 智財權保護方式	專利申請中
圖片 (已公開之成果可提供圖片)	尚未公開

Marketing Abstract of NTU's Invention Disclosure

NTU's docket no:_____(由產學合作中心填寫)

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Title	Tiltable 2-wheeled mobile platform
Inventor (s)	Pei-Chun Lin, Chih-Chung Cheng Department of Mechanical Engineering, National Taiwan University
Brief Description	A tiltable 2-wheeled mobile platform is reported in this patent. Two wheels are mounted on right and left sides of the platform; thus, an omni-directional locomotion is achievable. In addition, a body tilting mechanism which is capable of shifting center of the body mass is mounted, so high speed maneuver is realizable for this platform without facing any stability issue.
Fields of Application	The X-by-wire-based development of this platform has potential applications in the market of personal light electric vehicles or wheeled mobile robots.
Advantages	The smaller personal vehicle becomes more and more prevalent recently. In this application domain, how to balance maneuverability and mobility is of great concern. Vehicles in the markets can move fast, but they can't maneuver smoothly in small area due to constraints on the arrangement of wheels. Recently-invent 2-wheel balancing platform provides maneuverability; however, the motion is slow due to inefficient balancing technique and the instability nature of the platform itself. The tiltable 2-wheeled mobile platform reported in this patent maintains high-speed mobility but yet with excellent maneuverability based on the mechanical structure of side-by-side two wheels as well as the body tilting mechanism. The X-by-wire-based control infrastructure not only provides overall controllability of the platform but also matches the main trends of the vehicle industries.
Market Potential	Personal light electric vehicles and wheeled mobile robots
IP Right(s)	
Picture	