

附件四、技術說明表



六軸力回饋裝置

提案人： 陳湘鳳 教授

單位： 國立臺灣大學 機械工程學系

簡歷：

http://www.me.ntu.edu.tw/main.php?mod=adv_custom_page&func=show_page&site_id=0&page_id=169

市場及需求：

隨著醫療技術的進步，對於插管技術的需求日益增加。成功的插管操作依賴於醫生對力度回饋和觸感的敏銳感知，這對於精確的臨床判斷至關重要，因此醫護人員往往需要投入大量時間進行反覆練習。傳統的插管訓練需要透過實體模擬，耗費大量人力與資源，而透過虛擬插管力度回饋裝置，減少醫療耗材的使用，降低訓練成本。隨著 VR 技術的進步，虛擬插管力度回饋裝置具有廣泛的應用前景，未來也可以應用於其他醫療操作的模擬訓練。

技術摘要(含成果)：

本研究開發用於虛擬插管之力回饋裝置，裝置設計具備大力度回饋以及足夠工作範圍，並以金屬和 3D 列印件建置原型機。裝置透過末端的操縱桿讀取位置，並由控制模組計算在接觸物體時所需產生的力回饋，將回饋力傳遞給使用者，並整合虛擬插管訓練環境，營造更為擬真的沉浸感。

優勢：

具有高自由度及大力度回饋。

競爭產品：

Phantom Premium, TOUCH X, omega.7, delta.3

專利現況：

無

聯絡方式(請不用填)：

臺大產學合作總中心

Tel: 02-3366-9945, E-mail: ordiac@ntu.edu.tw

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6-Degree of Freedom Force Feedback Device

PI : Prof. Shana Smith

Department of Mechanical Engineering, National Taiwan University

Experience:

http://www.me.ntu.edu.tw/main.php?mod=adv_custom_page&func=show_page&site_id=0&page_id=169

Market Needs:

With the advancement of medical technology, the demand for intubation technology is increasing. Successful intubation operation relies on the doctor's keen perception of force feedback and touch, which is crucial for accurate clinical judgment, so medical staff often need to invest a lot of time in repeated practice. Traditional intubation training requires physical simulation, which consumes a lot of manpower and resources. The virtual intubation force feedback device reduces the use of medical consumables and reduces training costs. With the advancement of VR technology, virtual intubation force feedback devices have broad application prospects and can also be used in simulation training of other medical operations in the future.

Our Technology:

This research develops a force feedback device for virtual intubation. The device is designed to have strong force feedback and sufficient working range, and a prototype is built with metal and 3D printed parts. The device reads the position through the joystick at the end, and the control module calculates the force feedback required when contacting the object, transmits the feedback force to the user, and integrates the virtual intubation training environment to create a more realistic Immersion.

Strength:

The device has a high degree of freedom and strong feedback.

Competing Products:

Phantom Premium, TOUCH X, omega.7, delta.3

Intellectual Properties:

No.

Contact (do not need to fill out):

Center for Industry-Academia Collaboration, NTU

Tel: 02-3366-9945, E-mail: ordiac@ntu.edu.tw

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