



中華大學教學卓越計畫活動成果報告

計畫名稱	子計畫 4.1：創新創意酵母課程計畫		
負責人/單位	黃致傑 主任／研發處創新與創意中心		
活動名稱	2015 第 26 屆馬來西亞 ITEX 國際發明創新科技展	活動時間	2015 年 5 月 20 日 ~ 24 日
活動地點	2015 第 26 屆馬來西亞 KLCC 雙子星國際會議展覽中心佈展	作品名稱	1. 可饒式 LED 的照明 2. 微膠囊牙刷 3. 數位彩妝助手 4. 衛生套安全警示環 5. 蹲式馬桶輔助器
活動聯絡人	黃瑋庭 助理	聯絡電話	03-5186227

活動內容說明

目的：

為鼓勵本校師生參加國際發明展競賽，以培植其發明創意能力，擴展國際視野，進而提升本校競爭力及形象。

執行後成果與具體成效：

中華大學師生參加 2015 第 26 屆馬來西亞 ITEX 國際發明創新科技展，榮獲 **5 銅 3 特別獎**，展現本校師生創新創意之能力於國際間獲得肯定。本次參加團隊共有五件作品，分別為「數位彩妝助手」、「衛生套安全警示環」、「蹲式馬桶輔助器」、「可饒式 LED 的照明」、「微膠囊牙刷」。

「數位彩妝助手」由工設系杜嘉琪老師、彭靖紘同學及創新學程呂琬婷同學、彭彥寧同學共同創作，**榮獲銅牌及俄羅斯特別獎**。本設計為進行彩妝過程中如貼假睫毛動作，常常因為不熟練而黏貼不順手，當貼附的落點位置錯誤時會導致必須撕掉並且重貼，過程中很可能假睫毛就不黏而得丟掉，不但浪費時間也浪費金錢。更高端的協助執行，則為如有彩妝師在場指導，想進行彩妝的人即使沒受過專業訓練，也可達成特殊彩裝目的。

「衛生套安全警示環」由國企系夏榕文老師、曾加騰同學、陳信宏同學共同創作，榮獲**銅牌及泰國特別獎**

及阿拉伯特別獎。本設計為杜絕杜絕安全套重複使用機會，解決開發中國家保險套重複使用問題，以及保險套包裝破損影響保險套之使用安全性，警示環變色即為衛生套與空氣接觸過久，使用者可判斷是否需要更換新的安全套，能降低使用安全套後感染的風險，增加安全套使用率，以提高此產品的創新價值。

「蹲式馬桶輔助器」由工管系劉光泰老師、王孟鈞同學、陳亭妤同學、王建文同學、黃馨誼同學共同創作，**榮獲銅牌**。本設計是為腳關節不可久蹲者所設計，是用於蹲式馬桶的輔助器，讓一般腳踝或膝蓋久蹲會疼痛的人減輕腿部壓力，使他們如廁更輕鬆，此商品比起一般裝置於殘障廁所的輔助器還要小，結構簡單使用也更方便，在背部靠墊的部分，我們是使用舒適的圓弧狀軟墊，讓使用者的背部有舒適的包覆感，此商品有很大的裝飾空間，讓它不只實用，也具有美觀。

「可撓式 LED 的照明」由光機電馬廣仁老師、陳宏誌同學、吳捷名同學共同創作，**榮獲銅牌**。本設計為新穎 LED 檯燈、可撓式手電筒、太陽花 LED 照明燈等產品可調控照明方向，這有賴於經微弧氧化處理之薄鋁板做為可撓曲之印刷電路板。傳統 LED 燈具散熱問題可藉微弧氧化膜層的高遠紅外線發射率獲得改善。新穎之可撓式 LED 燈具釋放強的遠紅外線，可有效的促進血液循環及新陳代謝。

「微膠囊牙刷」由餐旅系陳堯鈴老師、徐佳琦同學共同創作，**榮獲銅牌**。徐同學為廈門理工學交換生，本科為酒店管理，創意發想本設計之目的在於如何在便利、衛生、減少浪費的前提下將牙膏與牙刷結合起來，生活中，刷牙時牙膏牙刷缺一不可。長期使用同一支牙刷會造成細菌的大量滋生，並且不能很好地保證刷牙效果，在某些提供一次性牙刷的場所，例如酒店，牙刷的使用及浪費量很大，且不環保。這些問題亟待改善。

活動照片



說明：馬來西亞國際發明展學生參展照片



說明：馬來西亞國際發明展學生參展照片



說明：馬來西亞國際發明展獲獎獎牌



說明：馬來西亞國際發明展學生參展照片

Flexible LED Lighting Products

ITECH 15 MALAYSIA INNOVATION EXHIBITION 中華大學 Chung Hua University

These are the new generation of LED lighting. LED table lamp, flexible flashlight, and the "Sunflower" LED lamp, can shine their light at any direction you desire. These are made possible by the bendable thin aluminum printed boards processed with micro-arc oxidation.

The heat ventilation issue we have with the current LED light design can be taken care of by the far infrared radiation emitted from the micro-arc oxidized layers. The high intensity of the far-infrared radiation emitted from these flexible LED lights can also help improve circulation and metabolism.

LED Table Lamp: Free from the restriction with the traditional PCB boards, and constructed with the flexibility of the thin micro-arc oxidation boards, it has the versatility to illuminate in multiple directions.

Flexible flashlight: The powerful LED can be assembled with bendable substrates(?) and to be formed into flexible flashlights. They can be attached to cyclists' backpacks by Velcro straps and work as safety lights sending warning signals in the dark. They can also be attached to other biking gears and accessories.

Sunflower LED: There is a suspension on the back of the Sunflower LED. The direction of its light can be changed with your hand signals. It also has the abilities to be controlled by your voice and can change its angle, brightness and color on demand. When touched, it folds up just like a mimosa's leaf.

可彎曲的LED照明產品
專利號碼: 台灣 10422322

解決LED燈發熱、可彎曲不傷物、大面積LED燈板與彎曲基板不間斷接觸的問題，透過微弧氧化處理，增加LED燈板與彎曲基板間之接觸面積，提高LED燈板與彎曲基板間之接觸面積，提高LED燈板與彎曲基板間之接觸面積，提高LED燈板與彎曲基板間之接觸面積。

LED燈板：透過微弧氧化處理，增加LED燈板與彎曲基板間之接觸面積，提高LED燈板與彎曲基板間之接觸面積，提高LED燈板與彎曲基板間之接觸面積。

可彎曲基板：透過微弧氧化處理，增加LED燈板與彎曲基板間之接觸面積，提高LED燈板與彎曲基板間之接觸面積，提高LED燈板與彎曲基板間之接觸面積。

大面積LED：大面積LED燈板與彎曲基板間之接觸面積，提高LED燈板與彎曲基板間之接觸面積，提高LED燈板與彎曲基板間之接觸面積。

特點：
(1) 可彎曲
(2) 可觸控
(3) 聲控
(4) 可調整亮度與色溫
(5) 可觸控

Microcapsule Toothbrush

ITECH 15 MALAYSIA INNOVATION EXHIBITION 中華大學 Chung Hua University

The microcapsule toothbrush

In our daily lives, we rarely use toothpaste without a toothbrush, and vice versa. This may not be known to many, the toothbrush is actually a breeding ground for bacteria. It is unsanitary to use after a prolonged period of time. It is not exactly a perfect way to clean the teeth.

The disposable toothbrushes commonly used at some places, like hotels, have become piles and piles of waste that won't degrade for thousands of years. They are very unfriendly to the environment. We need to find a more economical and eco-friendly way to maintain our oral hygiene.

The aim of this project is to combine toothpaste and toothbrush into one piece to improve hygiene, to have more convenience, and to reduce waste.

The main features:
(1) toothpaste in microcapsule form : Combining toothpaste and toothbrush in one, makes cleaning teeth much easier and simpler.
(2) Day/Night microcapsule toothpaste : Lets teeth cleaning fit seamlessly into your daily routines, so oral health can be easily maintained without hassles.
(3) Replaceable brush heads : The eco-friendly solution for better oral hygiene.

Patent Application No. 104291854 (Taiwan)

微膠囊牙刷
專利號碼: 台灣 104291854

生活中，刷牙與牙膏缺一不可，若刷牙時不用牙膏，則刷牙的清潔效果會大打折扣。此外，若刷牙時不用牙刷，則刷牙的清潔效果會大打折扣。因此，本發明將牙膏與牙刷結合，以減少刷牙時牙膏與牙刷的浪費，並提高刷牙的清潔效果。

本發明之目的在於將牙膏與牙刷結合，以減少刷牙時牙膏與牙刷的浪費，並提高刷牙的清潔效果。

特點：
(1) 牙膏與牙刷結合，刷牙與牙膏二者合一，方便使用。
(2) 日夜微膠囊牙膏，讓刷牙與牙膏更自然地融入您的生活。
(3) 可更換刷頭，環保衛生，符合國際標準。

The digital makeup (cosmetics) assistant

ITECH 15 MALAYSIA INNOVATION EXHIBITION 中華大學 Chung Hua University

This invention is invented to serve like a virtual instructor to give professional instructions to help amateurs apply makeup flawlessly. Particularly, when applying false eyelashes, mistakes frequently happen, and they cost money and time. Modeled on high end professional makeup, this device is a private makeup artist working on site, can let anyone with little experience be able to apply makeup like a pro.

Special features:
(1) Providing digital guidance to have flawless makeup.
(2) Featured with option menus, which include varieties of makeup styles in our database available to choose from.
(3) Not like simulations, this works on real time feedback from real subjects.

Patent Application No. 104202167 (Taiwan)

數位彩妝助手
專利號碼: 台灣 104202167

本發明之產品，係運用數位技術，將數位彩妝助手與真人臉孔結合，透過數位彩妝助手，讓使用者可以透過數位彩妝助手，學習如何正確地化妝，並提供即時回饋，讓使用者可以隨時調整化妝效果，達到專業級別的化妝效果。

特點：
(1) 透過數位彩妝助手提供即時回饋，以協助彩妝師進行。
(2) 提供多種專業級別的化妝效果，符合個人喜好需求。
(3) 可以透過數位彩妝助手學習，此為專業化妝師。

The condom with the color-changing ring

ITECH 15 MALAYSIA INNOVATION EXHIBITION 中華大學 Chung Hua University

he color changing coating changes its color after 10 to 30 minutes of exposure to air. When applied on condoms, it can warn the users that it may have lost its effectiveness of protection against pregnancy and STDs then that may stop the attempt to co-itate. Also, the consumers can be warned when the package is either damaged or defective or has been tampered with. Raising condoms is a wide-spread health threat in the developing countries. The lack of awareness in the area should be seriously dealt with. To the consumers, this indicator can help ensure they are getting the protection the condom designed to provide. When the user sees the indicator; the coated ring, has changed its color, he knows the condom has been exposed to air for some time and it may not be as effective as it should be, so it might be safer to get another new one. There will be lesser risk of infection caused by deteriorating condoms. Toler the marketing and the packaging to the different needs of different regions to promote condom usage rate and raise its innovation market value.

Features:
(1) Simple design; easily being identified.
(2) Preventing reuse.

Technical methods:
(1) The coating applied on the condoms changes its color after being exposed to air. It works as a warning signal.
(2) The color differences clearly show if it's safe to use the condom.

Patent Application No. 104291237 (Taiwan)

衛生套安全警示環
專利號碼: 台灣 104291237

在安全套上增加具有變色功能之10-30分鐘變色警示環，當安全套暴露在空氣中一段時間後，警示環會發生顏色變化，提醒使用者安全套可能已失效，應停止使用。此發明可避免因安全套失效而導致之感染，並提高安全套的市場價值。

特點：
(1) 設計簡單，容易辨識。
(2) 防止重複使用。
(3) 衛生套上增加具有變色功能之10-30分鐘變色警示環，當安全套暴露在空氣中一段時間後，警示環會發生顏色變化，提醒使用者安全套可能已失效，應停止使用。

Squat Toilet Auxiliary

ITECH 15 MALAYSIA INNOVATION EXHIBITION 中華大學 Chung Hua University

This device is designed for the comfort and the ease of those with weak knees or ankle joints when using squat toilets. It reduces the stress on the legs by shifting the weight and the support to the back. Using the toilet becomes much easier for them. Size-wise, it's more compact, takes up a lot less space than a raised toilet seat (?). With lesser parts, it is much easier to use. Non-slip material is used for the steps. They will not get slippery even when the floor or the shoes are wet. The back support is a contoured soft cushion, provides wrap-around comfort on the back, eliminating the chance of stress. In addition, this product has the potential of add-on decorating value. It not only is "helpful" to the legs but can also be "beautiful" to the eyes.

Features:
(1) It is portable and easy to use.
(2) It helps shift the weight from the legs to the device itself, reduces muscle tension, eases the pain caused from squatting.
(3) It provides comfort not only to those who need it, like the people with weak or injured legs, but also to those who want it, like the rest of us.

Patent Application No. 104200647 (Taiwan)

蹲式馬桶輔助器
專利號碼: 台灣 104200647

此裝置是為那些膝蓋或腳踝關節無力者，在蹲式馬桶時提供輔助。它透過減輕腿部負擔，減輕蹲式馬桶時所帶來的不適感。此外，此裝置還具有裝飾價值，不僅實用，還能美化環境。

特點：
(1) 攜帶方便，使用簡單。
(2) 透過減輕腿部負擔，減輕蹲式馬桶時所帶來的不適感。
(3) 提供舒適感，不僅需要它的人，如腿腳無力者，也能享受它。

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(3) 可以透過數位彩妝助手學習，此為專業化妝師。