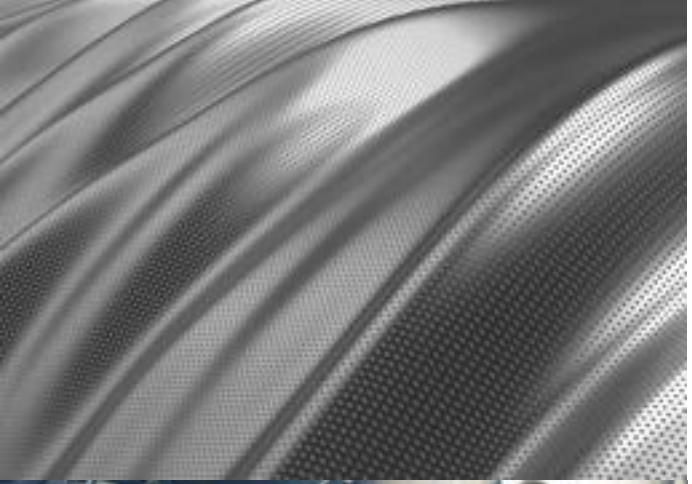


無所不在的金屬

地球上富含許多金屬元素

金屬被運用在各種物件、產品上

從化妝品到電池等

你能想像世界上沒有金屬嗎？

METAL DESIGN AWARD

reddot award

鈦合金&高速鋼

氧化噴砂金屬

鋁合金

陽極氧化鋁

WORLD DESIGN GUIDE

2021
金屬創新應用競賽

主辦單位：經濟部工業局

承辦單位：財團法人金屬工業研究發展中心

協辦單位：台灣輕金屬協會、台灣鑄造學會

亞設王設計有限公司

競・賽・辦・法・內・容

METAL DESIGN
AWARD

競賽辦法

一、活動目的

為發掘並培養國內金屬設計製造人才及鼓勵金屬業者投入研發創新工作，邀集全國相關系所之師生及產業界參與本項活動，**充分運用金屬特性及導入創新設計概念**，促進產業界與學界交流觀摩機會，擴展金屬材料應用層面，創造國內金屬產業新的發展方向。

二、參賽組別與資格（每組人數最多5人）

1. 社會組：全國具金屬設計或製造能力之公司 / 機關或個人。
2. 學生組：全國大專院校之在校生，須有學生身分證明。

競賽辦法

三、競賽主題

分「**社會組**」與「**學生組**」二組徵件：

1.技術突破·價值創造

突破既有金屬應用的技術或製程改善，創造產品之高附加價值。

2. 材料替代·創意生活

應用金屬的特性進行材料替代，並具有創意生活之理念，設計符合「創新生活應用」之商品。

3. 材料優化·效能提升

以創新金屬的合金、製程設計或表面處理，達到金屬材料之性質(如物理/化學/機械等)優化，以提升商品之效能。

競賽辦法

四、報名費用

本競賽**免費**報名參加。

五、參賽時程

(一) 報名日期：

報名截止日：**2021年8月20日**

(二) 初審結果公佈：**2021年9月底前**

(三) 決賽結果公佈與頒獎典禮：**2021年11月底前**

競賽辦法

六、報名方式（電子報名）

(一) 報名程序：

1.下載報名表格

至競賽網站 http://game.lightmetal.org.tw 下載相關報名資料。

2.電子郵件報名

寄交參賽資料至電子信箱Mail：metal@asiaone.biz。

郵件主旨：參加2021金屬創新應用競賽（ 社會組or學生組 ）

3. 繳交參賽資料

(a) 參賽報名表【電子檔Excel】。

(b) 參賽承諾書【電子檔jpg】。

(c) 作品集文稿：請以中文為主敘述【電子檔Word】 。

(d) 作品展示圖：A3規格1張（內含設計特點及作品圖）

【電子檔jpg，每張圖2MB以內，解析度300dpi】

(e) 個資同意書【電子檔jpg】 。

(f) 實體作品（決賽）：請於決賽評審日前送達佈置會場。

競賽辦法

七、評審標準

評分項目	說明	比重
技術突破	嶄新機構/材料開發/表面處理之技術。	40%
價值創造	創新生活應用效益，提升產品之附加價值。	30%
量產可行性	具量產可行性，符合產品規範與經濟效益。	15%
市場性	目標市場之說明。	15%

八、競賽獎勵

（一）社會組：

(1)金賞獎：獎金新台幣150,000元，獎狀乙紙 。

(2)銀賞獎：獎金新台幣100,000元，獎狀乙紙。

(3)銅賞獎：獎金新台幣60,000元，獎狀乙紙。

(4)優選獎：若干名，獎金新台幣10,000元，獎狀乙紙。

（二）學生組：（前三名得獎作品之指導老師，獎狀乙紙）

(1)金賞獎：獎金新台幣100,000元，獎狀乙紙。

(2)銀賞獎：獎金新台幣60,000元，獎狀乙紙。

(3)銅賞獎：獎金新台幣40,000元，獎狀乙紙。

(4)優選獎：若干名，獎金新台幣5,000元，獎狀乙紙。

競賽辦法

學生組-入圍模型補助費

學生組獲選進入決賽並繳件者，可於繳件後獲得模型製作補助費新台幣5,000元；並獲得入選獎狀乙紙。

*得獎者須依中華民國稅法繳交所得稅。

獎金獵人小撇步

我要把大學四年的嘔心瀝血之作都投一遍!

歷屆得獎作品

Your entry
348321011
Goodhealth + Well-Being

Concept
Chewing Again

Student / s
Wang / Yu-Peng
Hsu / Tzu-Yin

University
Taichung, Taiwan, ROC. Department of Bioinformatics and Medical Engineering, Asia University
Taichung, Taiwan, ROC. Graduate Institute of Biomedical Sciences, China Medical University

歷屆得獎作品

UNLOCK
Barrier-free Door Lock

A friendly design for everyone to unlock the door.

The existing door lock is difficult to insert a key especially in the dark. The problem is more serious for the elderly with poor eyesight as well as people with tremors. UNLOCK Barrier-free Door Lock is designed to solve the problem mentioned above. The smooth surfaces of the handle and Y-shaped keyhole structure can guide users to insert the key intuitively and thus allow unlocking become easier.

We break through the existing technology. The use of 3D printing can be substituted for the high-energy consumption and the polluting casting method. There are 65% of aluminum oxide ions of metal coating which can either remain the metal luster or sterilize the handle surface. That way, it not only lightens the material but also goes more eco-friendly.

Problem

The original keyhole is not only tiny but difficult for users to insert the key straightforwardly.

Solution

Let the key find the keyhole automatically. People don't have to find anymore.

Material innovation

Use 3D print with metallic paint, it can not only give users a friendly touch but keep the metallic luster. The metal ions on surface can also sterilize effectively.

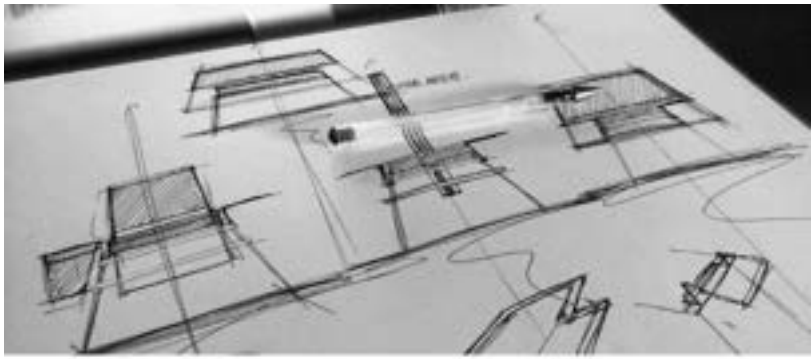
Your entry
348-321584
Industry, innovation and infrastructure

Concept
Unlock Barrier-free Door Lock

Students
Jia Yun, Lee
Zong Yi, Lin
Shu Hsien, Shao
Pin Yi, Lee

University
National Taiwan University of Science and Technology
Taiwan
Department of design

歷屆得獎作品



The base

Various possibilities

Keyword

Modular design
Free assembly
Tenon structure

Da Vinci Bridge

Concept

Da Vinci chair presents a new concept of assembling furniture. Implanting the concept of woodworking morise into metal furniture, applying the structure of Da Vinci Bridge, so that the chair can be assembled or disassembled without welding or any screws. It creates the structure by the precise relations between parts and parts. It has the advantage of production and transportation. And the modular design creates various possibilities.

1/3

3/3

Module
Parts
Assembling

Back

Accessories

歷屆得獎作品

Product Concept >

EASY-CARGO (EC) is an on-board cargo rack that can easily handle, transport cargo to improve occupational injury and loading efficiency by loading and unloading. EC is equipped with supporting rear wheel, rotating shaft loading floor, allows EC to tilt or unfold at various angles and flatten at different heights to move cargo by height of truck or cargo. Encountering ladder as transporting goods, adjust auxiliary rear wheel, combine with main wheels to form triangular wheel structure to save effort of going up or downstairs. EC is equipped with central rolling tube, electric tracks on both sides, making it easy and convenient to move goods up and down.

Problems Finding >

Although there are all kinds of on-board cargo rack today, it is still necessary to manually load the goods onto the rack to carry out subsequent logistics operations, and the process of moving goods to trucks still lacks convenient auxiliary equipment.

The delivery person may cause occupational injury and overstrain due to long term delivery or overtime.

The delivery destination is usually located in the main place of transportation. As a result, a lengthy transit time can lead to traffic congestion and confusion, and lead to the delivery person's own danger.

If the delivery person needs to carry the goods upstairs without proper auxiliary tools, they may drop the goods or get injured due to improper application of force.

Usage scenarios

1. Loading

When encountering heavy objects and large loads that need to be loaded on the truck, you can turn on the motor to move the tracks on both sides to help the goods move up, which can reduce the physical consumption and time of the delivery person.

2. Unloading

When transporting the goods to other places for unloading, you can tilt the EASY-CARGO on the truck platform to make the goods slide down through the rolling tube and then push to other places to reduce the time of up and down.

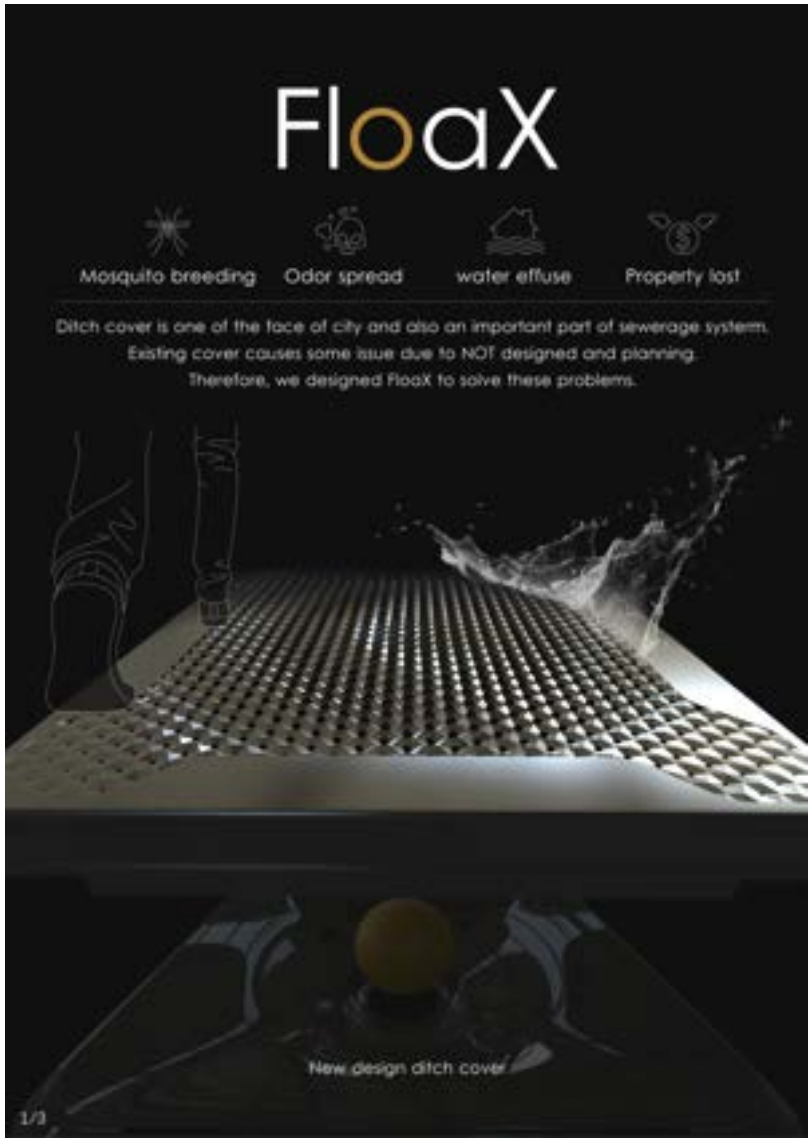
1. Translating

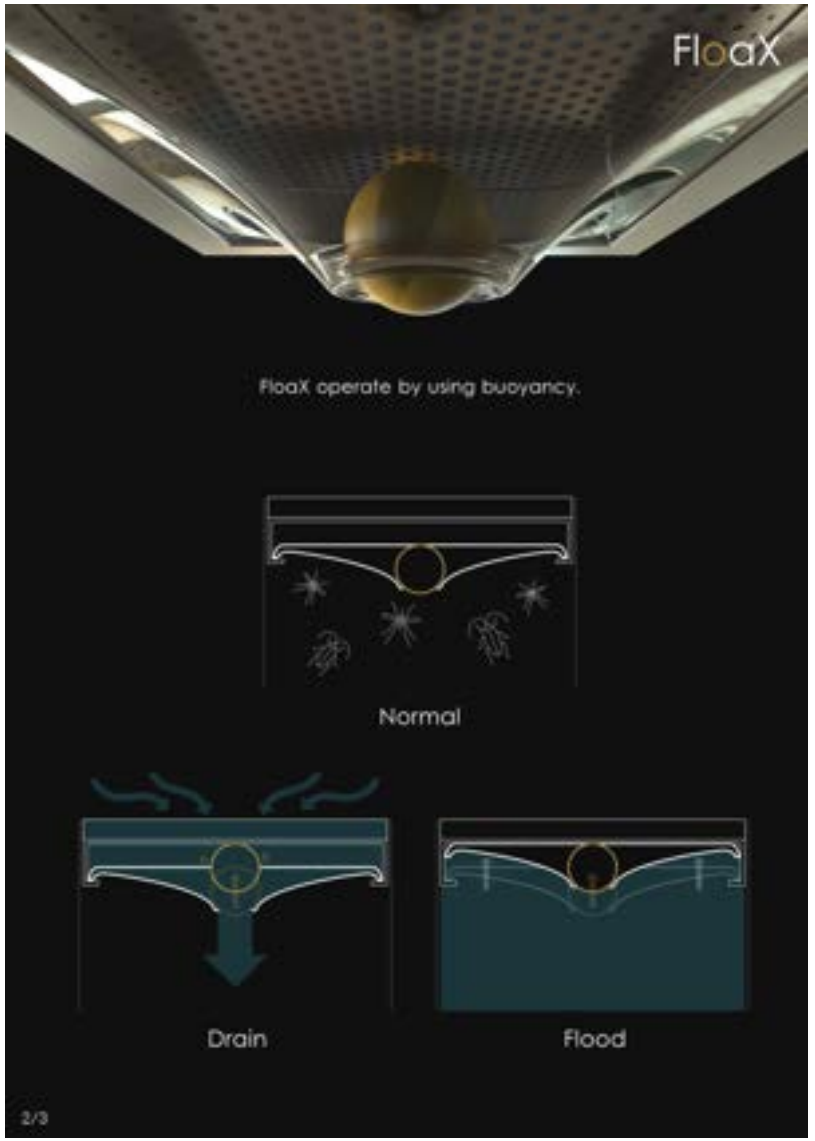
When it is necessary to move the goods from platform A to platform B, you can level the entire EASY-CARGO, and place the motor on two platforms to start transportation, thereby reducing round trips time.

3. Going up and down stairs

When encountering stairs as transporting cargo, we can step on the rear wheel paddle to adjust the auxiliary rear wheel to rotate the wheel to position and extend, so that it combines with the main wheels on both sides into a triangular wheel structure for transporting cargo up and down stairs.

歷屆得獎作品


FloaX
Mosquito breeding
Odor spread
water effuse
Property lost
Ditch cover is one of the face of city and also an important part of sewerage system.
Existing cover causes some issue due to NOT designed and planning.
Therefore, we designed FloaX to solve these problems.
New design ditch cover
1/3


FloaX
FloaX operate by using buoyancy.
Normal
Drain
Flood
2/3

賽後推廣與規劃

推廣計畫/ 2~6月

(1)增加作品質量，輔導參加國際競賽。

(2) 與各專利廠商媒和，提升產品價值與美學。

(3) 邀請專業設計師和發明者在工作營輔導參賽者。

(4) 以亞設王的設計美學輔導參賽作品，以下為過往設計範例。

賽後推廣與規劃

亞設王輔導作品（一）

抗震輪椅

Before

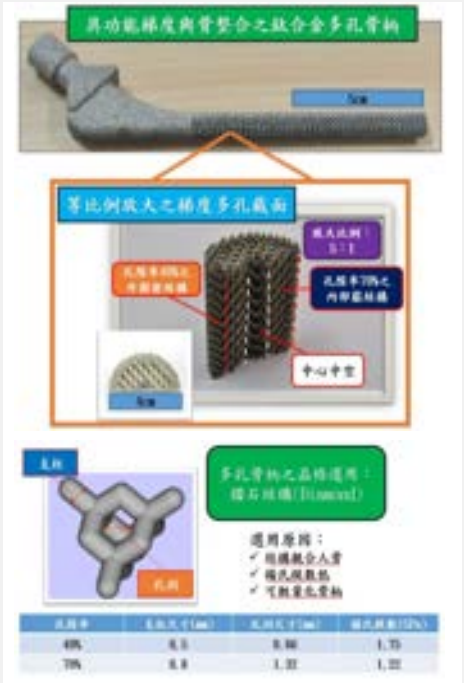
After

賽後推廣與規劃

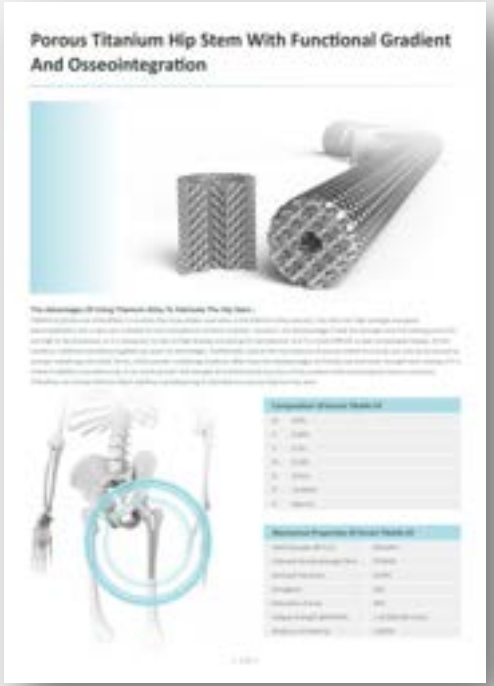
亞設王輔導作品的（二）

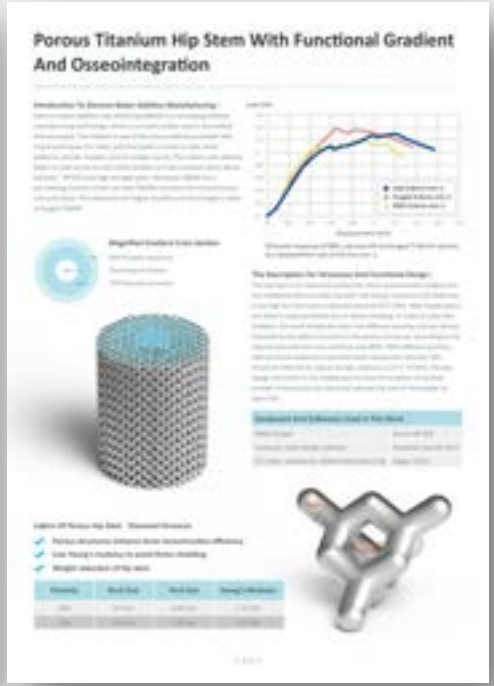
具功能梯度與骨整合之鈦合金多孔骨柄

Before



After





賽後推廣與規劃

亞設王輔導作品的（三）

生物廢棄物使用於純鈦植體表面改質

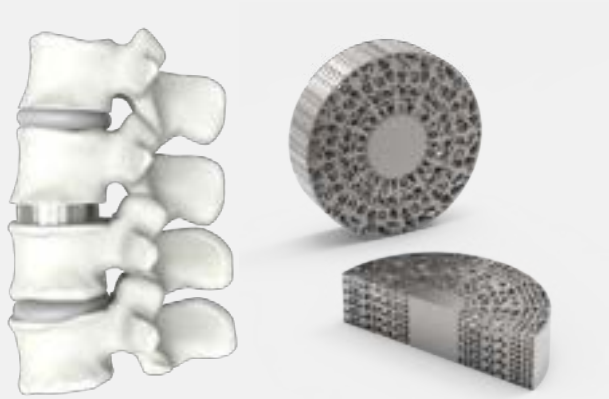
Before

After

reddot award

輔導榮獲紅點設計競賽/概念設計獎

漸層孔隙率之鈦基金屬椎體融合器



本設計作品將利用 3D 列印技術開發仿生結構之椎體融合器，利用非晶體之鈦基玻璃金屬（Ti-based metallic glass）粉體，以雷射積層製造技術製作仿生結構之椎體融合器。

透過高度生物相容之玻璃金屬材料及客製化及孔洞漸層設計，使該椎體融合器之生物及力學特性，與被植活體骨組織匹配，以達到植入骨融合之目的，以減少傳統高楊氏係數實心植入物所造成應力集中(stress concentration)之骨折或植體崩塌之問題。

Before

After

Q & A

METAL DESIGN
AWARD

金屬創新應用競賽

@metal.design

大家來找碴

01

我有好眼力

請擇一找尋於酷卡上的指定符號

02

手速與網速

回傳解答至所屬的官方LINE帳號

好禮帶回家

找碴開始！ 由小編確認，誰是最快送傳的第一名呢?

找到手工具並傳
LINE正確名稱

圈起符號&
拍照傳LINE

2021金屬創新應用競賽

Thank You for Listening