



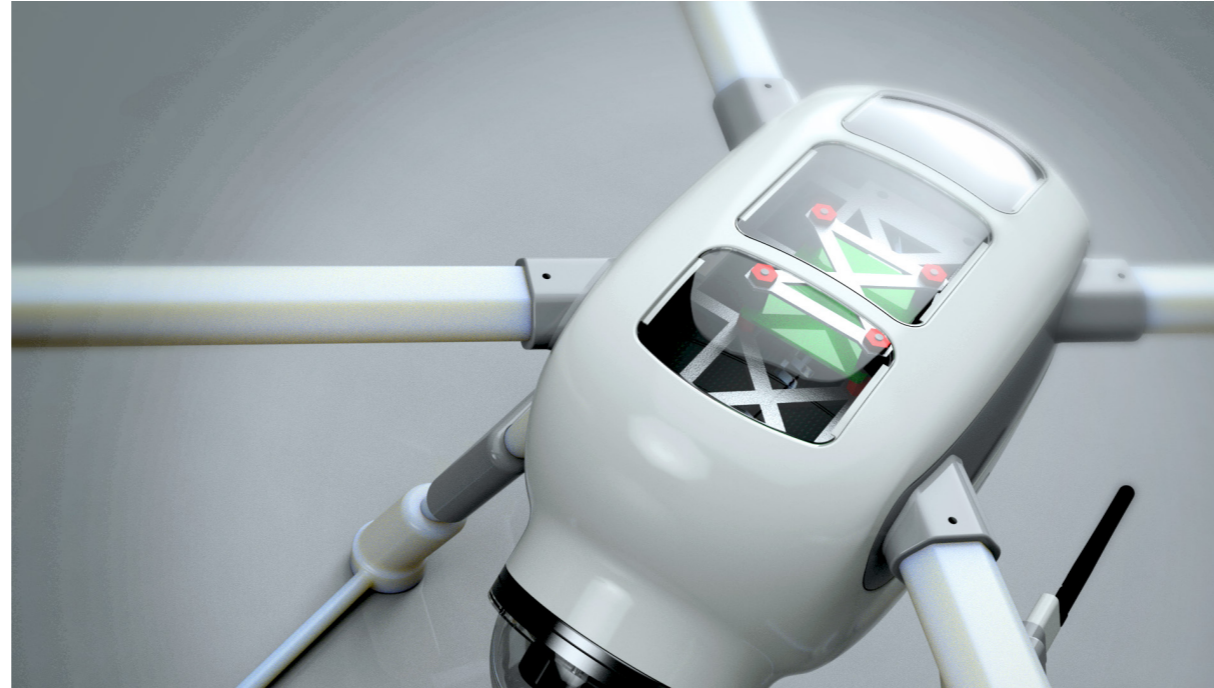
APAC Student Project Showcase

THE FUTURE OF MAKING THINGS

# APAC STUDENT PROJECT SHOWCASE

This e-book features creative works of some of the most promising and talented student designers from across the Asia Pacific region which can be truly inspirational for anybody that is interested in design.

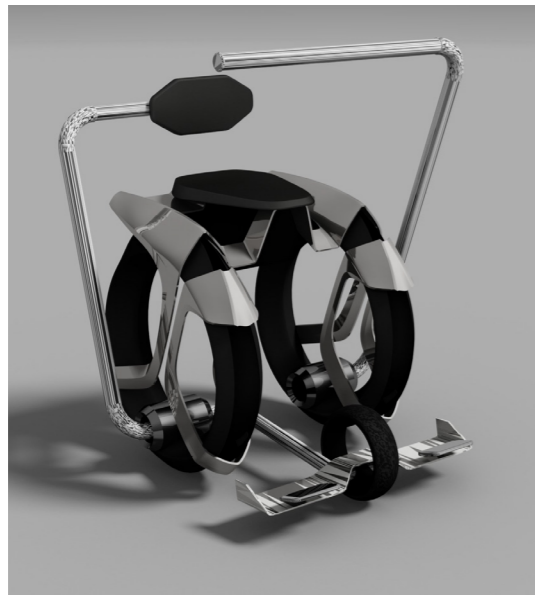
Created with industry leading Autodesk software these designs best demonstrate the “Future of Making Things”. The book is testimony to the fact that the combination of creativity and technology can certainly lead to a better world.



# CONTENT

- 03 Portable Urban Mobility Access - India
- 05 Boeing 107 - Concept Project - India
- 07 4 Kare Knee Joint Exoskeleton - India
- 09 X VEIN - Japan
- 11 Ojigi Tokuri (Self-tilting Sake Bottle) - Japan
- 13 Hyperloop - Japan
- 15 Skeleton S Outdoor Sport Shoes - China
- 17 Snail Robot - China
- 19 Ant Robot - Taiwan
- 21 Wheelpower - Singapore
- 23 3D Colour Printing Mixing Chamber Concept - Singapore

## PORTABLE URBAN MOBILITY ACCESS



**SURENDAR K**

**VELARASAN V**

**SANJEEV R**

**MOHAMED ASHIK A**

**HARSHAVARDHAN D**

**SENDURA JEYANDAN S M**

**JAYGANTH R**

**INDIA**

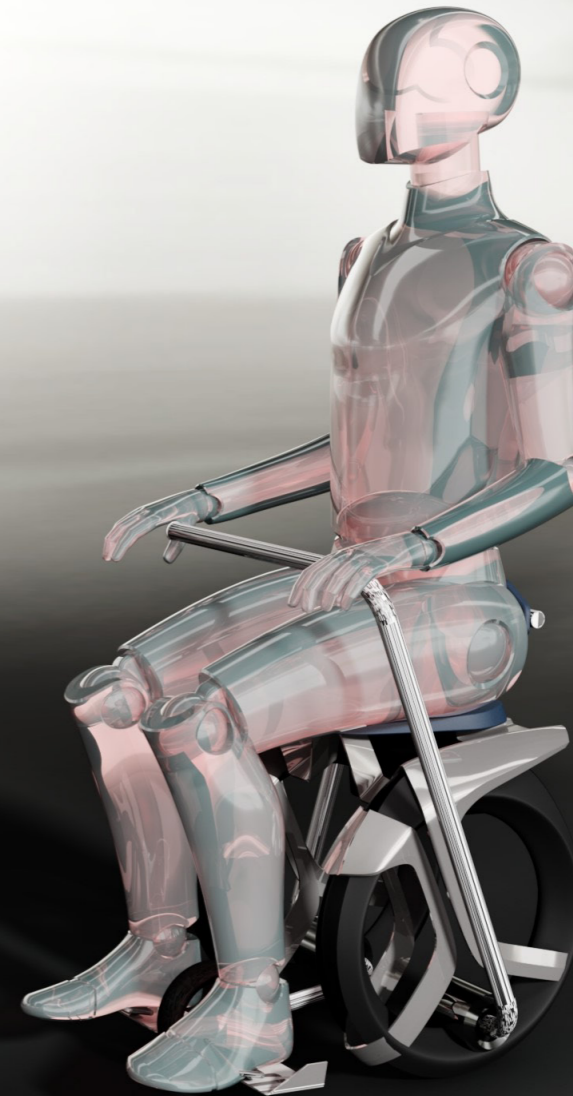
PSG COLLEGE OF TECHNOLOGY

The Personal Urban Mobility and Accessibility (PUMA) is an experimental electrically powered road vehicle. PSG Team designed this future of urban transportation. It operates on two wheels placed side by side, a layout that differs in placement from motorcycles which instead have their two wheels placed at the front and rear.



**Software used:**

Autodesk® Fusion 360™



# BOEING 107 - CONCEPT PROJECT

**ANAND ES****INDIA**

NATIONAL INSTITUTE OF DESIGN



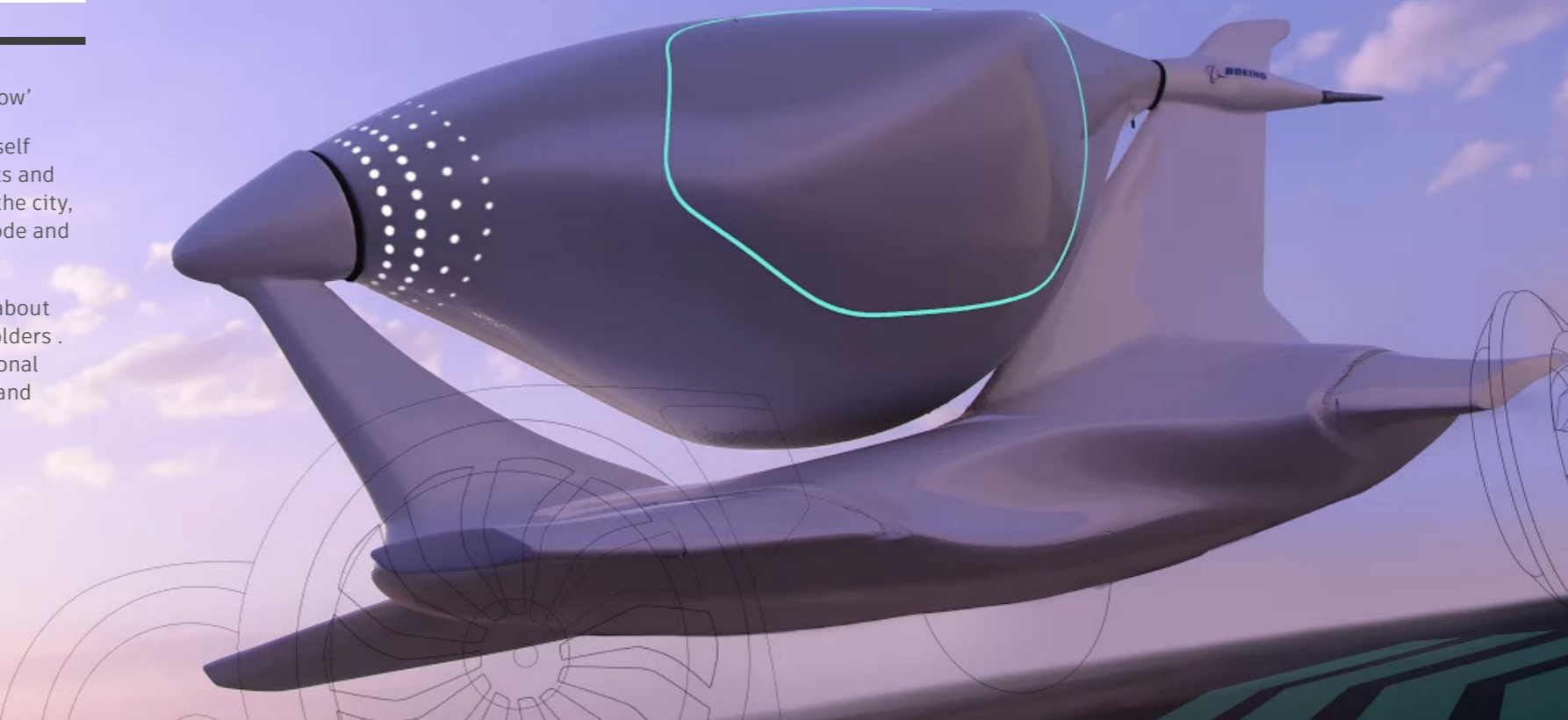
Autonomous electric vehicle. 'A Design for tech-enabled tomorrow'

By 2030, autonomous technology will be really advanced and self driving cars will prove its driving abilities through various tests and autonomous car races. According to new rules in 2030, inside the city, the autonomous cars will drive in "controlled autonomous" mode and the fully autonomous mode can be used in highways only.

This vehicle is for someone who needs to travel frequently to about 300-1000 kms, Like a startup CEO who travels to meet stakeholders . This vehicle helps you avoid the hassles of travelling in traditional forms of transport and allows you to relax during the journey and reach the destination fast and fresh.

**Software used:**

Autodesk® Fusion 360™



## 4 KARE KNEE JOINT EXOSKELETON

**MANDEEP SINGH KAPOOR**

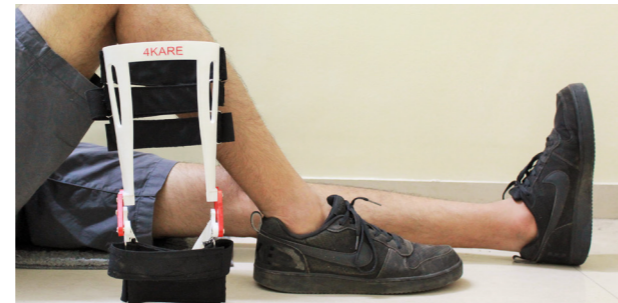
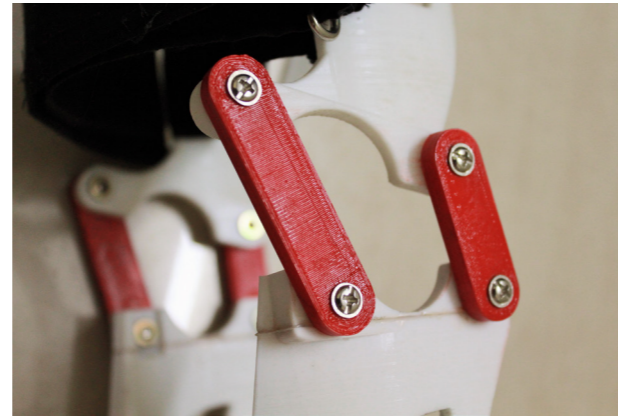
**SHOBHIT SINGH**

**SAGAR NETAM**

**PANKAJ KUMAR BANPELA**

**INDIA**

MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY, JAIPUR



It is a personalised healthcare product which has been designed with a very unique concept to take care of human knee.

### OBJECTIVE

Knee Joint pain remains one of the major issues to be solved in current Bio-science. This pain remains very common in old age people. There are many products available in the market which have been developed to solve issues related to knee joints.

But there are no products available which trace the motion of knee joint.

The "Four Bar Mechanism" used in our product traces the motion of the knee.

Benefits of using four bar mechanism - Gives combination of rotational plus translational motion i.e. it exactly traces the complex motion of the knee.

Follow trajectory of knee curve (J-curve).

### Software used:

Autodesk® Fusion 360™



# X VEIN

**YUKI OGASAWARA**

**RYO KUMEDA**

**JAPAN**

**SAITAMA UNIVERSITY**

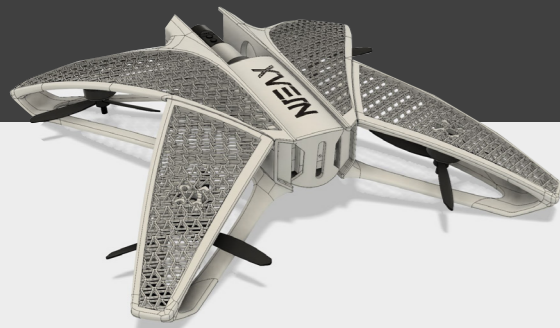
X VEIN is a life-saving drone built for disaster conditions and search-and-rescue missions.

When disaster strikes, the countdown is on to get necessary supplies to those who need them most.

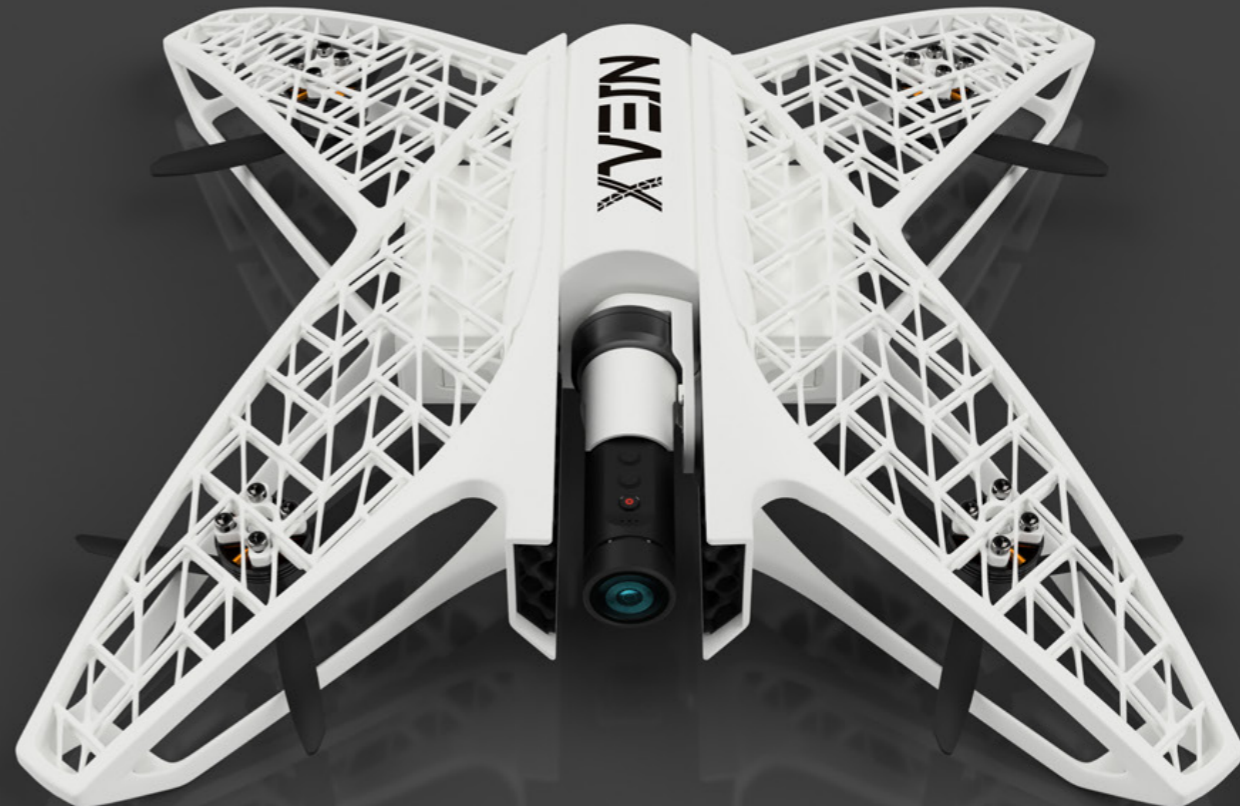
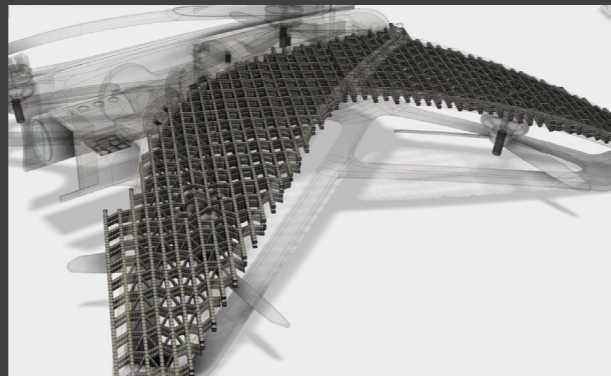
Generative design made team's vision of a highly customizable drone, within strict size and weight constraints, possible.

X VEIN's unique body structure is the result of a lattice preset in Autodesk Within software.

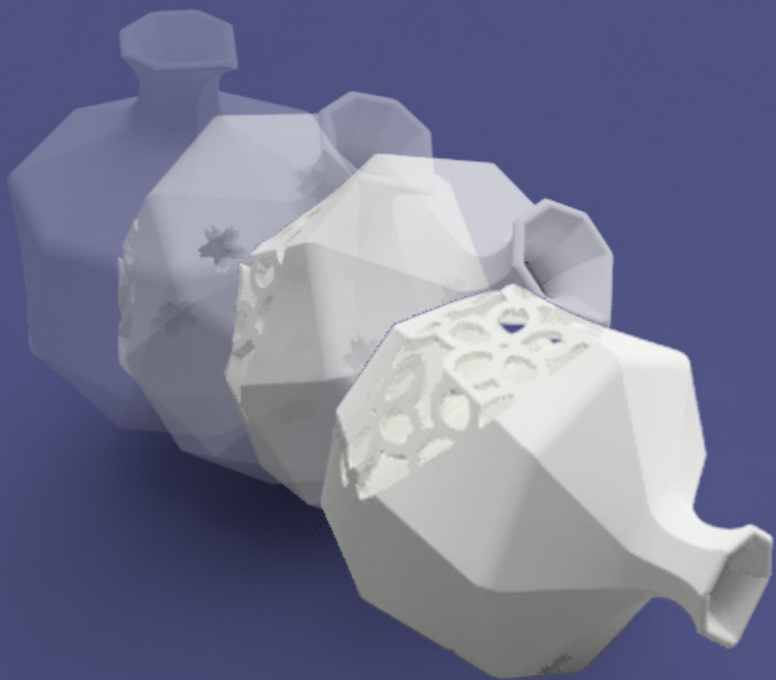
Adjusting the lattice density inside the software enabled the team to achieve the optimal weight and strength.



**Software used:**  
Autodesk® Fusion 360™  
Autodesk® Netfabb®



# OJIGI TOKURI (Self-tilting Sake Bottle)



**SHOKO KAWATA**

**KAZUKI TAKENOUCHI**

**JAPAN**

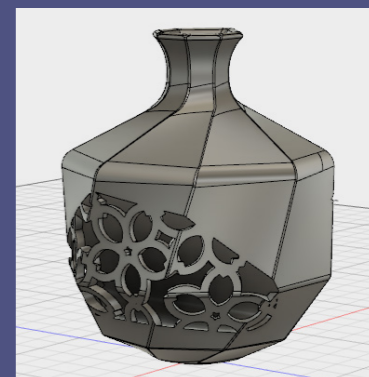
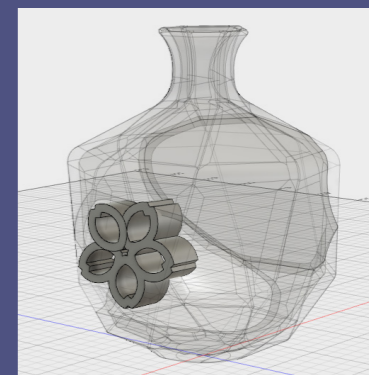
KYUSHU UNIVERSITY

OJIGI TOKURI can tell the remaining quantity of sake inside by changing its tilting position, while remaining sake is invisible in a traditional one made of opaque china. This unique behavior of the tilting is generated by its computationally optimized asymmetrical inner configuration, which changes the center of gravity with a decrease of sake with holding a stable tilting position. Moderate movement to the next stable position is given by double curved surface patches. Elegant openwork and deep extrude cut figured with cherry blossoms implicitly show the mechanism of titling.

Won Special Jury Award for the Asian Digital Modeling Contest 2017.

**Software used:**

Autodesk® Fusion 360™



# HYPERLOOP

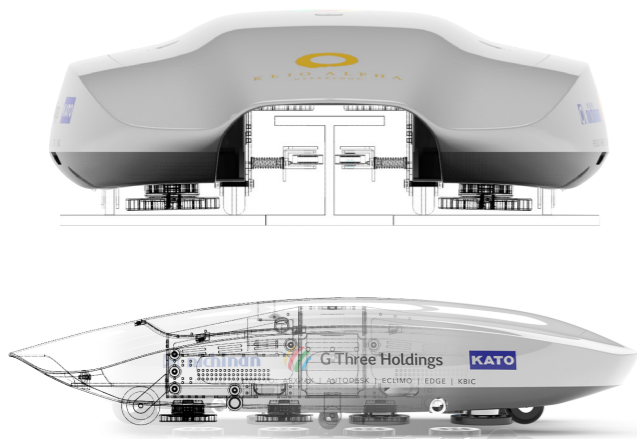
## Software used:

Autodesk® Fusion 360™

## KEIO ALPHA

### JAPAN

KEIO UNIVERSITY



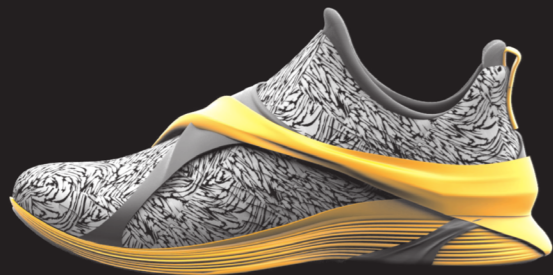
Elon Musk, the CEO of SpaceX, released his concept “Hyperloop – The Fifth Mode of Transportation” for high-speed ground transport in 2013. To accelerate the development of a functional prototype, SpaceX announced a Hyperloop Pod Competition in 2015 to design and build a Hyperloop pod adapted to the half-scale test tunnel. The first competition took place in January 2017 and had more than 1200 entries, which it narrowed to feature prototypes from 27 student and nonstudent teams.

Keio Alpha, a finalist in this competition chose Autodesk Fusion 360 as their designing platform. It was essential for the team to share the data via cloud from their respective locations. Thus, all the members successfully contributed to creating the pod efficiently and quickly. Elon highly evaluated their pod from the point of its compact size and the feasibility aspect after the competition.





## SKELETON S OUTDOOR SPORT SHOES



**JIA-RONG LI**

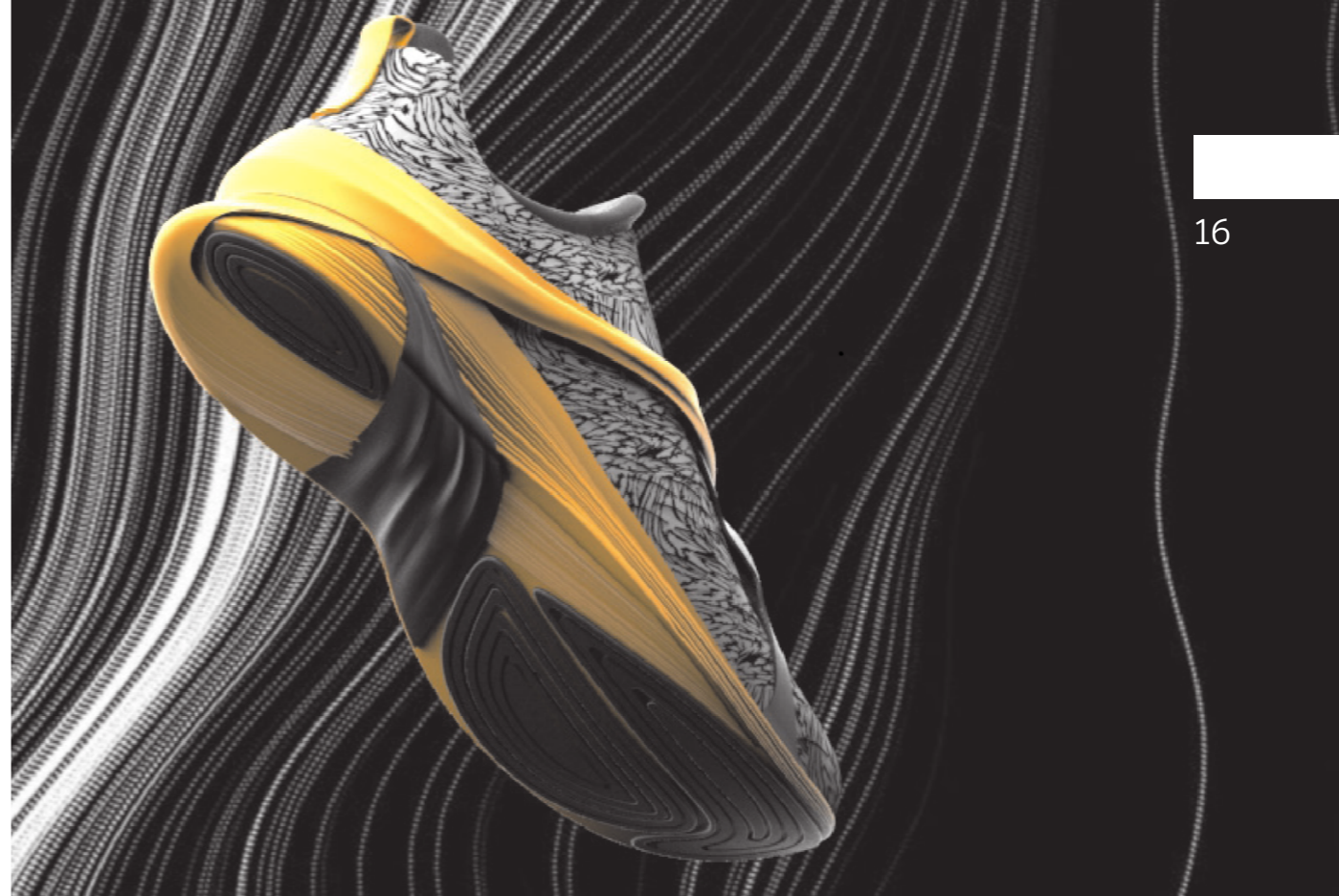
**CHINA**

TONGJI UNIVERSITY

I hope to capture the essence of the human skeletal structure through the biomimetic design language. The shoes can fit the requirement for outdoor sport with replaceable accessories. It can protect the sport fans against sport injuries and inspire more people to love sports.

**Software used:**

Autodesk® Fusion 360™



# SNAIL ROBOT

SHI-JIN SUN

KUI-BING LI

HAO ZHENG

CHINA

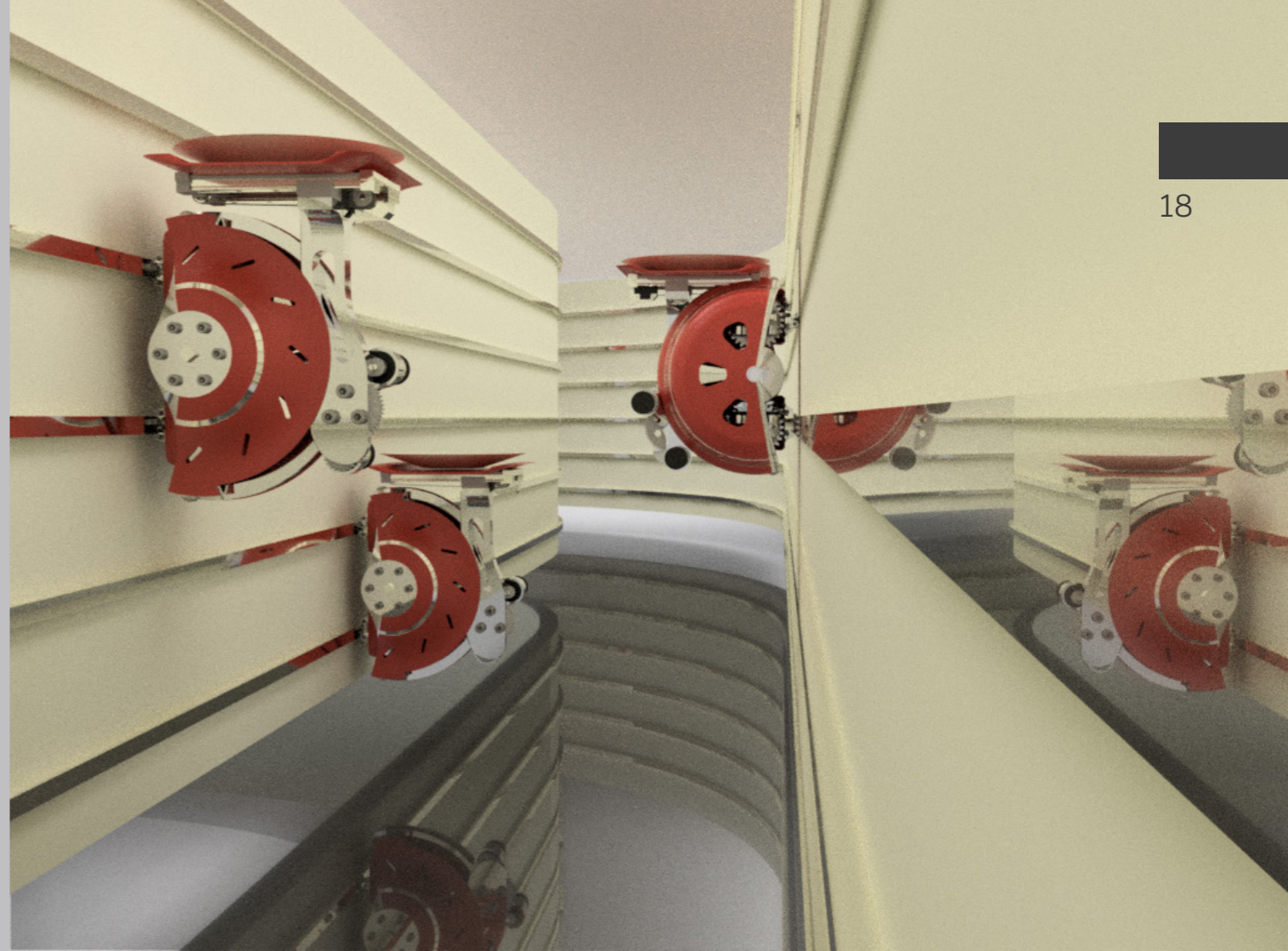
HEFEI UNIVERSITY OF TECHNOLOGY

Snail is a robot to provide transporting service. It delivers meals from kitchen to table and transports the food from warehouse to kitchen. Snail can wait next to the table and adjust the speed of transporting. It can change the direction and track to avoid the collision from other snails.

**Software used:**

Autodesk® Fusion 360™

Autodesk® Inventor®



# ANT ROBOT

YU-CHENG LIAO

TZ-CHENG WU

PO-WEI CHU

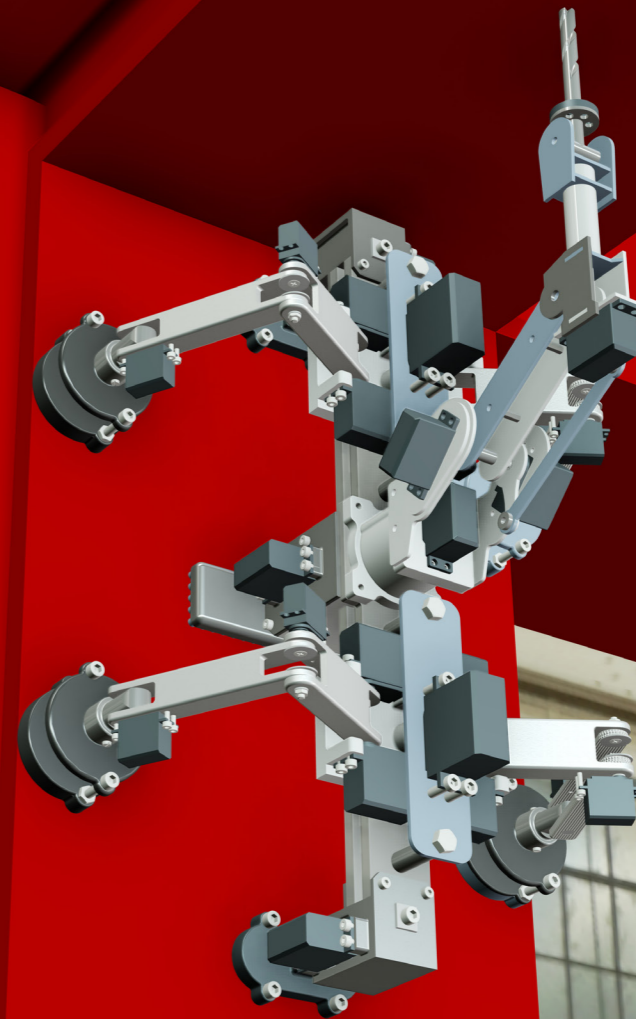
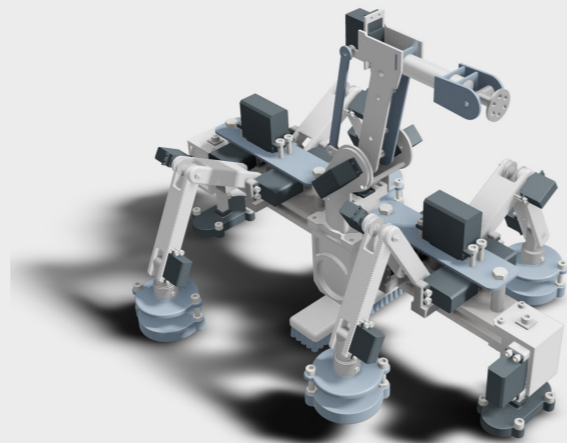
TAIWAN

NATIONAL YUNLIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

The "Ant Robot" was designed based on the theme "Scalable Climbing". After observing the movement of ants, the team developed their project integrating the knowledge of mechanics, dynamics, and electronics, as well as Using Autodesk Fusion 360, Inventor, AUtoCAD, and Showcase. The project is a manifestation of how the team realizes their ideas from concept designing, 3D modeling, and simulation analysis to 3D printing. The robot is a climbing machine useful for the cleaning of all types of large-scale oil & gas tanks. The deployment of the robot can prevent industrial accidents by eliminating the risk of toxic gas exposure. By adding manipulators, the function of the robot can be extended to support the operation of drilling and welding.

#### Software used:

Autodesk® Fusion 360™, Autodesk® Inventor®, Autodesk® AutoCAD®, Autodesk® Showcase®



# WHEELPOWER

**Software used:**  
Autodesk® Fusion 360™

**WEI SHAN ANG**

**JONATHAN KIN HOU NG**

**SINGAPORE**

SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN



Wheelpower - Putting the power in willpower

While help is mostly directed towards wheelchair users, struggles of the caregiver are often trivialised. To solve this our team designed this wheelchair attachment - "The Wheelpower", that easily converts a manual wheelchair into an electric one. It works by connecting a hoverboard to the wheelchair so that patients can easily manouver the patient.

1. Controlling it is intuitive
2. The device can handle wheelchair access at ramps and elevators. It is responsive enough to brake safely and fits into tight spaces easily.
3. Dismantling is hassle free
4. The wheelchair retails at quarter of the price of an electric wheelchair

With Wheelpower 1.0 PWDs go from disabled to enabled. With the evolution of Wheelpower 1.0 to 2.0 PWDs go from enabled to empowered. What better way to help the disabled than to enable them to help their loved ones.



# 3D COLOUR PRINTING MIXING CHAMBER CONCEPT

**NICHOLAS THAM**

**LOUIS TAY**

**SINGAPORE**

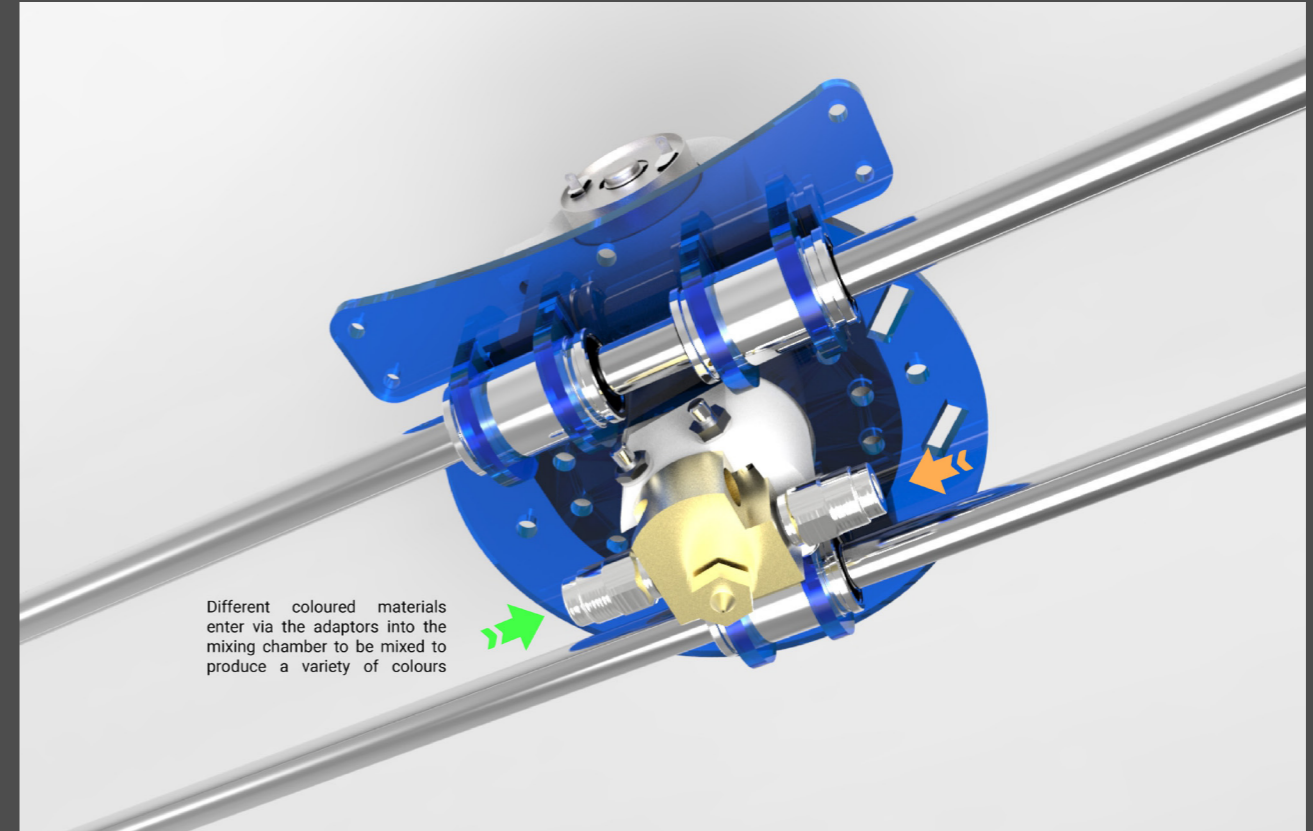
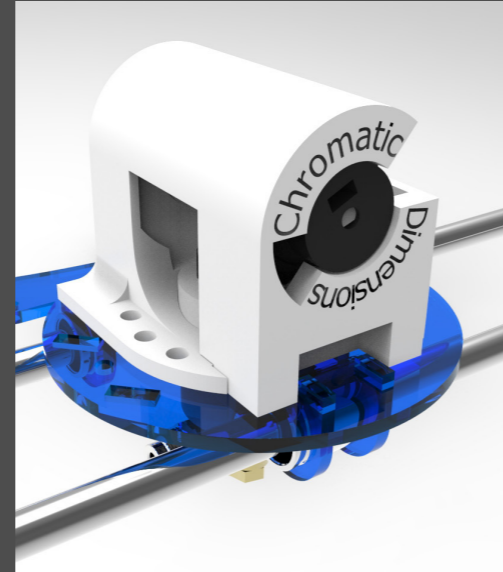
NATIONAL UNIVERSITY OF SINGAPORE

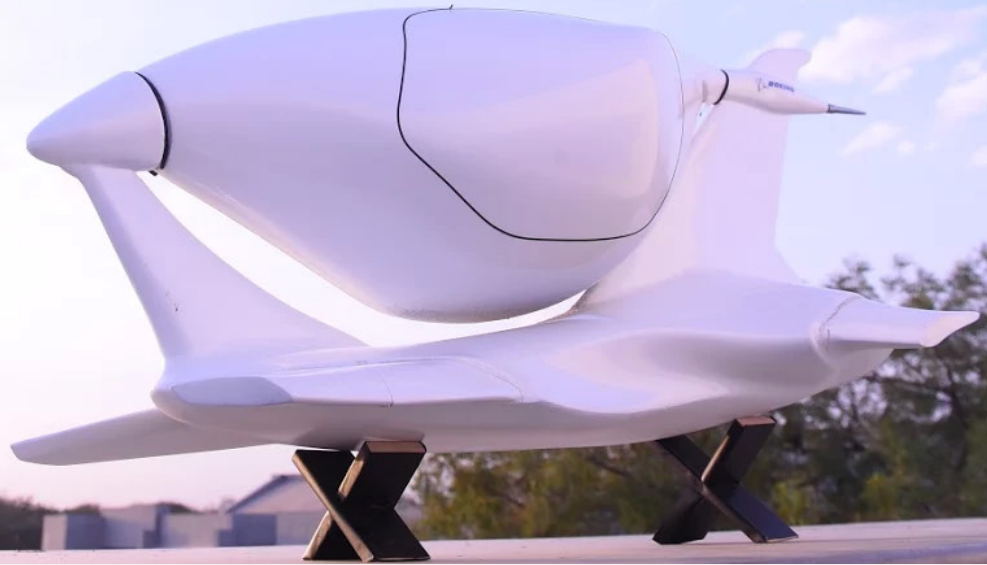
There is a dearth of low-cost multi-colour 3D printers in the market. Many of these 3D printers are also limited in their colour functionality. The printing heads of these colour printers are also bulky and tend to reduce the effective build volume.

To address this gap in the market, a team of students through a self-initiated project aim to develop a multi-colour 3D colour printer capable of printing a multitude of colours within a single printed object.

The printing process will be fully-automated from start to finish.

Software used:  
Autodesk® Fusion 360™





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