



Computer
Aided
Design

UNI BALL

번개조

2012012394 최진혁

2013043423 진병민



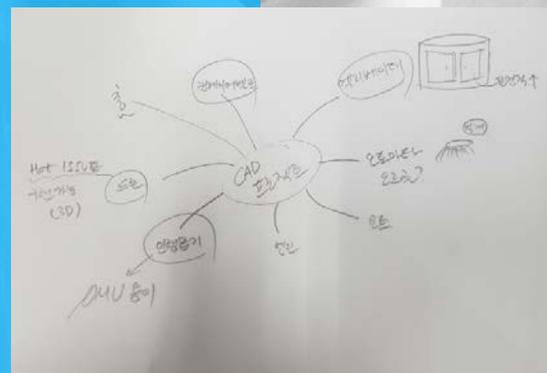
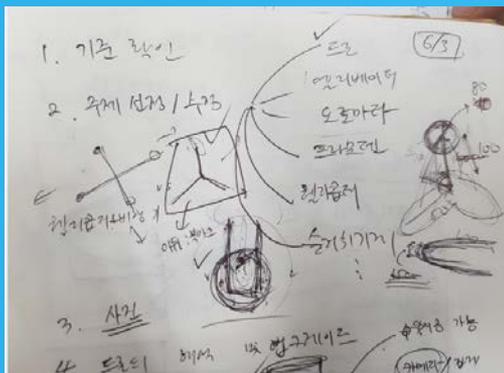
차 례

1. 주제 선정
2. 디자인(설계)
3. 제작과정과 근거 자료 (Body, Wings, Grippers, hydraulic linkage)
4. 제작과정에서의 한계
5. 구동 동영상



Brainstorming

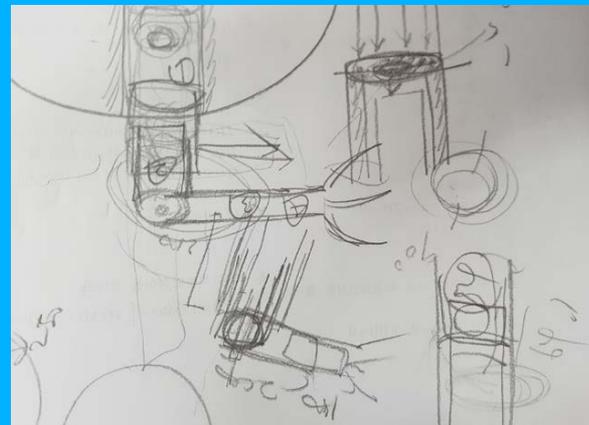
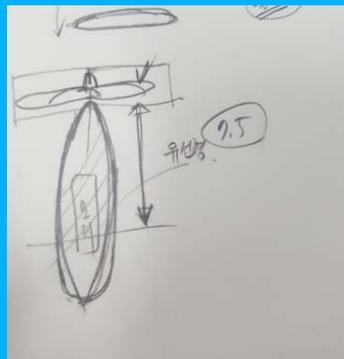
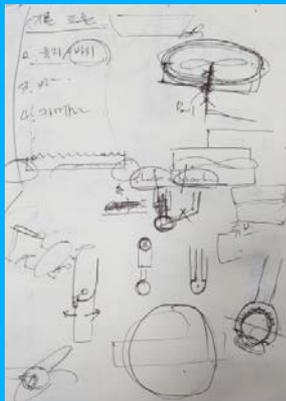
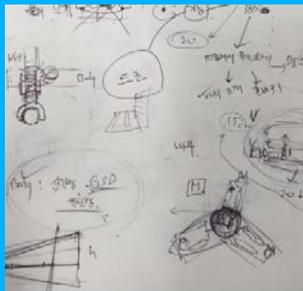
- 엘리베이터
- 드론
- 컨베이어벨트
- 인형뽑기기계
- 자동차 엔진
- 의자
- 프라모델



주제 선정 이유



설계도



UNI-BALL 의 탄생

직전학과와 같은 주제

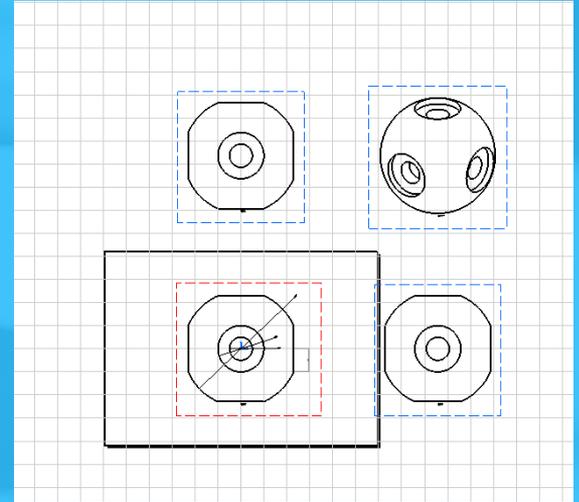
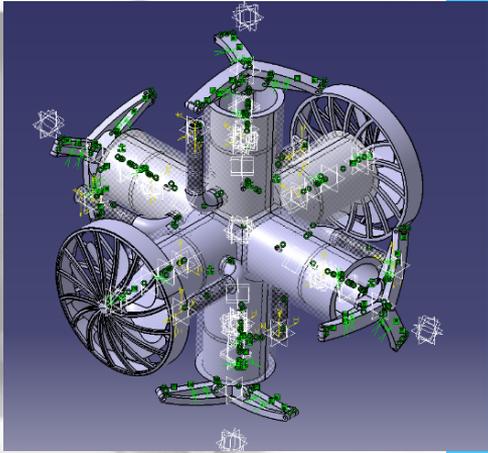
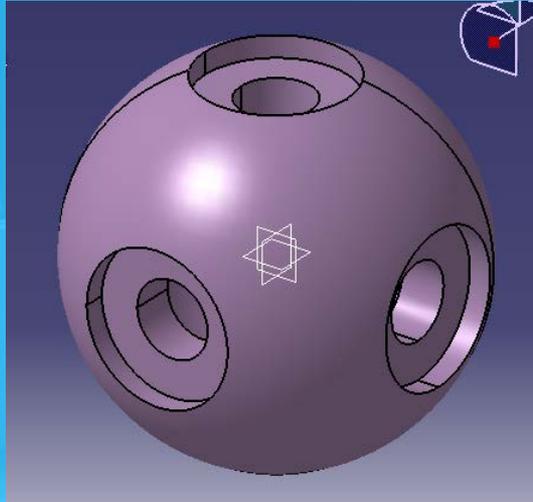
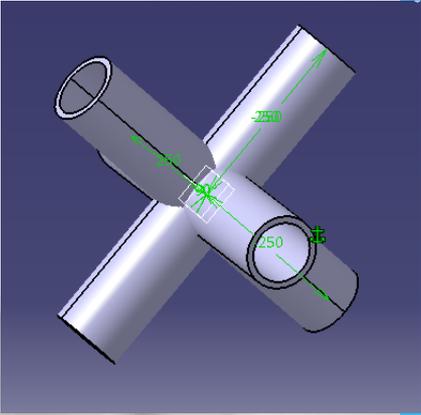
드론의 평이함

UNIBALL

A person wearing a light-colored, ribbed turtleneck sweater is shown in profile, looking down at a smartphone held in their hands. The background is a blurred indoor setting, possibly a cafe or office. A large, semi-transparent blue diamond shape is overlaid on the center of the image, containing white text.

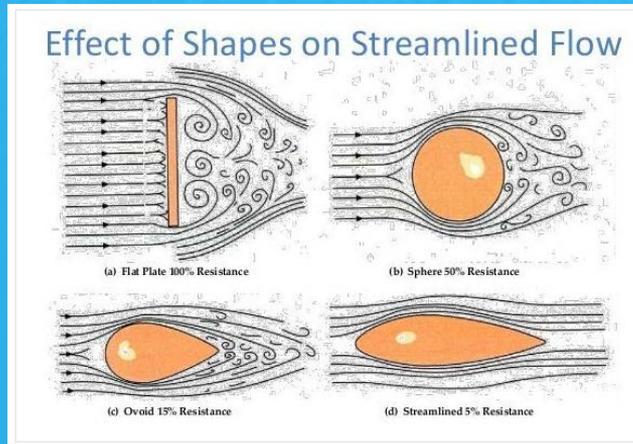
1. 제작과정 _ Body

Body Design_



근거 자료

- 구 - 접촉면 최소 (마찰영향 최소)
- 저항력이 약함



A person wearing a light-colored, ribbed sweater is shown in profile, looking down at a smartphone held in their hands. The background is a blurred indoor setting, possibly a cafe or office. A large, solid blue diamond shape is overlaid on the center of the image, containing white text.

2. 제작과정 _ Wings



BIG CONCEPT

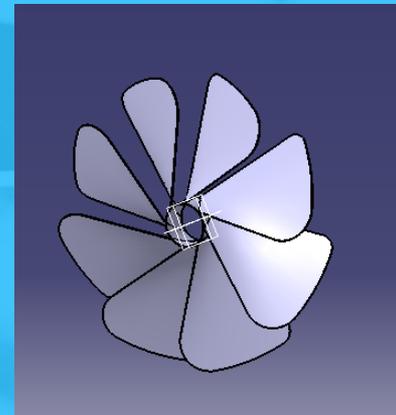
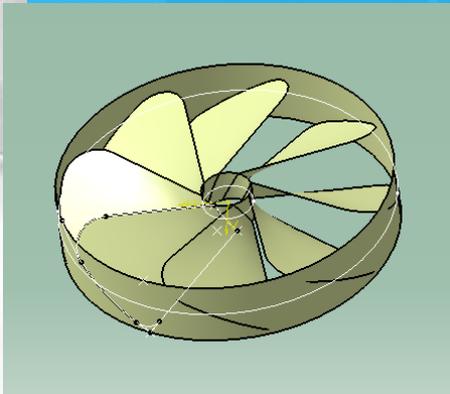
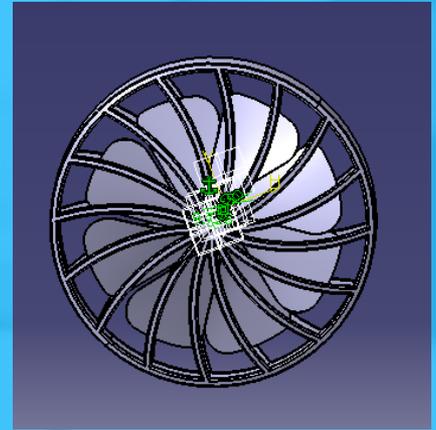
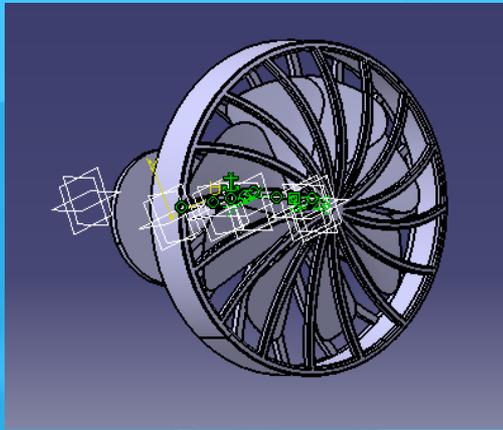
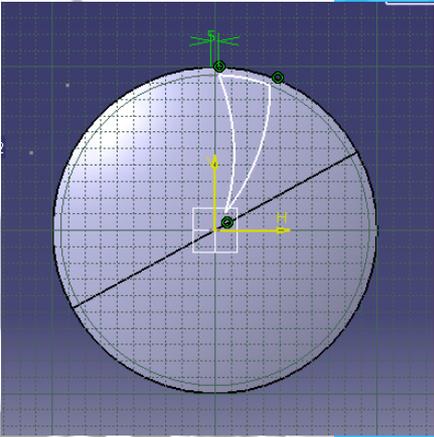
프로펠러는 추진력을 얻는 장비를 기본적으로 지칭하기에, 헬리콥터에서는 추진전동이 아니기에, 프로펠러라 부르기 보다는 Rotary wing 또는 로터라고 씁니다.

헬기와 선박은 운항하는 속도 및 축의 회전속도, 추력을 만들어내는 매질이 확연히 다르기에 그 설계형상이 완전히 다른 형태입니다.

프라모델정도라면 헬기의 로터를 선박에 달아서 사용이 가능할 지 모르겠지만, 실제 상황에서는 불가능하다고 보시는게 맞을듯 싶습니다.

아마 선박의 프로펠러를 헬기의 로터로 대체하면 공기를 가르던 로터 블레이드강도가 물속에서 그 저항력을 이기지 못하여 부러질것으로 생각되며, 부러지지 않고 돌아간다 하더라도 원하는 추진력에서 거의 비효율적으로 발생 될겁니다.

Wings

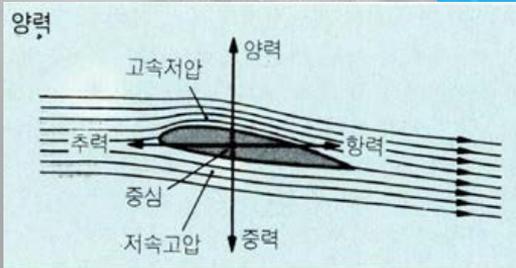


근거자료



→ 지상 운용 구형 드론(유니블)

→ 양력(베르누이의 원리)



무게를 모두 깎아 무게를 뺀 다음에 앞으로 내보내라는 원은 없습니다.
일반 비행기는 공기가 앞으로 밀려 나가며 움직이고 분산됩니다.
반면, 보네이도는 공기 거동을 만들어 최대한 멀리까지 날 운기가 가능 수 있도록 합니다.

The diagram compares a conventional drone (일반선용기) and a Boneyard drone (보네이도 에어서플라이어). The conventional drone is shown with a simple rectangular body and four propellers. The Boneyard drone is shown with a more complex, curved body and four propellers. The Boneyard drone is shown in a more dynamic, curved position, suggesting it can fly in a more agile manner.

사진 출처 : 보네이도 공식홈페이지,
네이버 지식백과

A person wearing a light-colored, ribbed sweater is shown from the chest up, holding a smartphone in their hands. The background is a blurred indoor setting, possibly a cafe or office. A large, semi-transparent blue diamond shape is overlaid on the center of the image, containing white text.

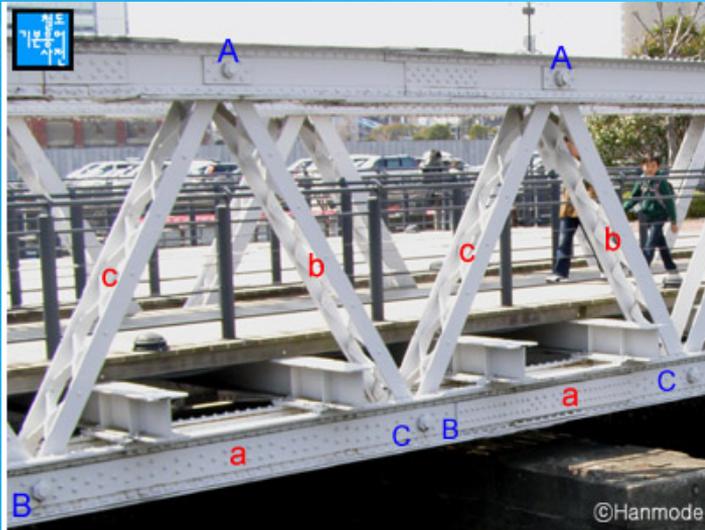
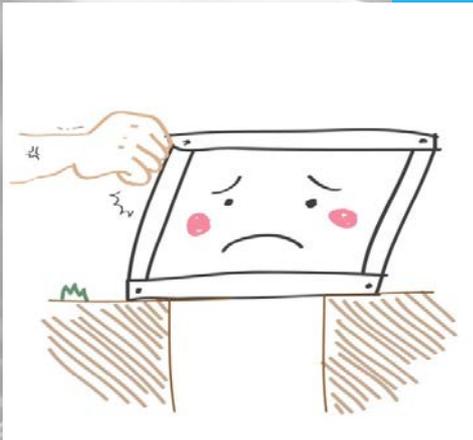
3. 제작과정 _ Grippers/legs

착안



사진 출처 : Britannica 지식백과,
네이버카페_아시아를 좋아하는 사람들

참고자료 _삼각형구조(트러스 구조)



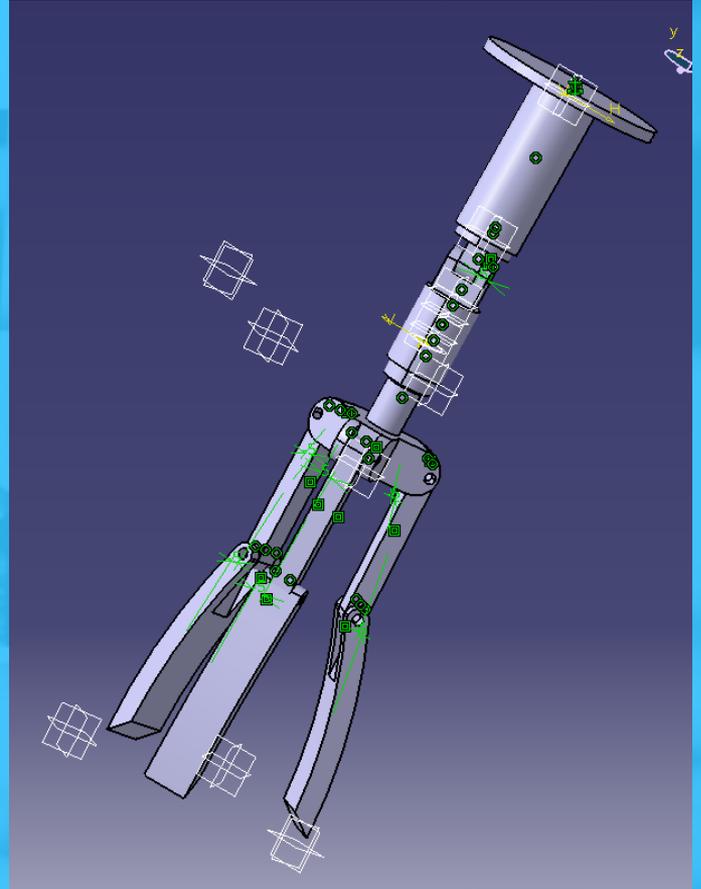
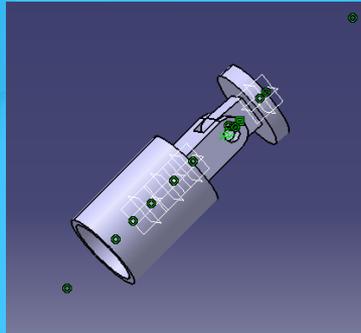
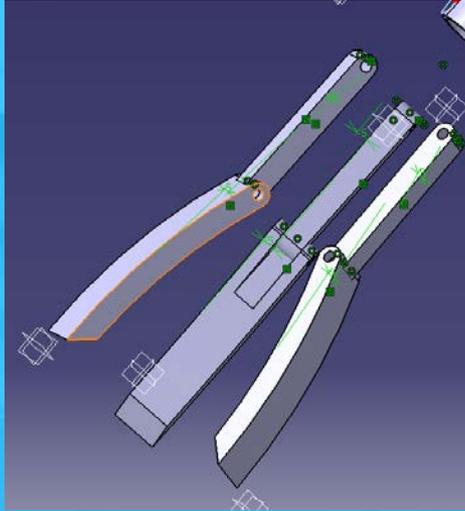
(트러스 구조의 특징)

트러스 구조의 특징은 삼각형을 구성하는 막대(부재)에는 축력(압축력 또는 인장력)만이 작용하는 것입니다.

단, 하중(외력)은 부재의 결합 부분(절점 또는 격점)에만 가해지는 것으로 합니다.

(부품의 중앙 등에 하중을 걸면 힘 모멘트가 발생합니다.)

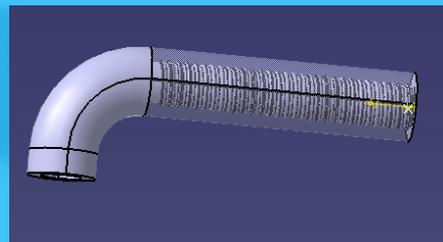
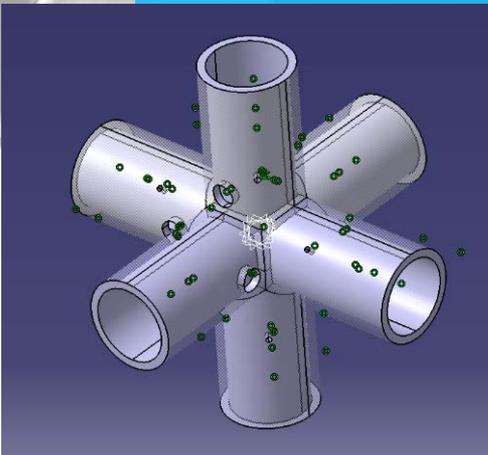
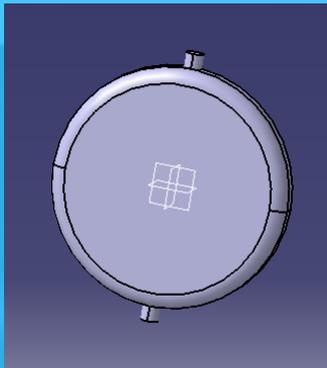
Gripper/Leg



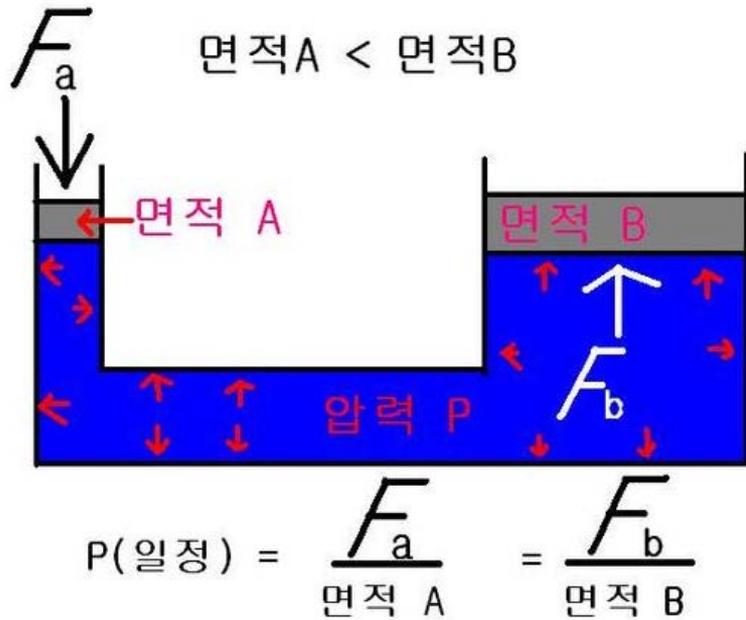
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4. 제작과정 _ hydraulic linkage

유압기



근거자료_파스칼의 원리



어려웠던 점

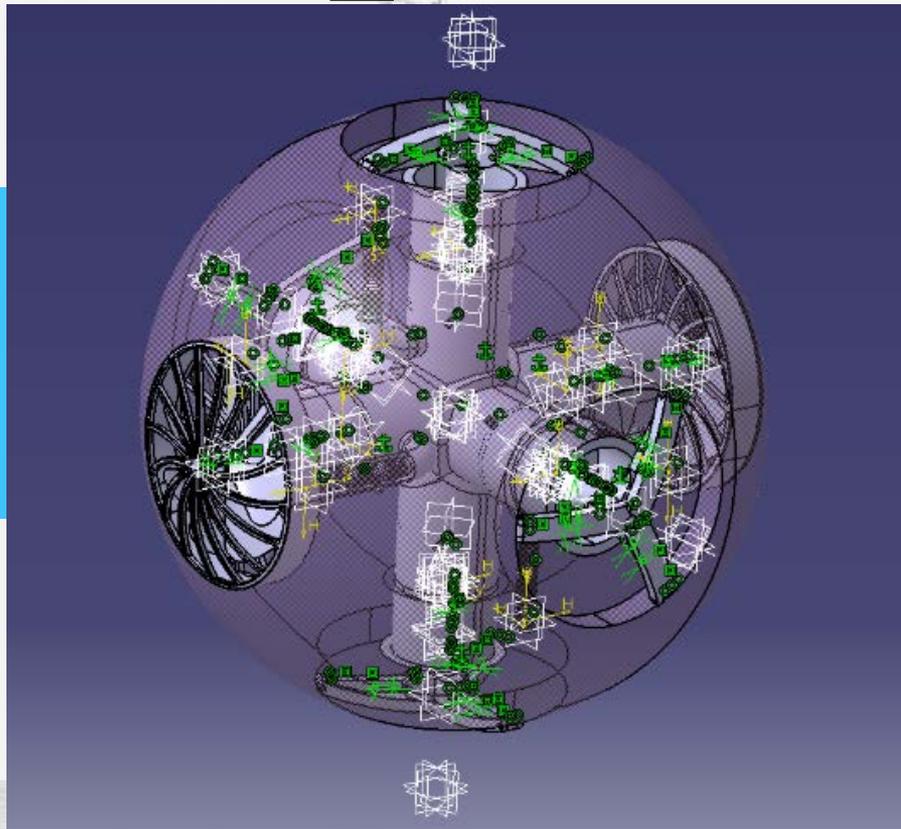
→ Inventing

Gripper 만드는 과정 유격
접힌 Gripper & 원의 곡률

→ Realistic

공기압 vs 유압
에너지

UNI_BALL



Youtube Link : <https://youtu.be/H1gM7Qb61kE>

Thanks!

A grayscale photograph of a hand holding a piece of white chalk, writing on a chalkboard. The hand is positioned on the right side of the frame, and the chalk is in contact with the board. In the background, there is some faint, illegible handwriting on the chalkboard.

Any questions?