



Computer **A**ided **D**esign

Final Project
Port Facility

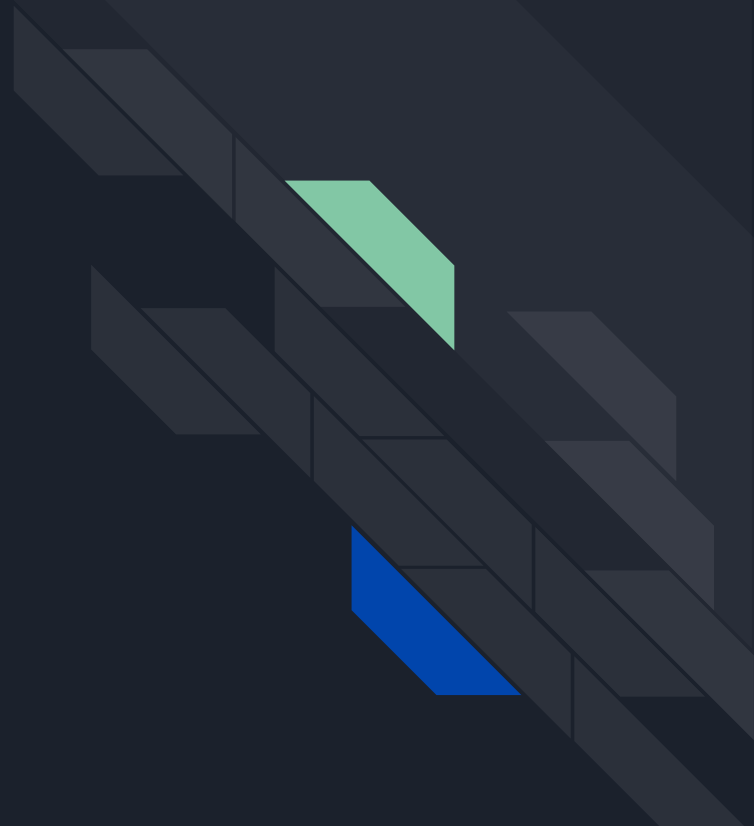
Team 10: 나항만을 위하여

2019055114 Kyemhee Yoo

2019023763 Won Jang

Table of Contents

- Background For Topic
- Process of Project
- Results and Simulation
- Discussions



Background for Topic / 주제선택 배경





Why Port Facility?

하나의 물체? NO

하나의 시스템? YES

선박	➡	Generative Shape Design + Part Design + Drawing
크레인(2)	➡	Part Design + Generative Shape Design + Drawing
트럭	➡	Part Design + Drawing
전체 시스템	➡	DMU Kinematic + Assembly



역할분담

유겸희

선박, 트럭, Assembly, DMU Kinetics, 영상

장원

크레인 1, 크레인 2, Assembly, DMU Kinetics

Project Explanation / 프로젝트 설명

1.
선박을 통해 컨테이너가
들어온다

4.
트랜스퍼 크레인으로
컨테이너 운반



2.
선박의 컨테이너를 컨테이너
크레인으로 들어 트럭으로
이동

3.
트럭으로 컨테이너 운반

Project Explanation / 프로젝트 설명 (참고자료)

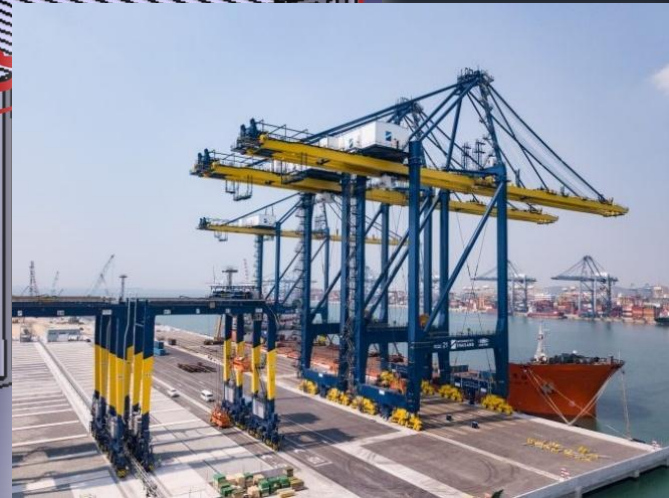
C Crane Size = 1000 * 4000

T Crane Size = 1500 * 1500 * 1200 - 기준

Container Size = 900 * 3000 * 1200

Ship Size = 10,000 * 3,000

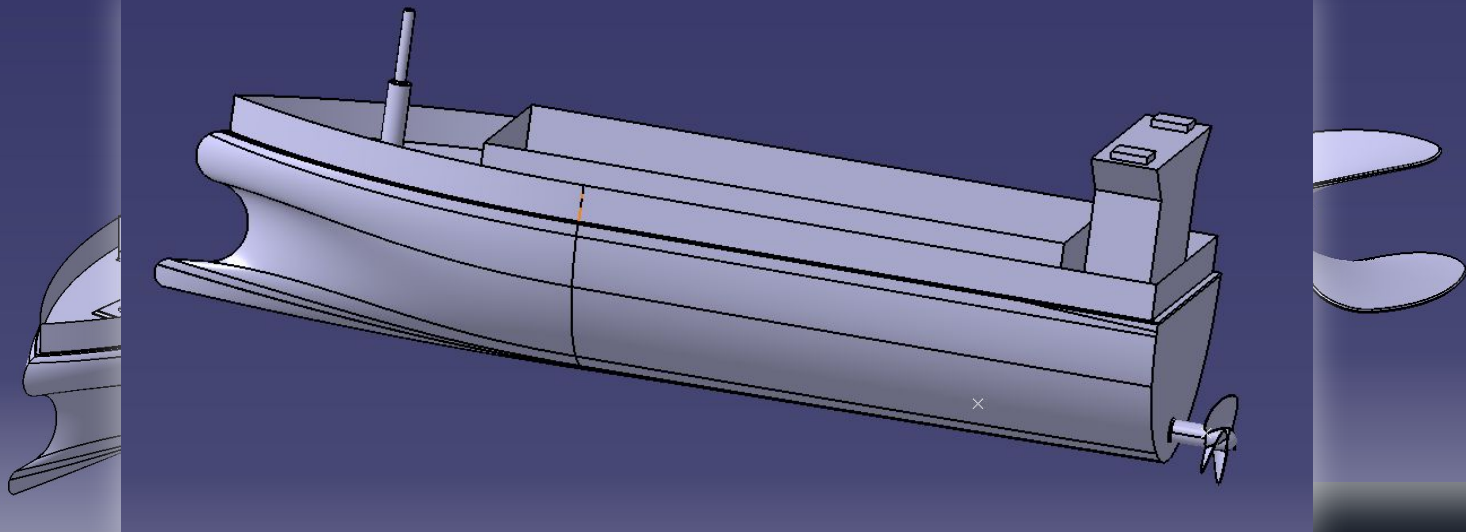
Truck Size = 400 * 1500



Process of Building / 설계 과정

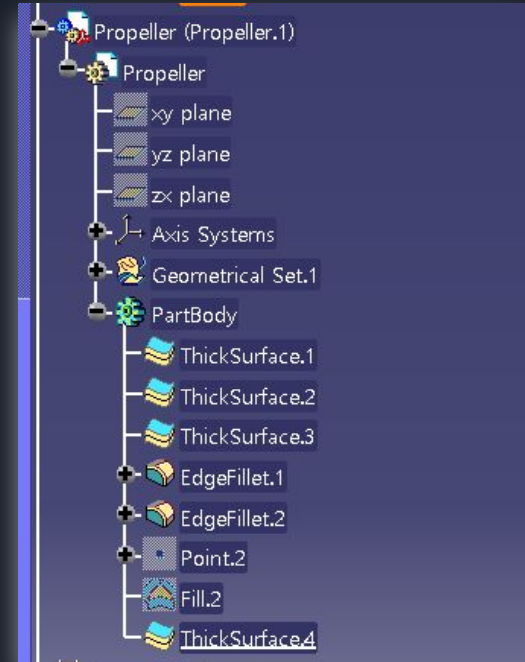
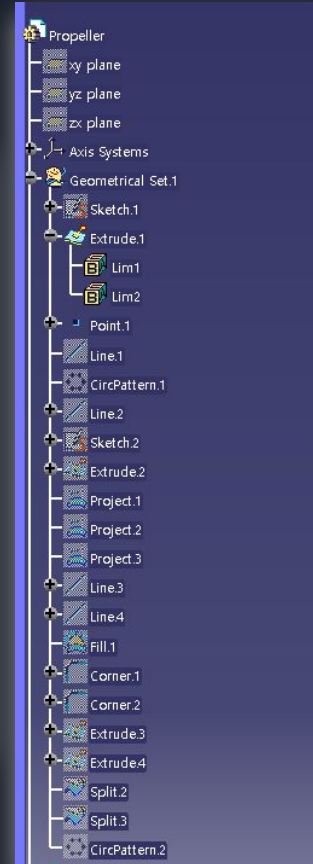
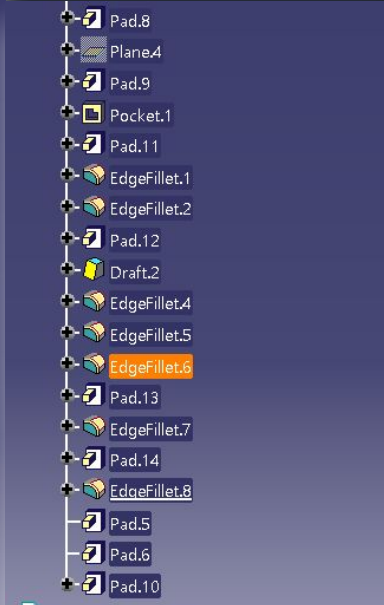
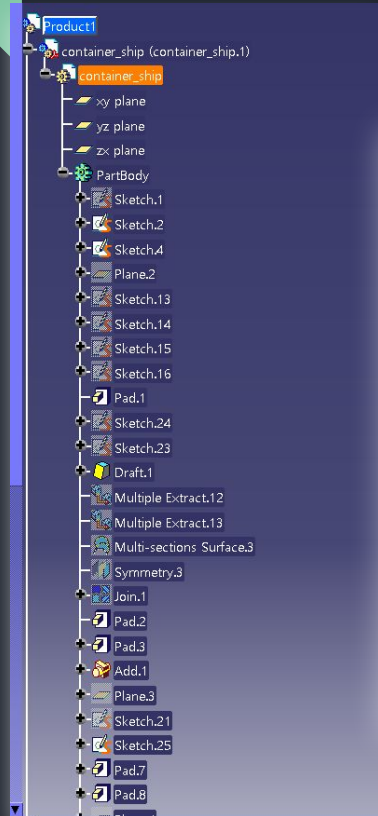


Container Ship + Propeller / 선박 + 프로펠러

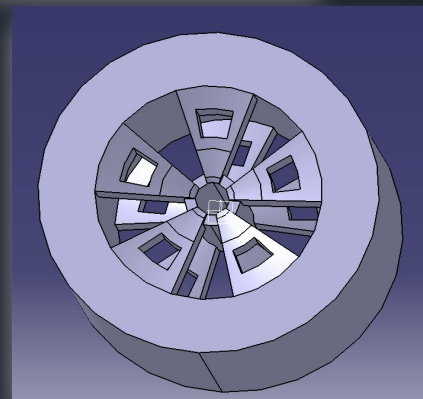
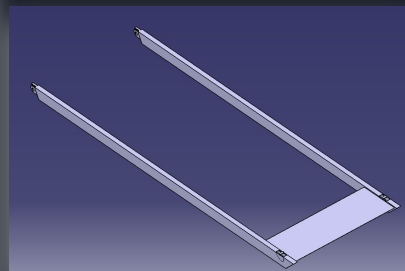
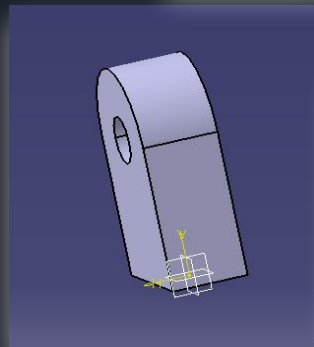
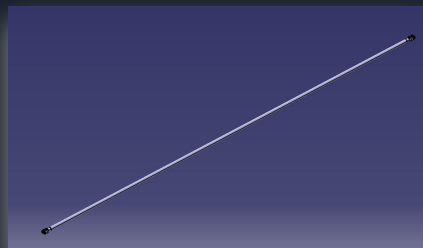
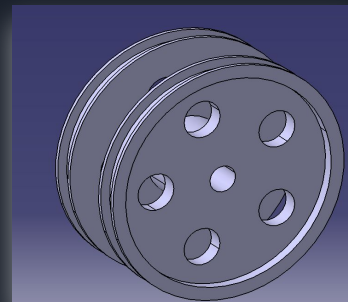
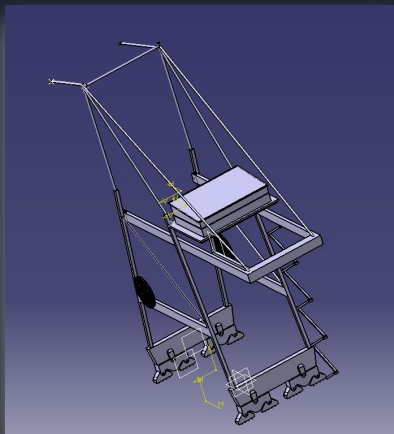
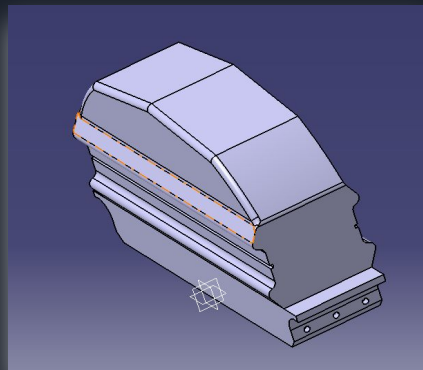


참고: <https://www.youtube.com/watch?v=VKpvg1fbJHQ&t=30s>

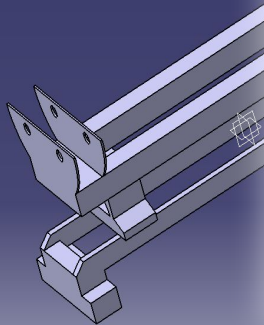
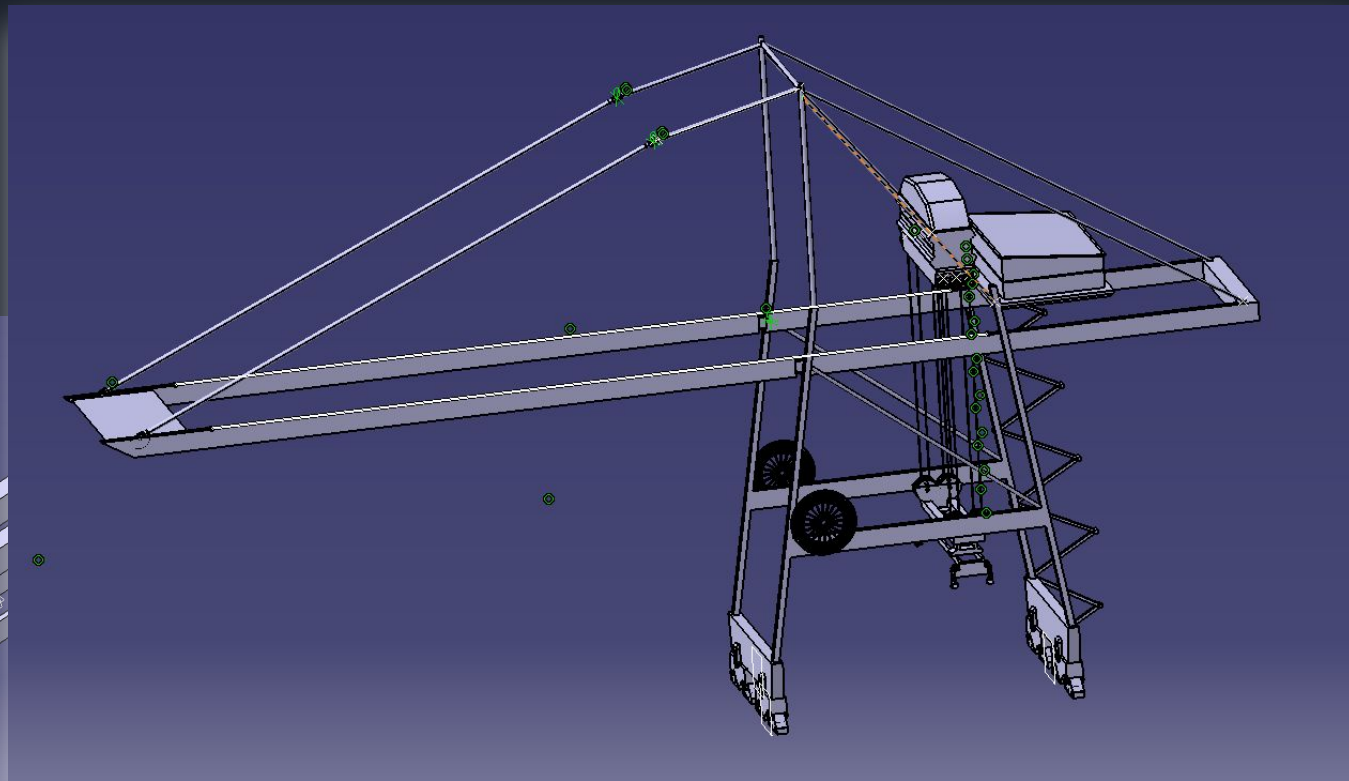
Container Ship + Propeller / 선박 + 프로펠러

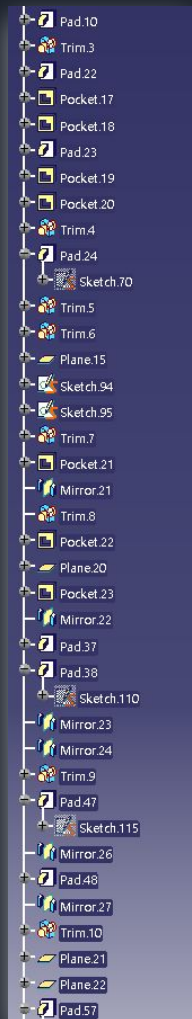
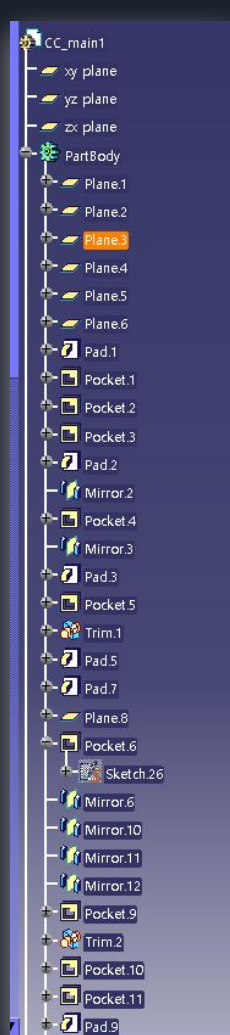


Container Crane / 컨테이너 크레인

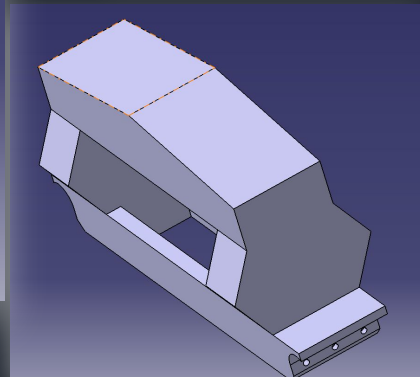
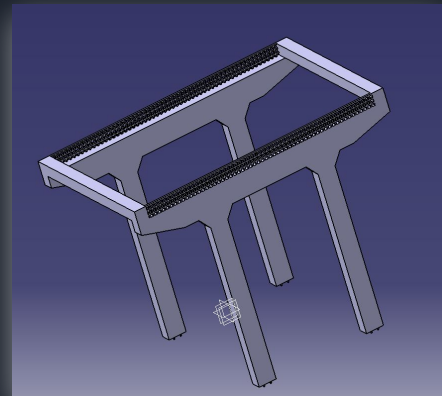
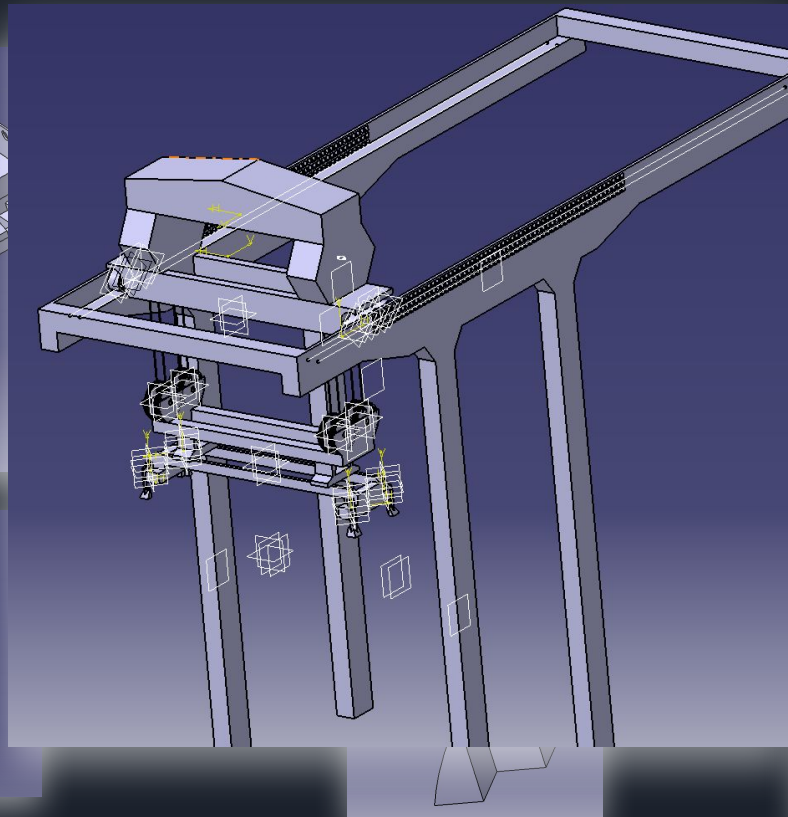
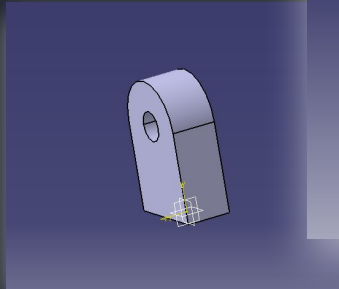
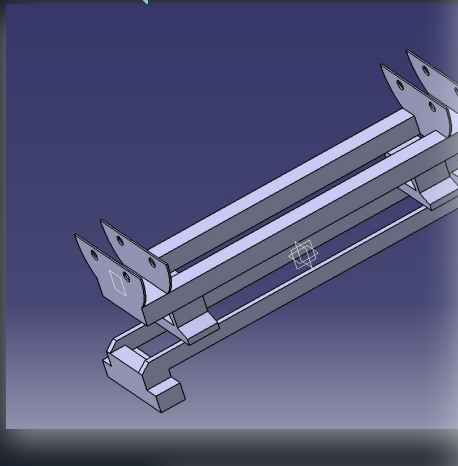


Container Crane / 컨테이너 크레인



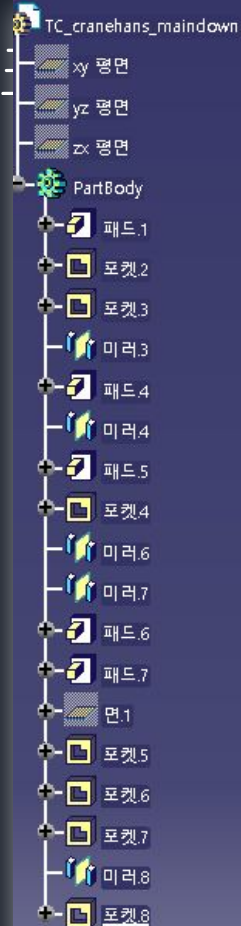


Transfer Crane / 트랜스퍼 크레인

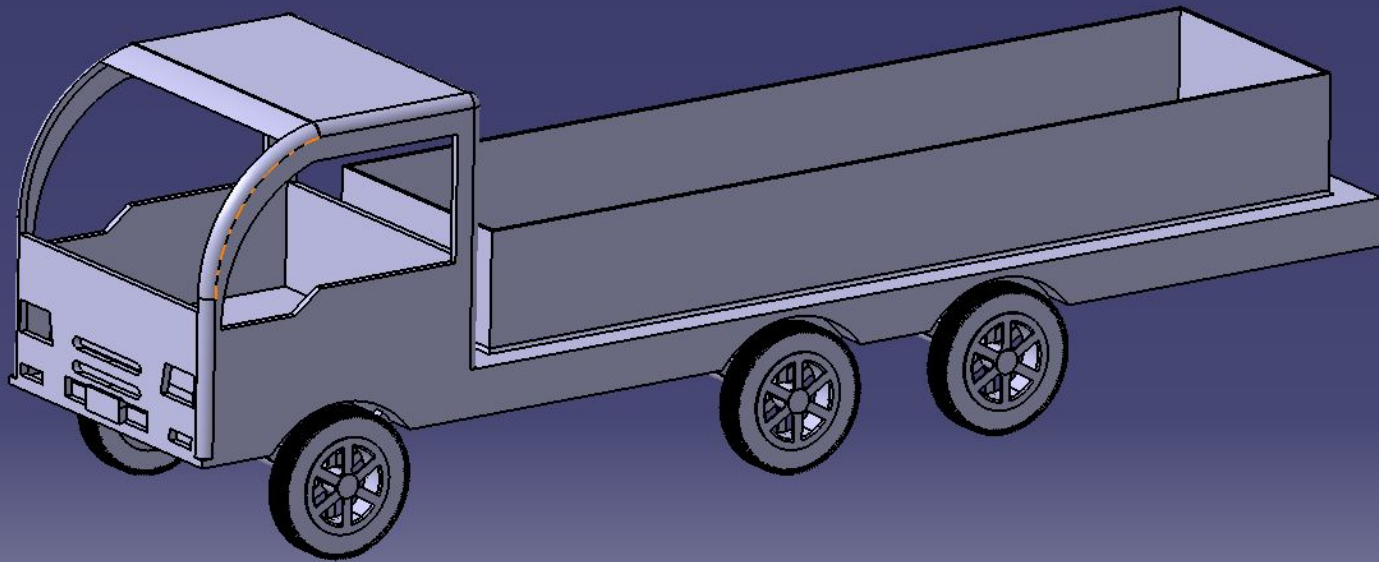


Trans

랜스퍼



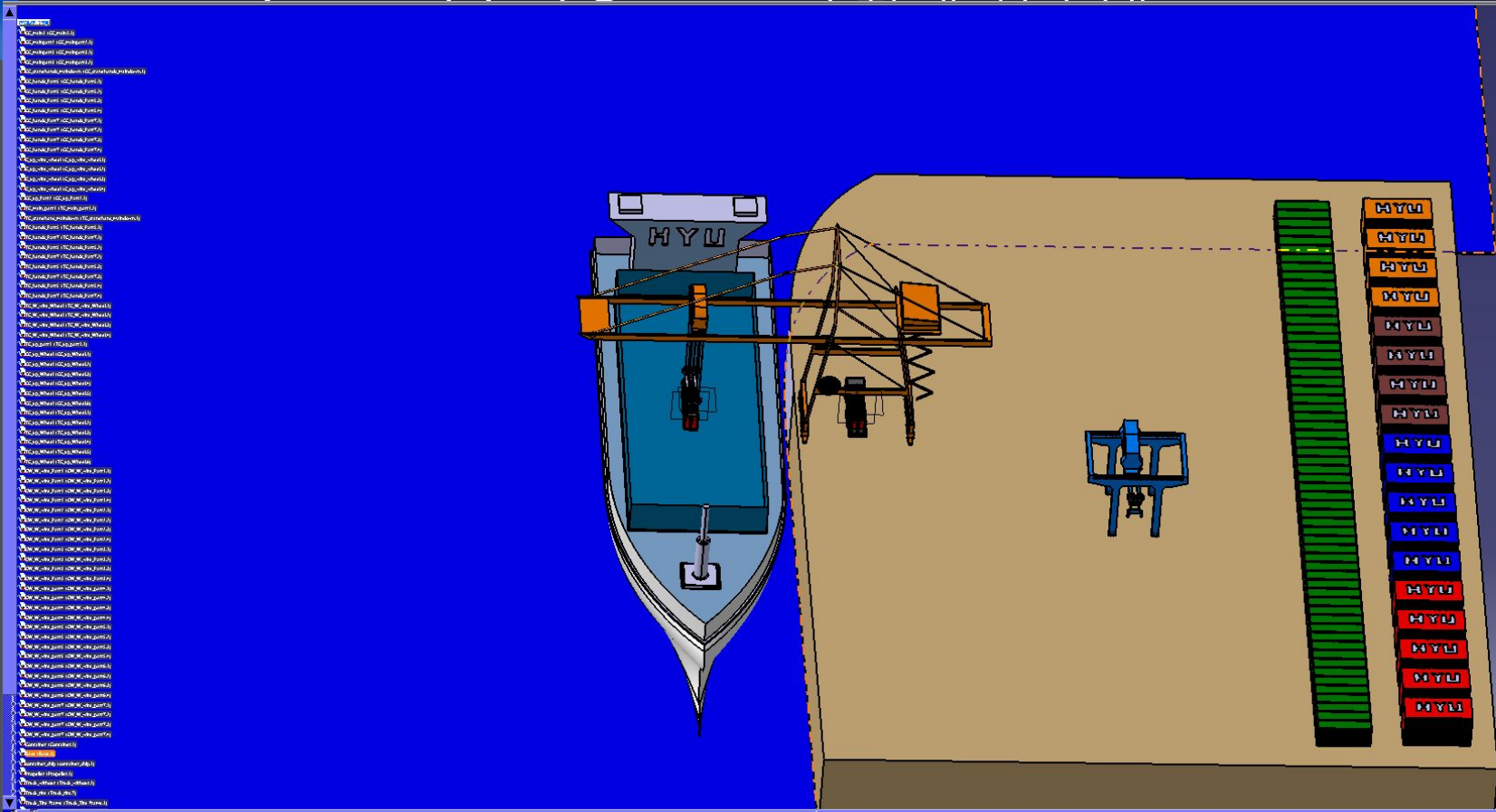
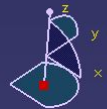
Trailer Truck / 트레일러 트럭



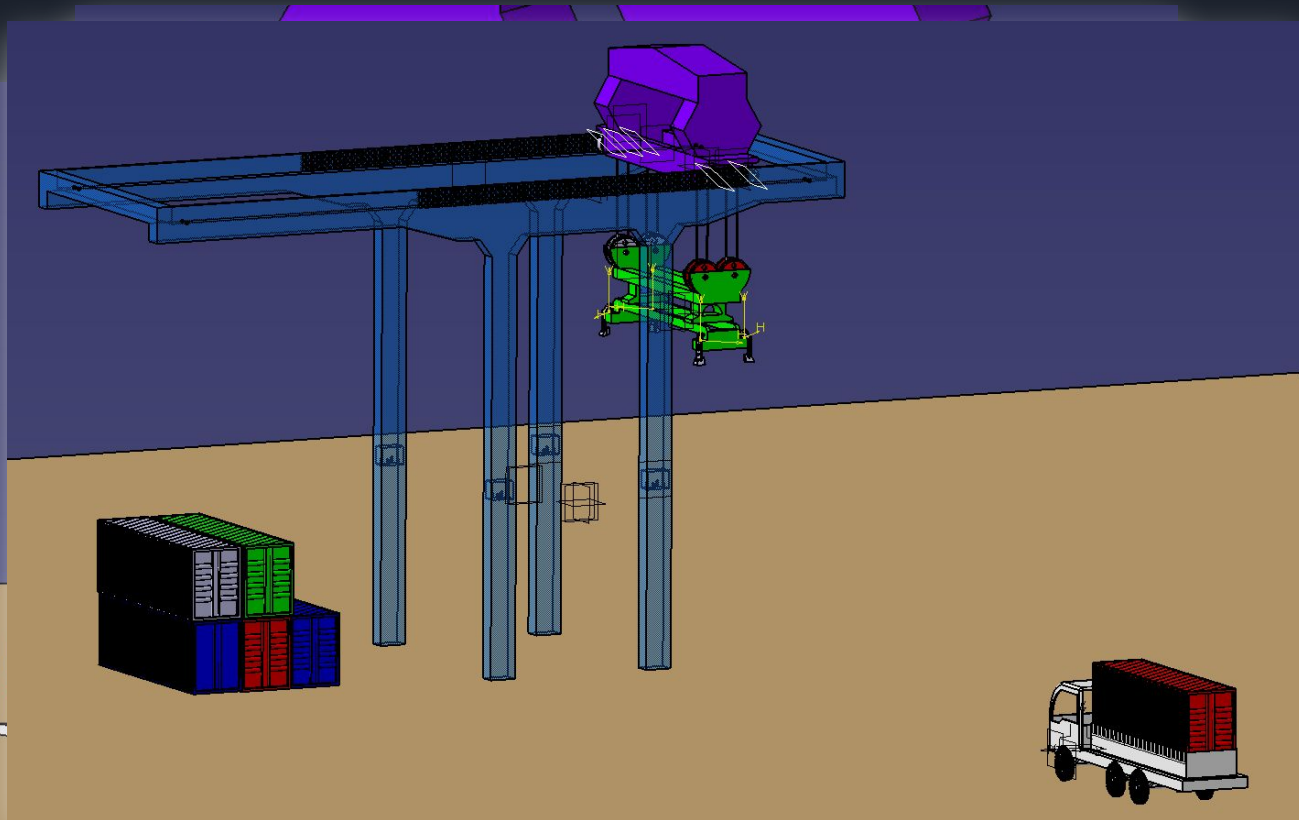
참고(truck head): <https://www.youtube.com/watch?v=5c-qMzyiBzo&t=78s>

Trailer Truck / 트레일러 트럭





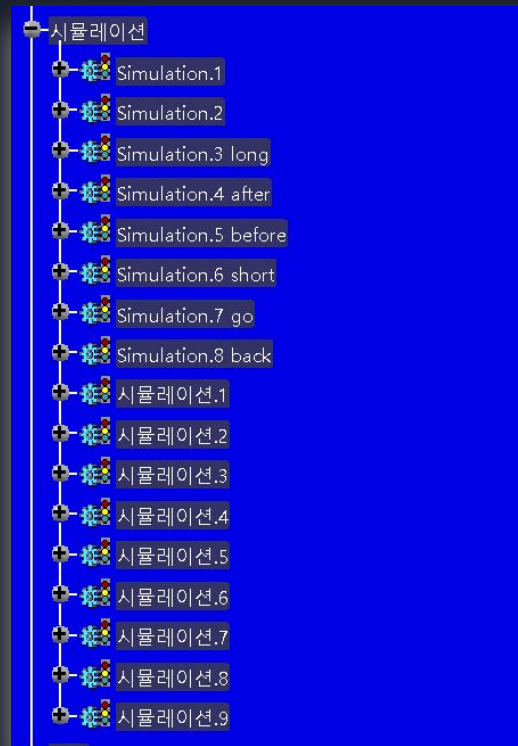
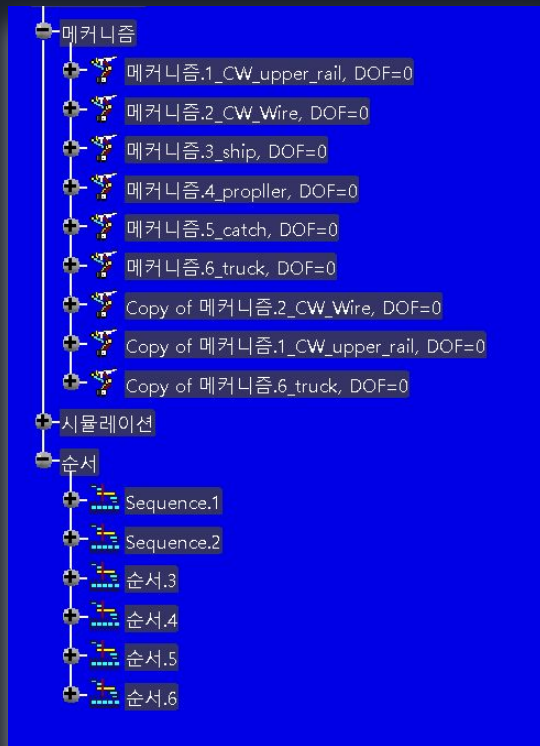
Assembled System / 전체 시스템



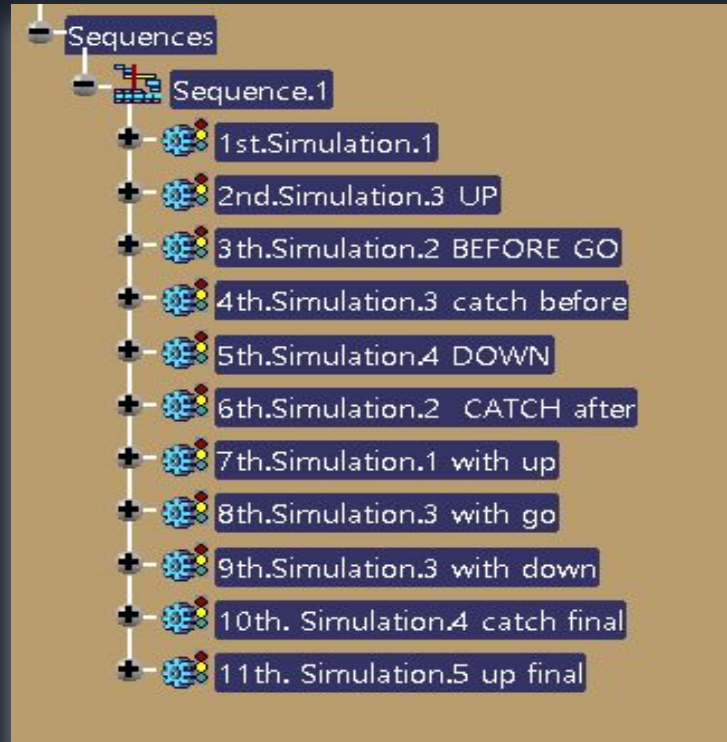
Results and Simulation / 결과 및 시뮬레이션



DMU Kinematics



DMU Kinematics





Simulation



Youtube Link



[Youtube Link](#)

Discussions / 고찰



Difficulties?

01

Part Design

- 복잡한 형상을 구현하기 위해 **Reference** 많이 필요
- **Crane Outsourcing X**

02

Generative Shape Design

- 선박 **Outsourcing X** -> 제작에 대한 학습 필요
- 선박 제작시 원하는 형태의 **surface** 제작 어려움 (여러번 반복제작)

03

Assembly

- 각자 맡은 역할을 **Assembly**할 시 규격이 안맞는 경우
- 여러개의 컨테이너와 크레인 구축 - 사이즈가 너무 큼

04

Simulation / Kinematics / Over All

- 크레인 파트에서 현실 도르래를 구현하지 못함
- **Sequence**에서 연결지점에서, 각 파트별 시뮬레이션에 겹치는 부분이 있었다
- 프로젝트 파일이 너무 커서 **Kinematics** 구현하는데 시간이 매우 오래 걸림(**Sequence**)를 다 완성하지 못함
- 기술적 한계(컴퓨터) (영상 중 카메라 앵글 변화)

Possible Improvements?

01	Part Design	• 각 파트 별 디테일 추가 예) 트럭의 문고리, 크레인 난간
02	Generative Shape Design	• Truck 제작시 Part Design만이 아닌 GSD도 같이 사용한다
03	DMU Kinematics	• 선박의 프로펠러 및 이동경로를 제외한 다른 기능 추가 예) 닻을 내린다/안테나 회전
04	Simulation / Over All	• 사이즈를 작게 만들어 시뮬레이션 효율 증가 • 크레인 및 트럭을 더 만들어 디자인 추가 - 역시 사이즈를 줄여야 가능

감사합니다

Q&A

