

캐터필러 팀

조원 : 임상혁, 정희용, 조우현

팀 명

- ▶ 세계적인 중장비 제조업체 '**Caterpillar**' 사의 제품이 어원
- ▶ 무한궤도를 통칭하는 말
- ▶ 만드는 과정에서 무한궤도처럼 끊임없이 일한 것을 나타냄
- ▶ 많은 시간을 투자한 궤도부분을 강조하고 싶었음

프로젝트 주제 선정 배경

1. 다양한 종류의 DMU Kinematics 포함한 기계장치
2. 움직임을 가시적으로 나타낼 수 있어야 함
3. 기존의 기계 장치와는 차별화

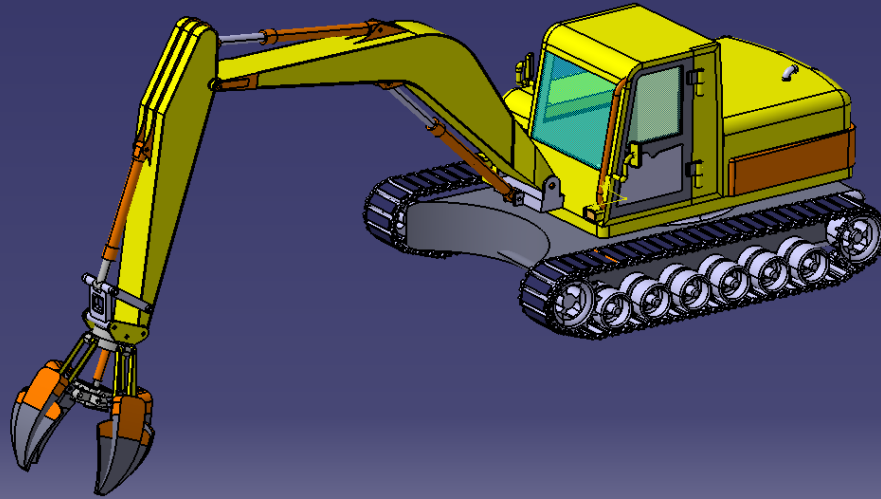
프로젝트 주제

➡ 무한궤도와 암(Arm)을 변형시킨 포크레인



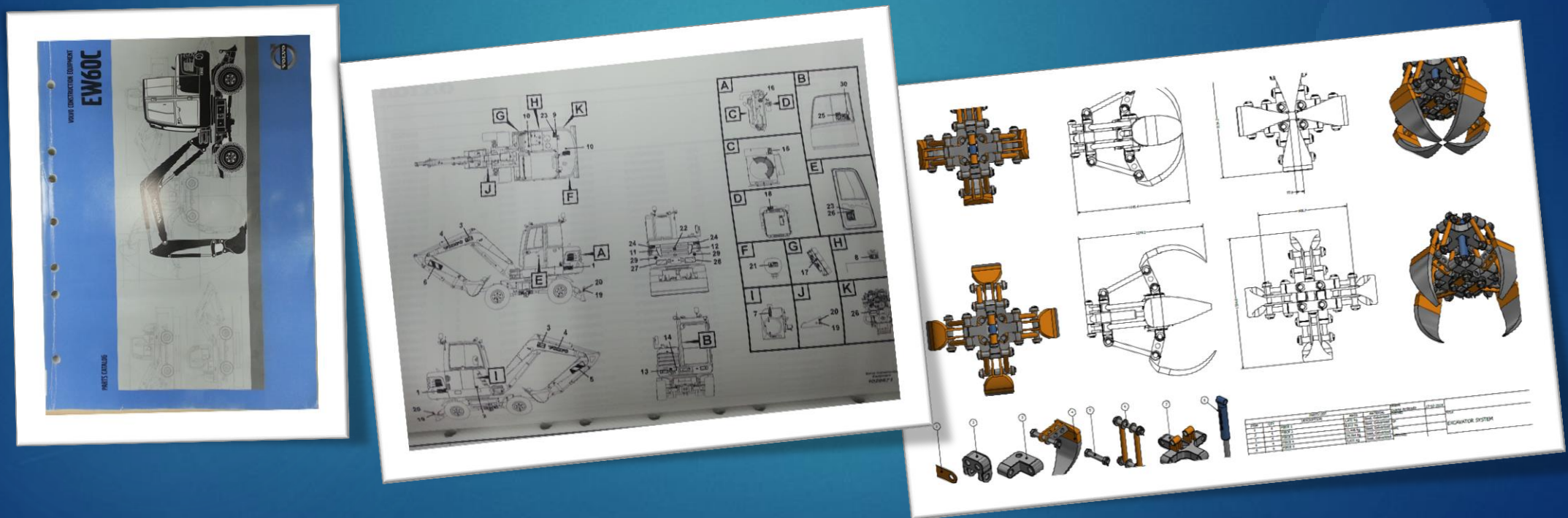
완성 이미지

Part6 (Part6.1)
Part6 (Part6.2)
Part6 (Part6.4)
Part6 (Part6.5)
Part6 (Part6.6)
Part6 (Part6.7)
Part7 (Part7.1)
Part8 (Part8.1)
Part9 (Part9.1)
Part9 (Part9.2)
Part9 (Part9.3)
Part9 (Part9.4)
Part9 (Part9.5)
Part9 (Part9.6)
Part4 (Part4.2)
Part3 (Part3.3)
Part3 (Part3.4)
Part6 (Part6.3)
Part6 (Part6.8)
Part6 (Part6.9)
Part6 (Part6.10)
Part6 (Part6.11)
Part6 (Part6.12)
Part2 (Part2.1)
Part2 (Part2.2)
Part2 (Part2.3)
Part2 (Part2.6)
Part2 (Part2.8)
Part2 (Part2.13)
Part2 (Part2.14)



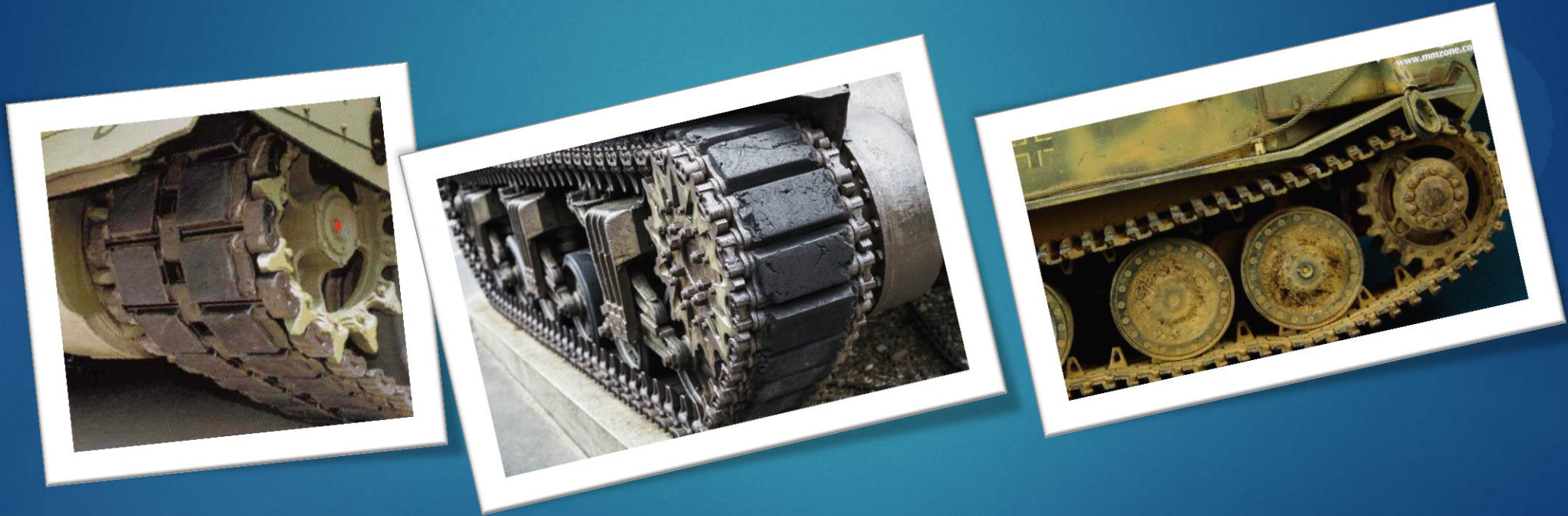
모델 생성 준비

▶ 자료 조사 - 도면



모델 생성 준비

- ▶ 무한궤도 구현 시 참조한 구글 이미지



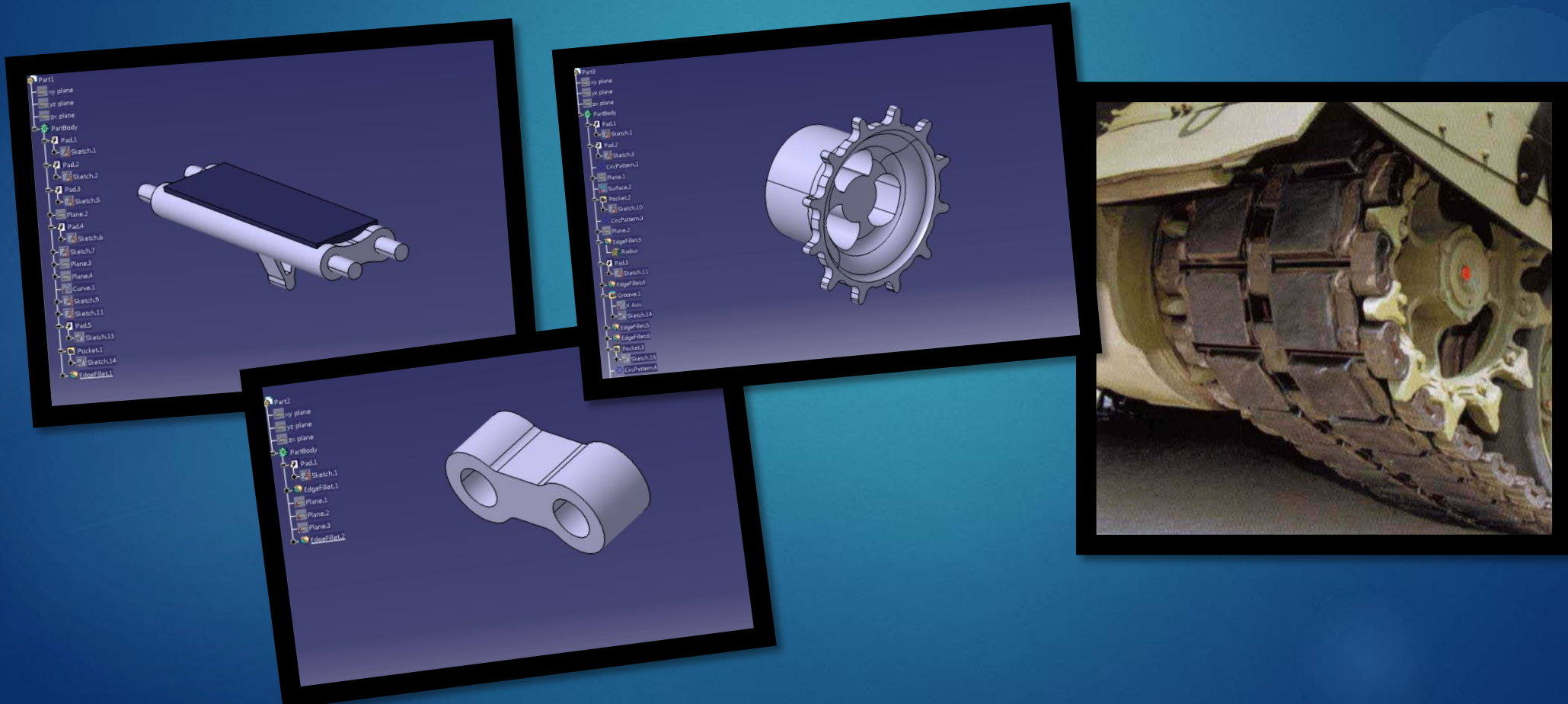
모델 생성 준비

<모델 파트 별 분담>

- ▶ 궤도파트
 - ▶ 궤도 모델, 움직임 구현
- ▶ 포크레인 암, 집게 파트
 - ▶ 집게 부분 모델 생성, 움직임 구현
- ▶ 몸통, 포크레인 붐 파트
 - ▶ 몸통, 붐 부분 모델 생성

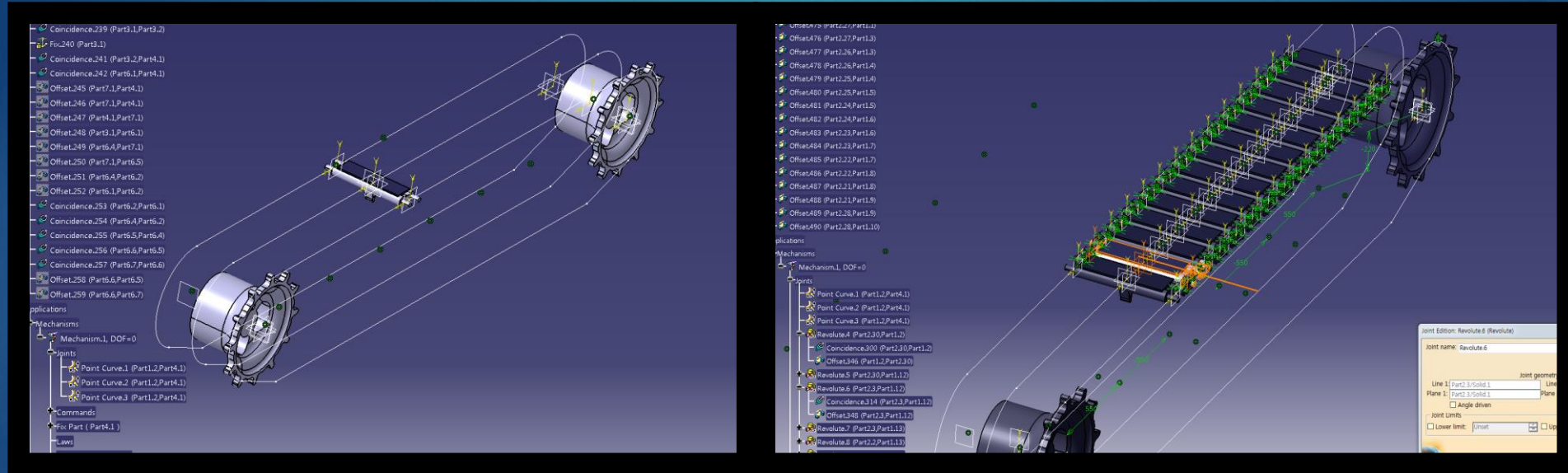
모델 생성 과정 - 궤도

- ▶ 조사한 이미지를 토대로 부품 생성



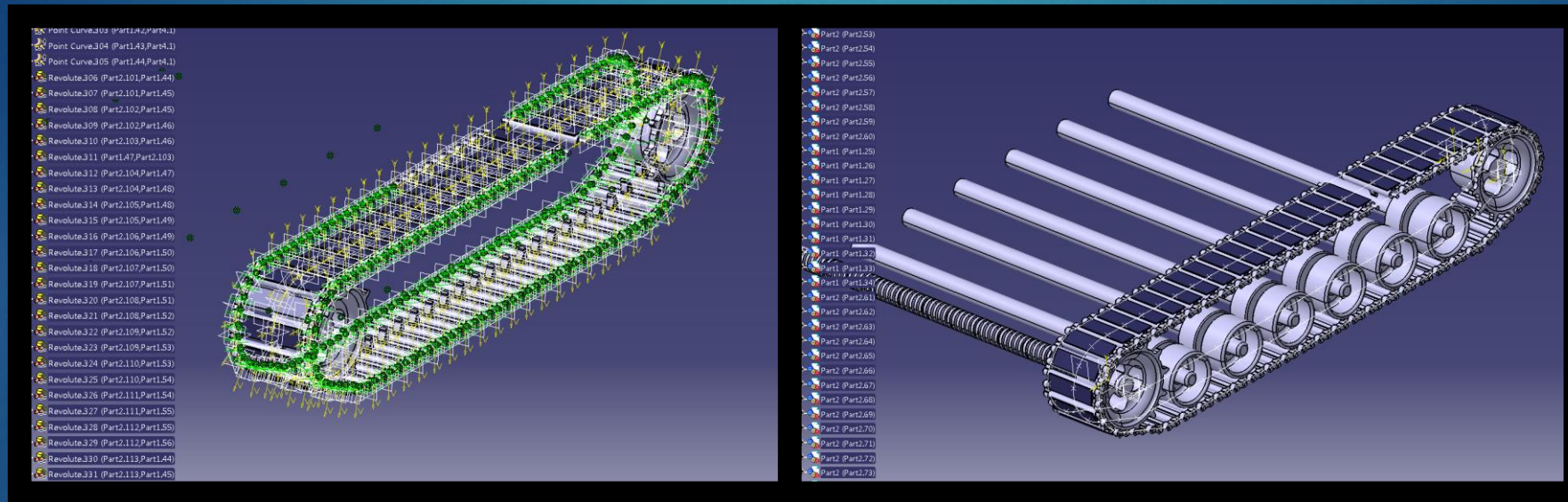
모델 생성 과정 - 궤도

- ▶ 트랙 생성, 조각에 Constraint, Revolute, Point Curve 부여



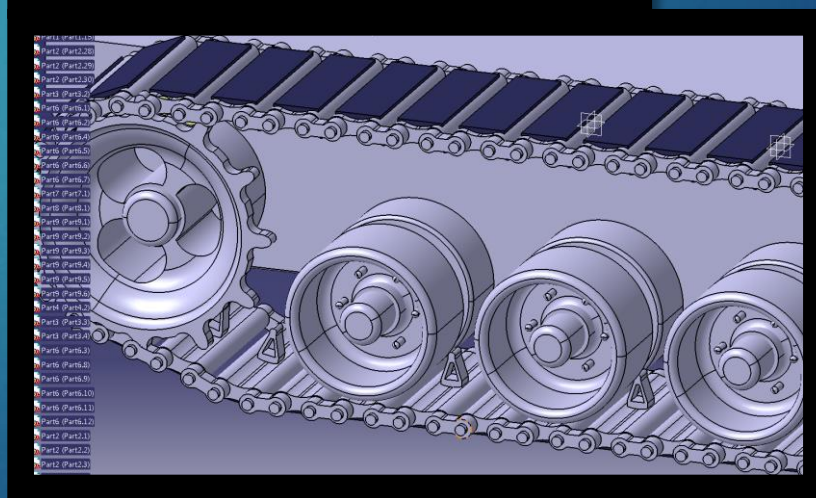
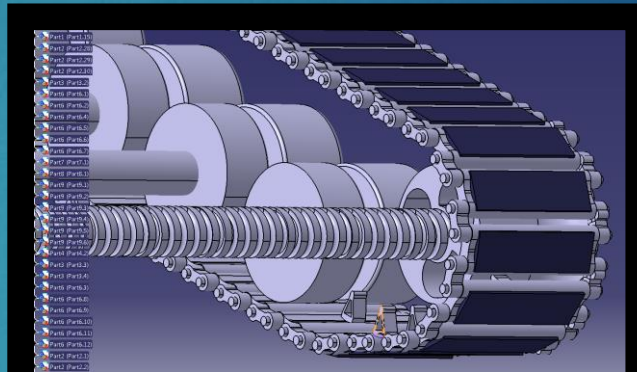
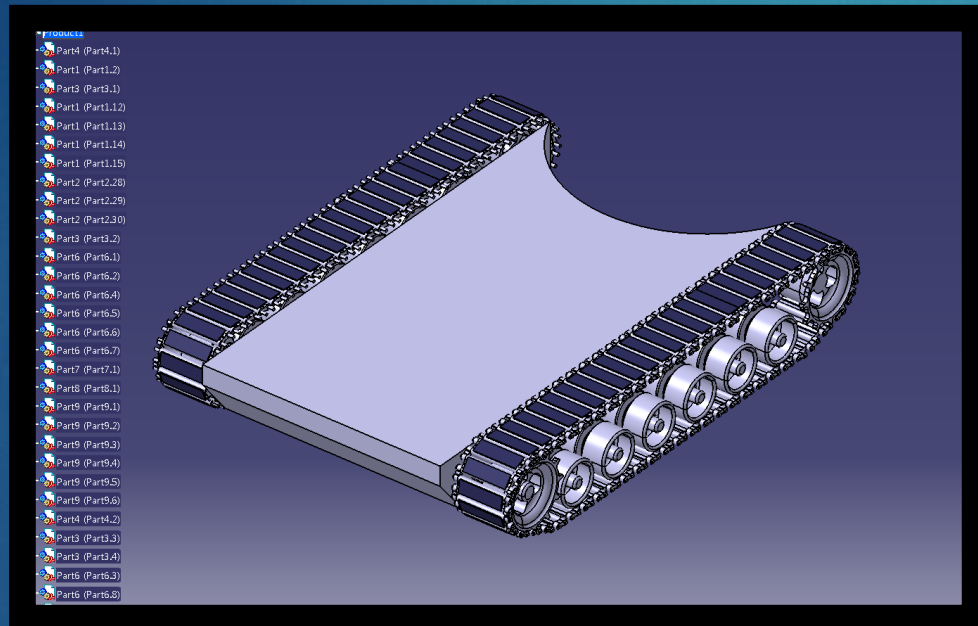
모델 생성 과정 - 궤도

- ▶ 같은 방식으로 계속 궤도 생성, 부품 추가



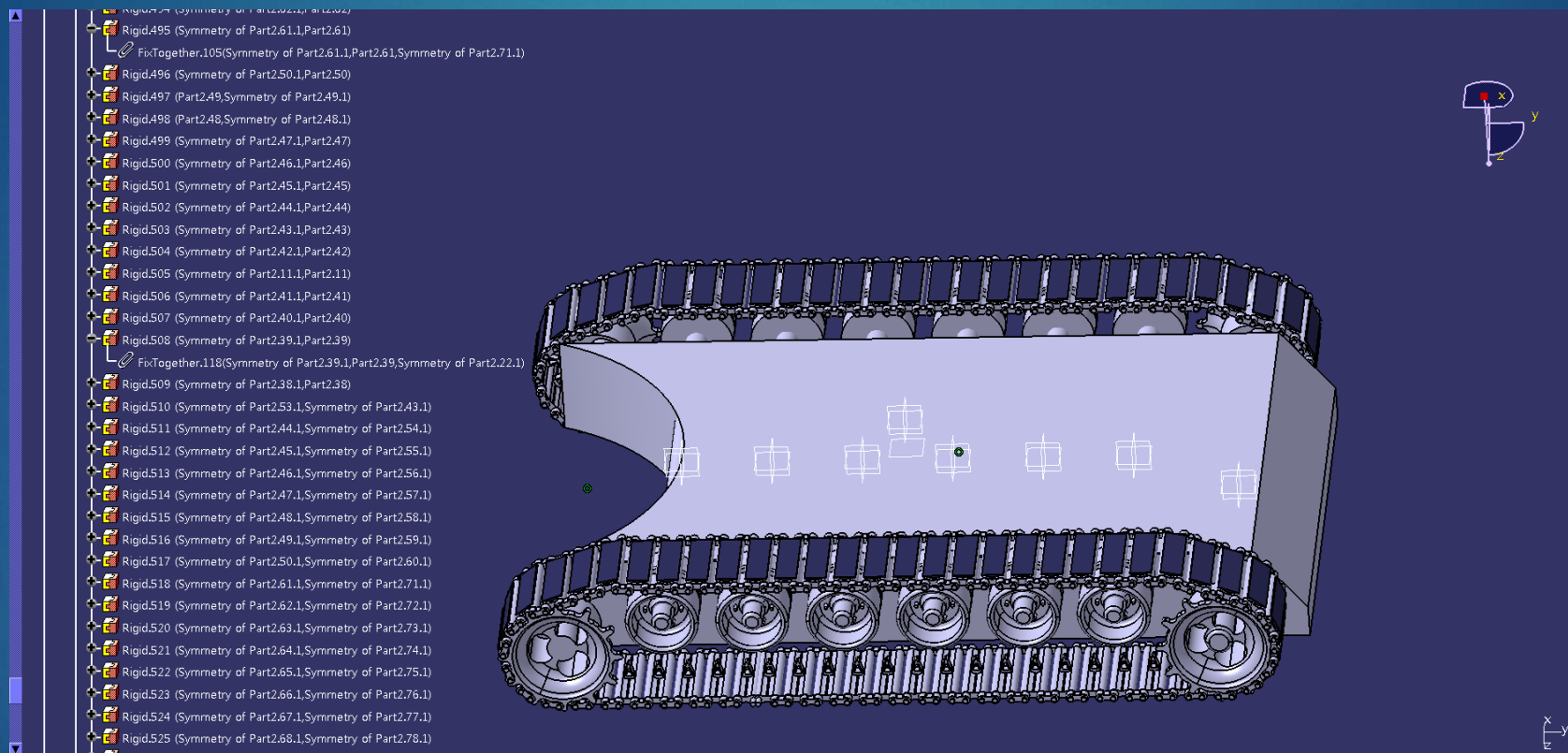
모델 생성 과정 - 궤도

▶ 대칭복사, Rigid, 부품 Assemble



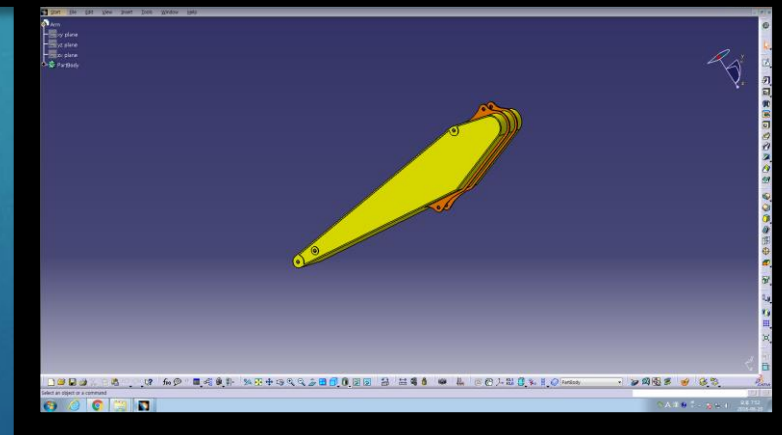
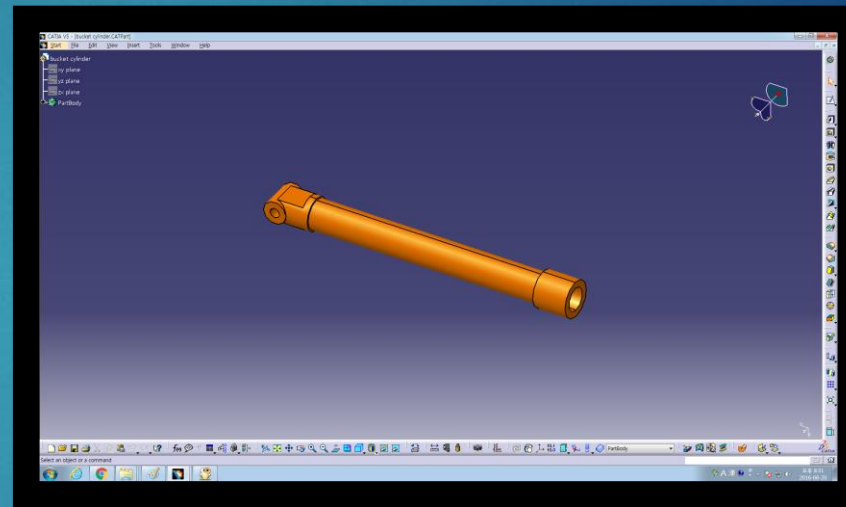
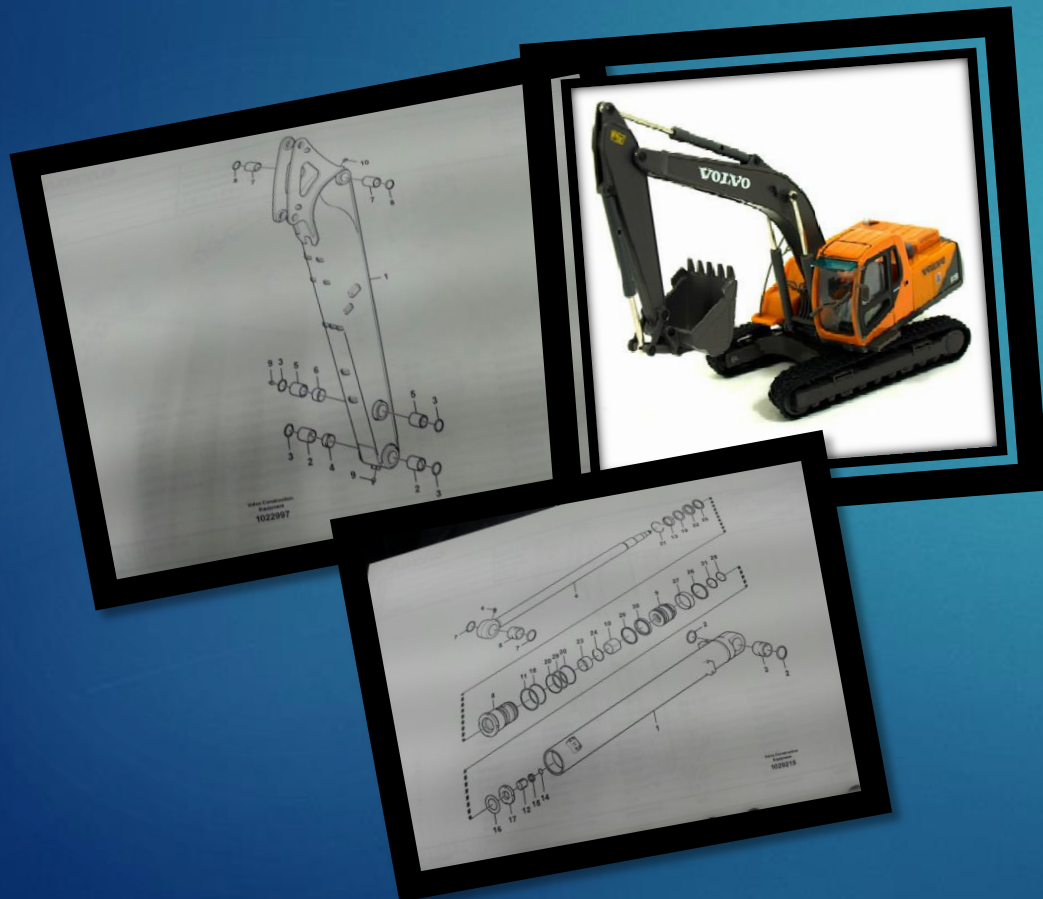
모델 생성 과정 - 궤도

▶ 구현 영상

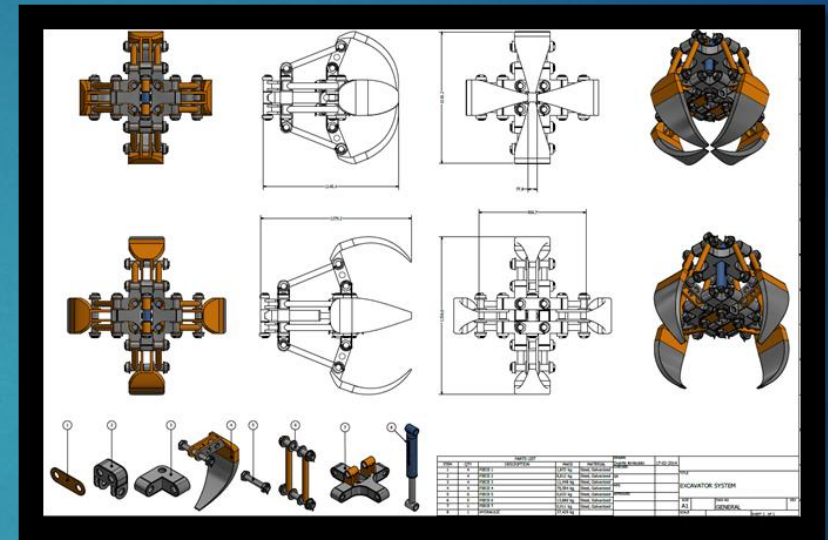


모델 생성 과정 - 포크레인 암/집게

- ▶ 도면을 참고하여 암 부분 구현

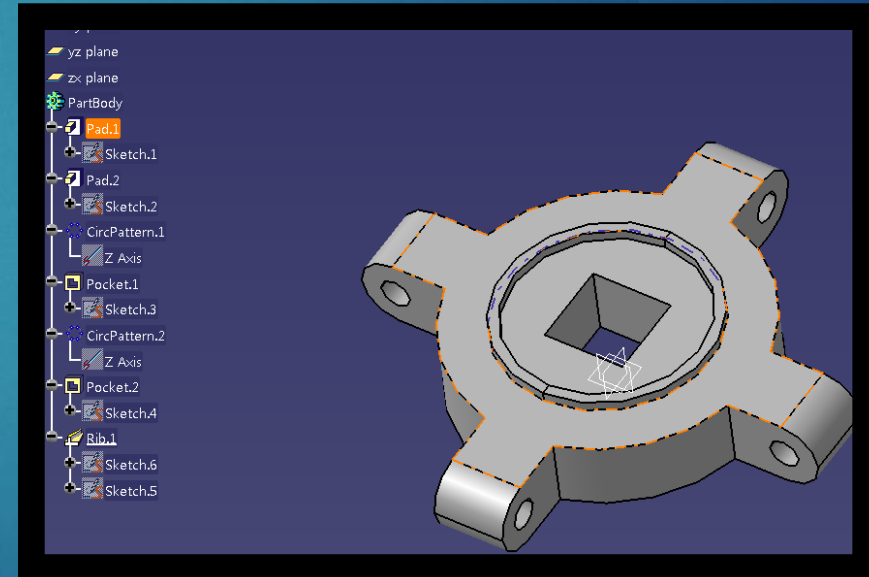
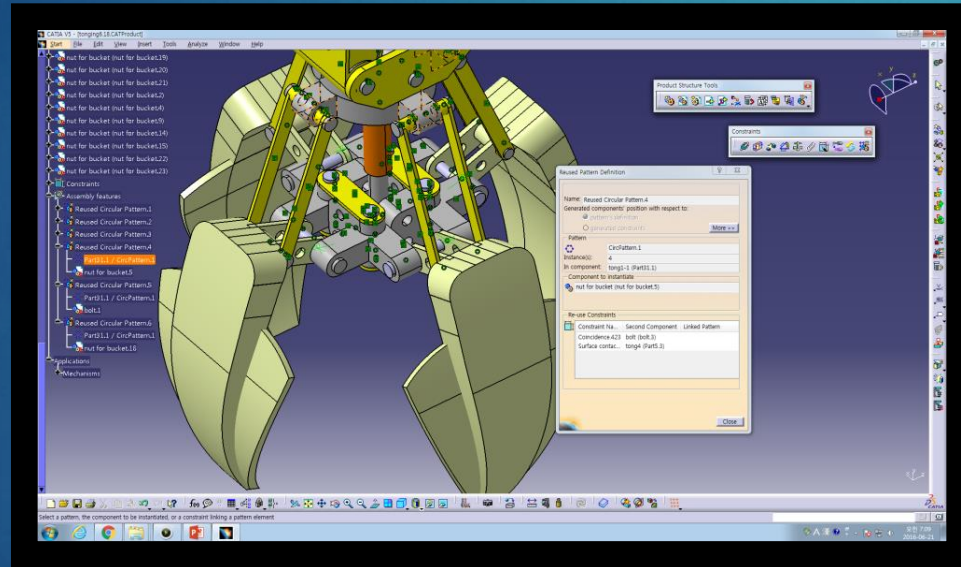


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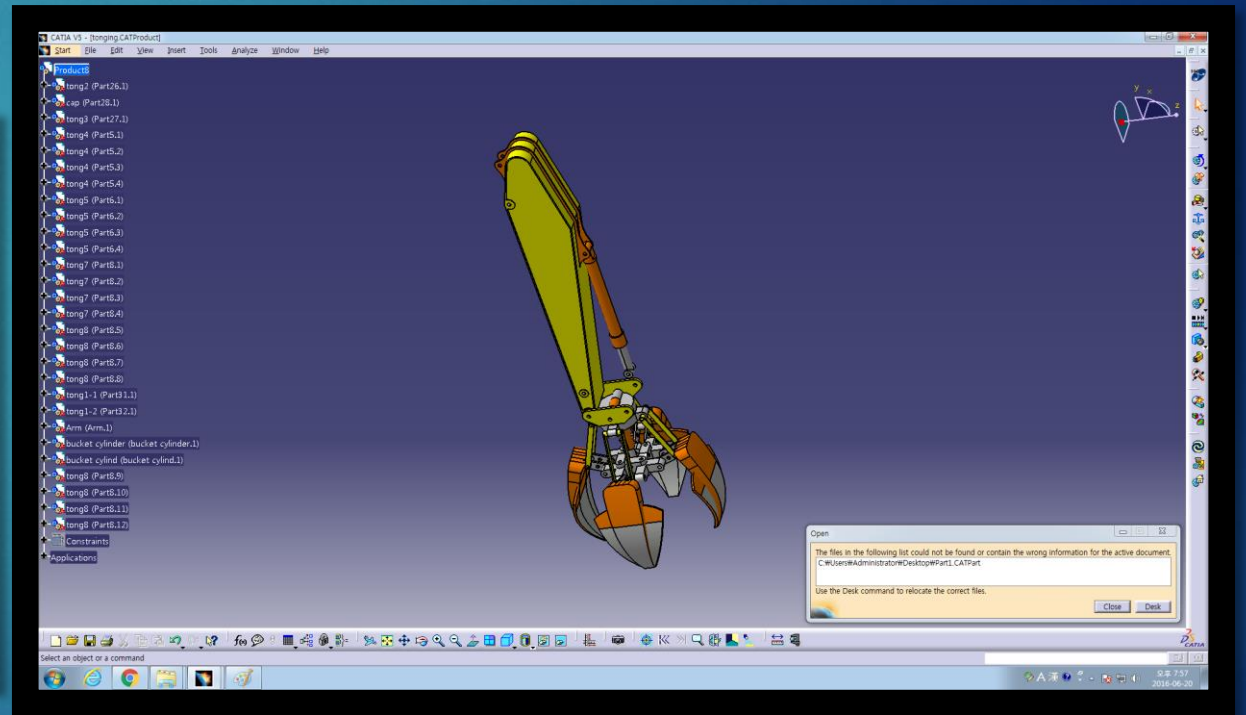
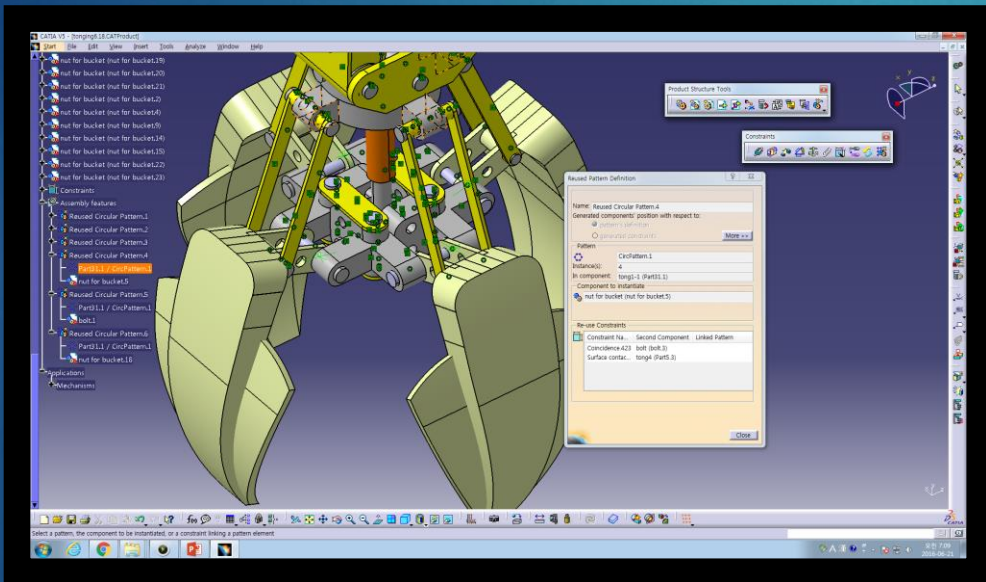


모델 생성 과정 - 포크레인 암/집게

▶ 기존 병진운동 + 회전운동

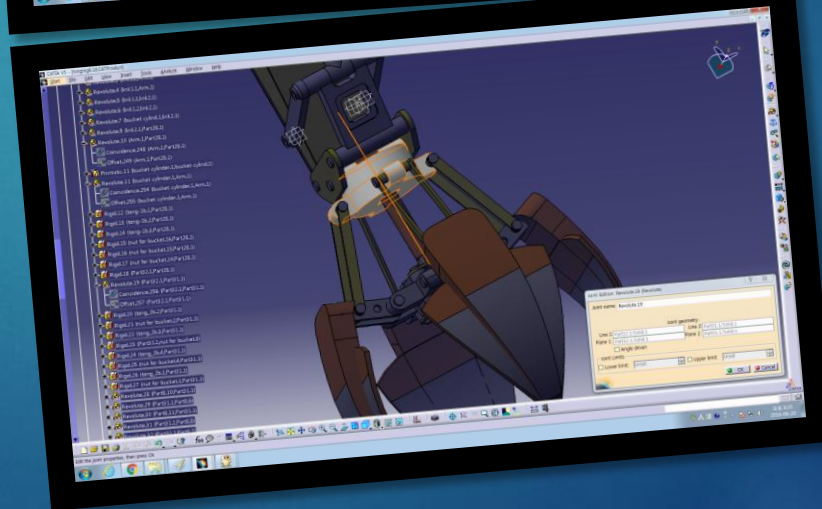
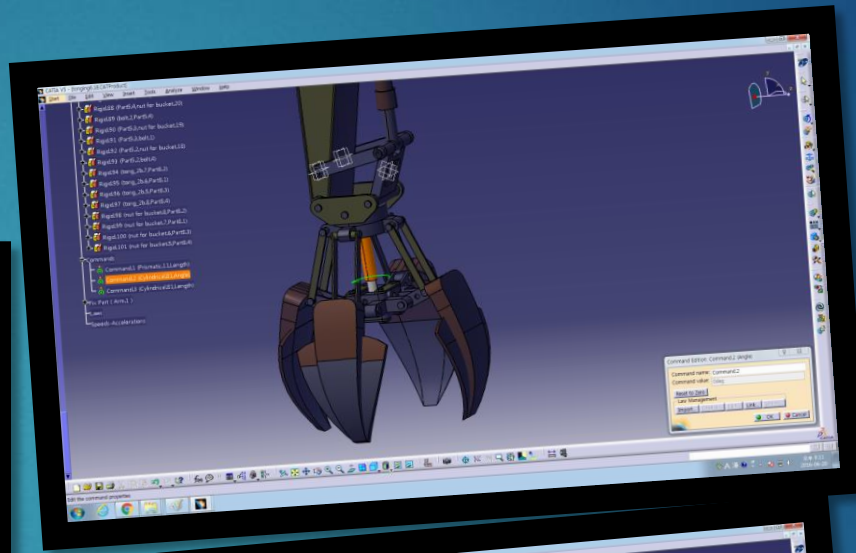
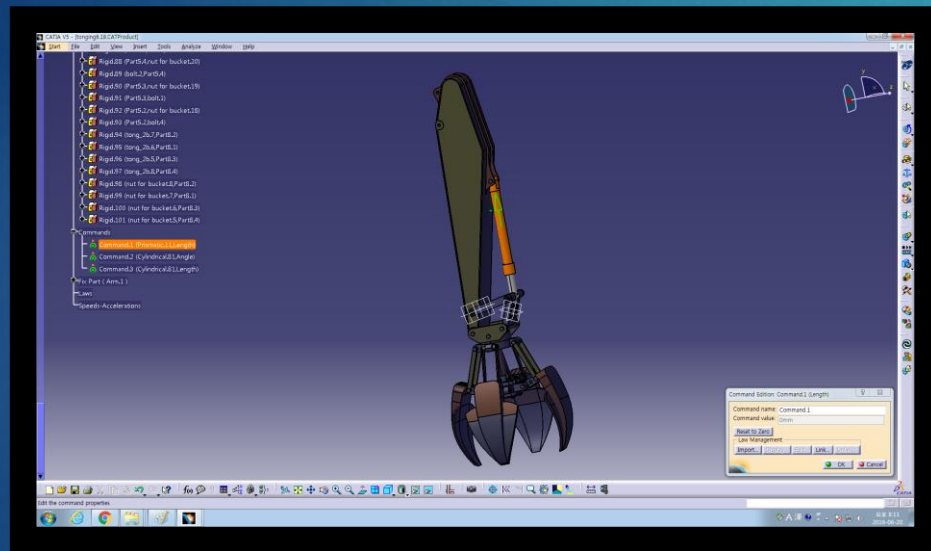


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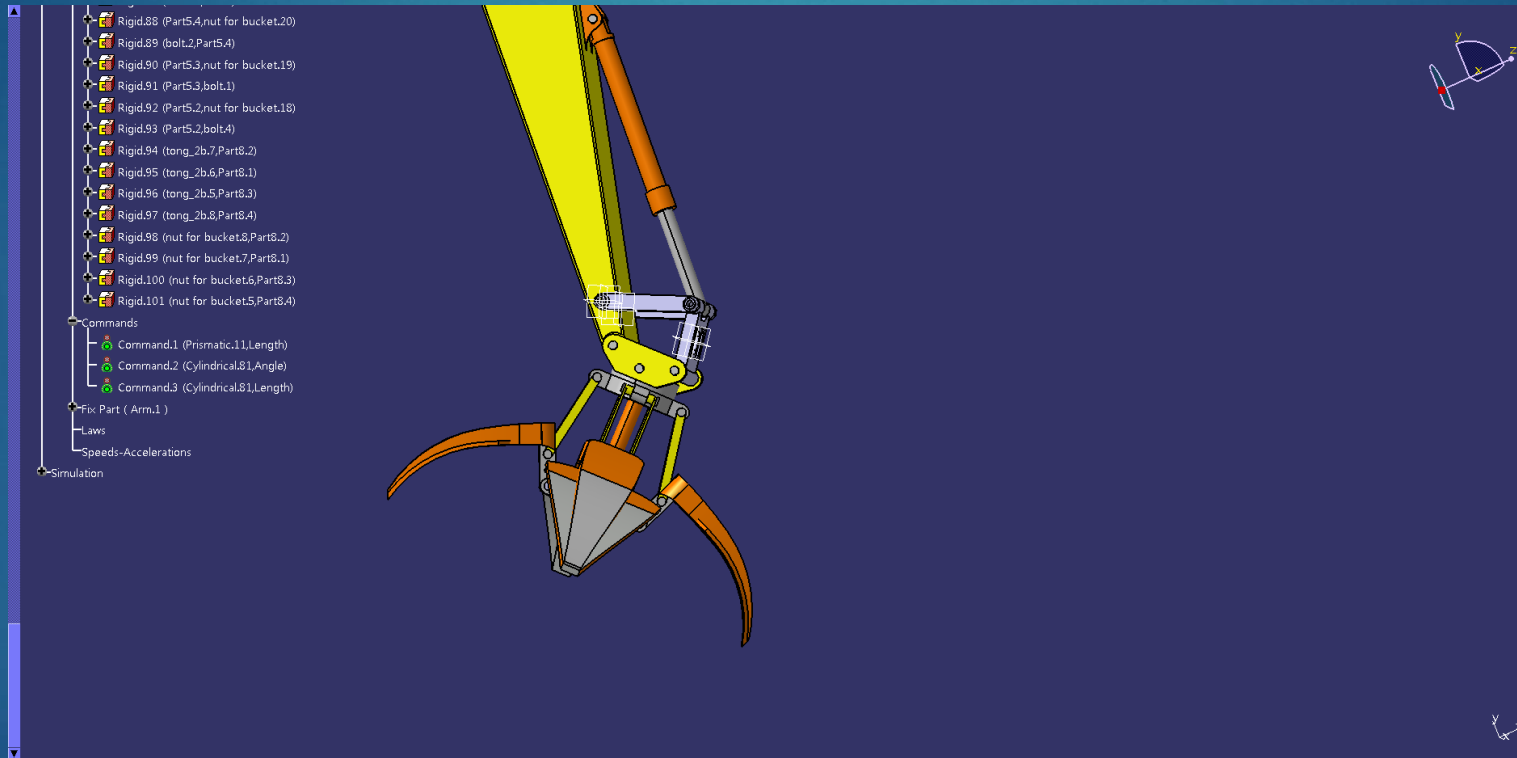
모델 생성 과정 - 포크레인 암/집게

► Kinematics



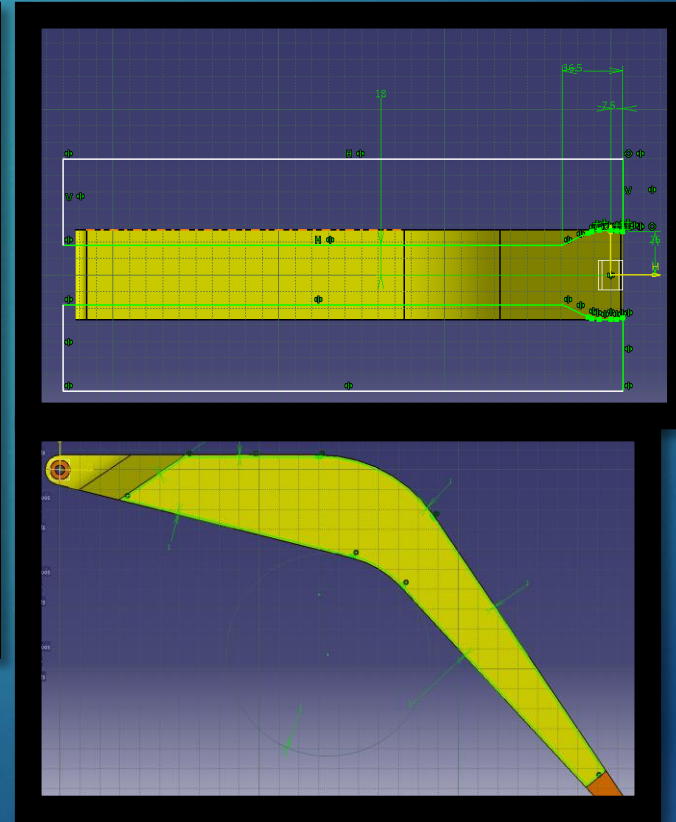
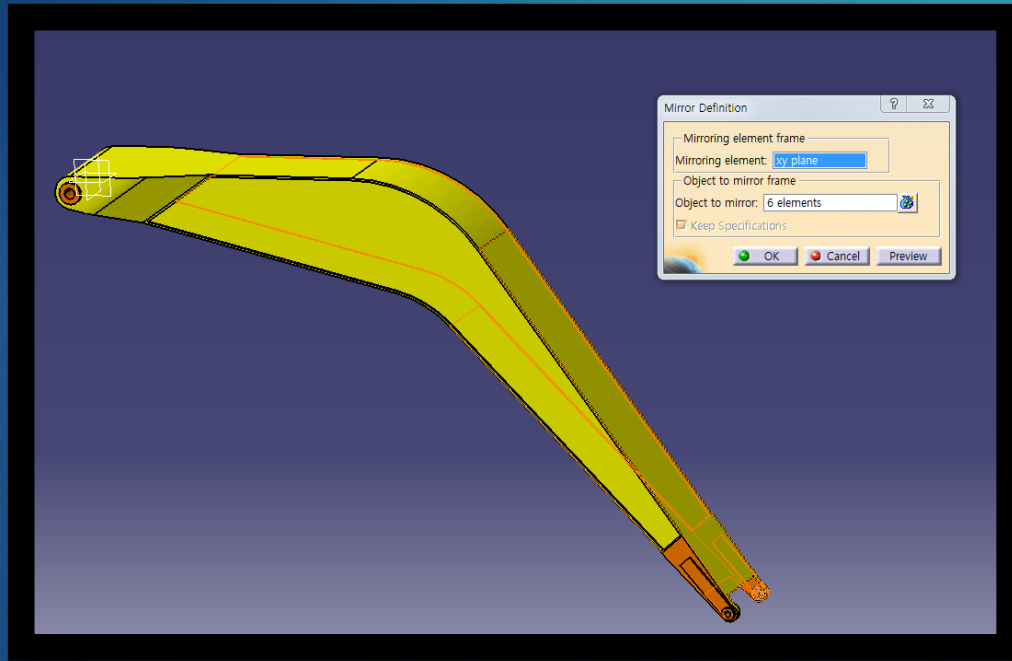
모델 생성 과정 – 포크레인 암/집게

▶ 구현 영상



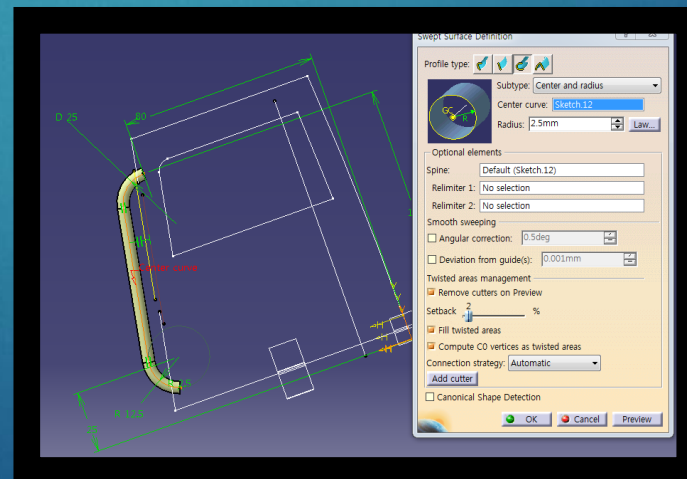
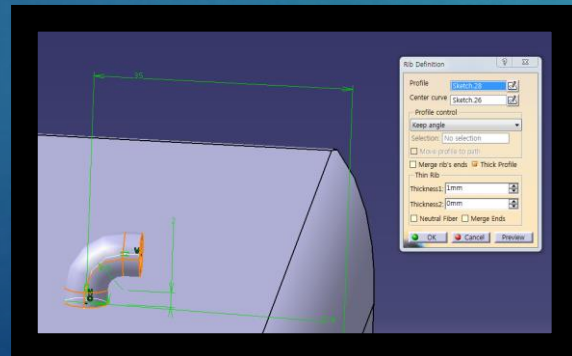
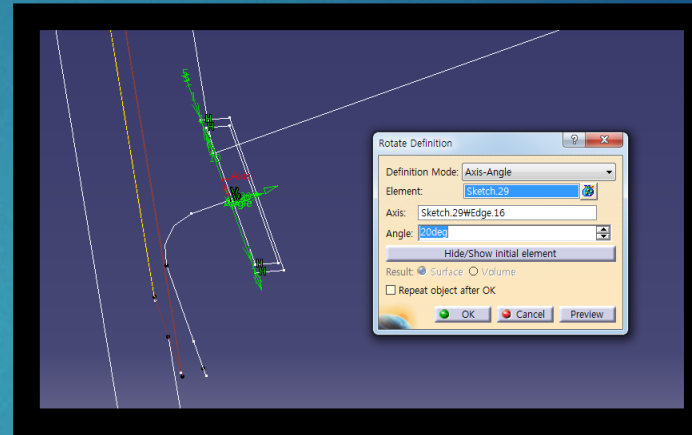
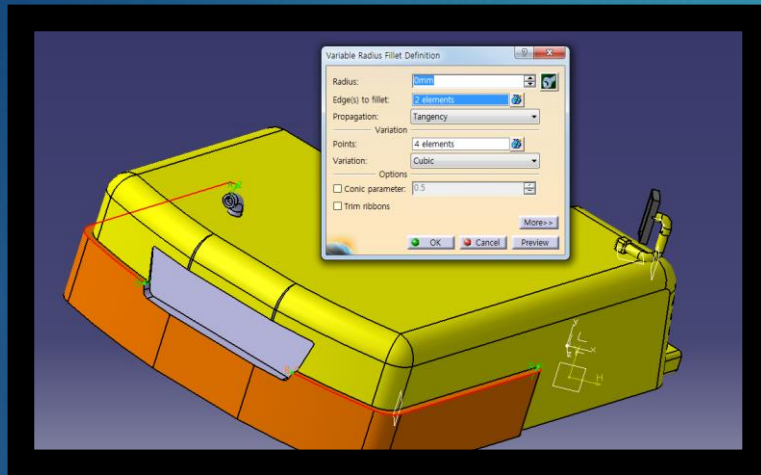
모델 생성 과정 – 포크레인 붐/ 몸통

- ▶ GrabCad 와 도면 참고하여 붐 모델 생성



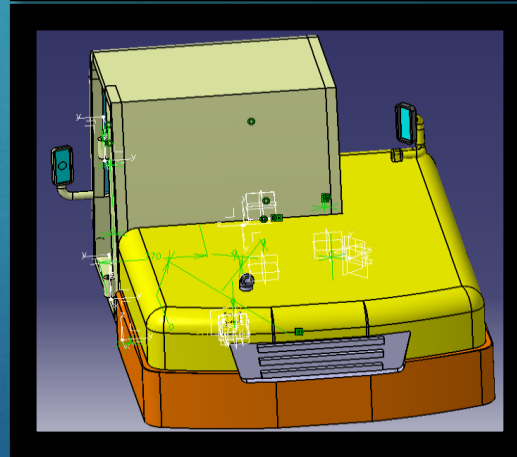
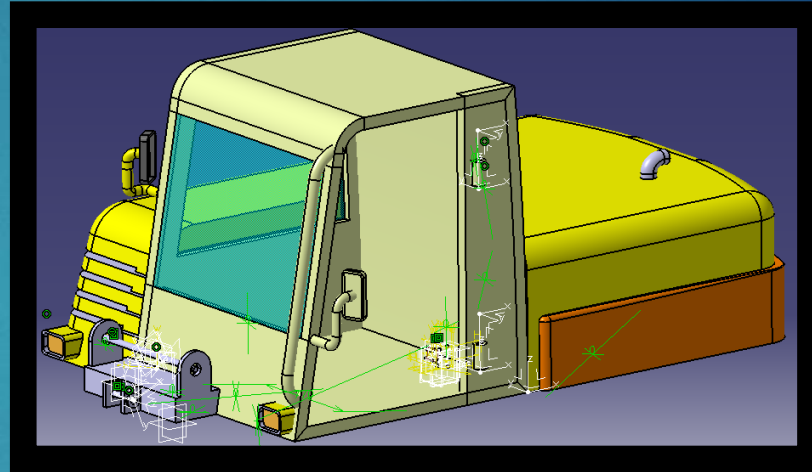
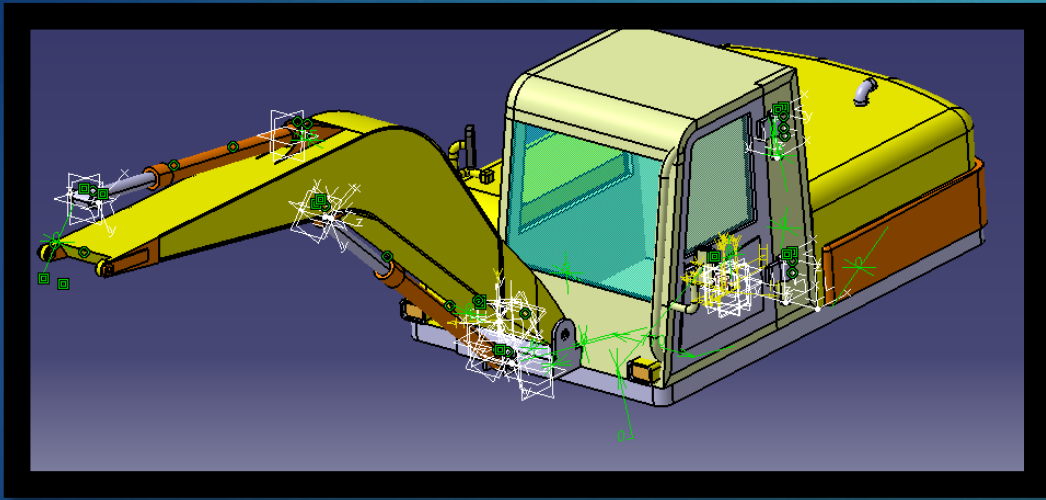
모델 생성 과정 - 포크레인 붐/ 몸통

▶ 도면 참고하여 몸통 부분 생성



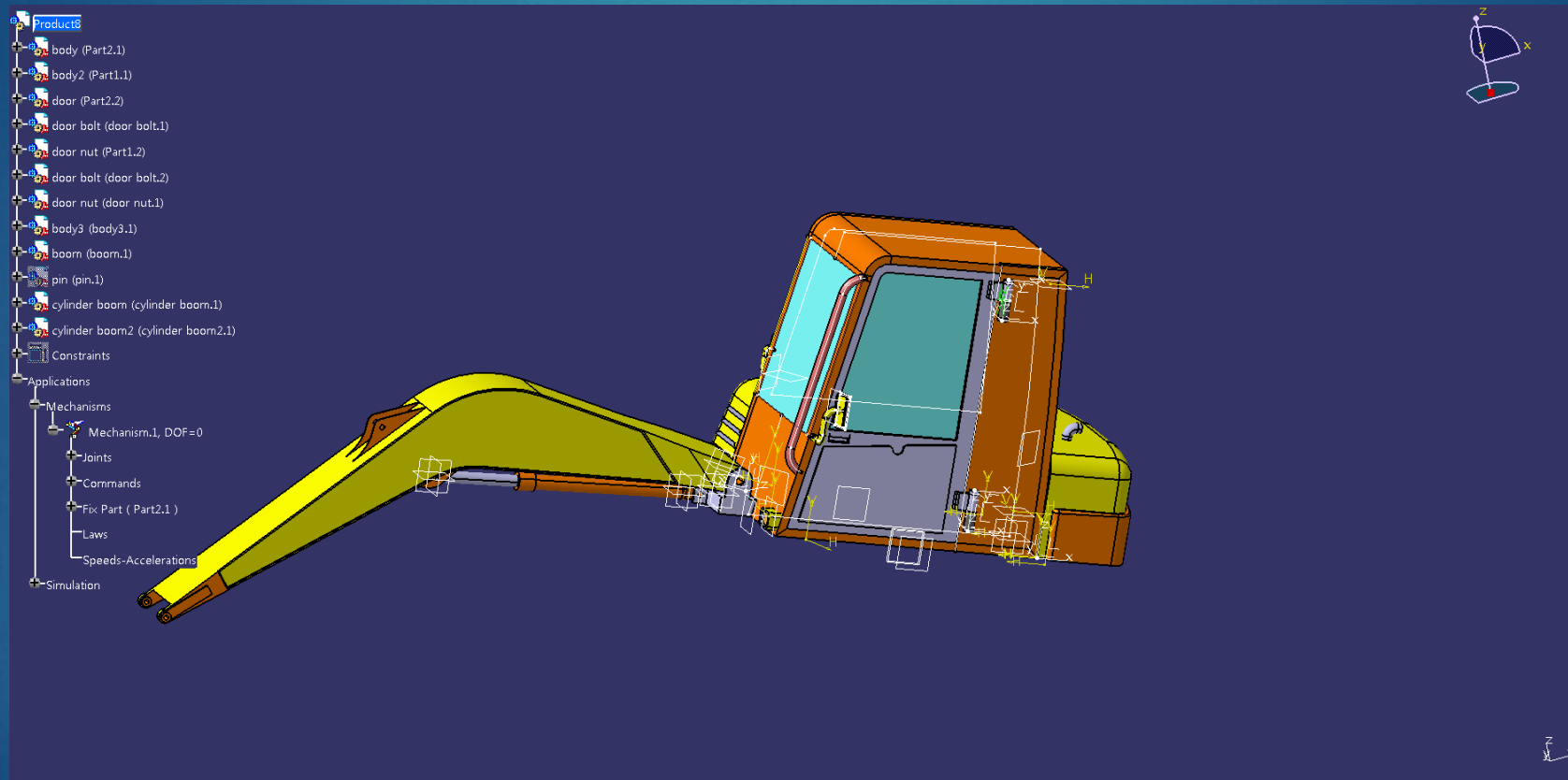
모델 생성 과정 - 포크레인 붐/ 몸통

▶ Assemble



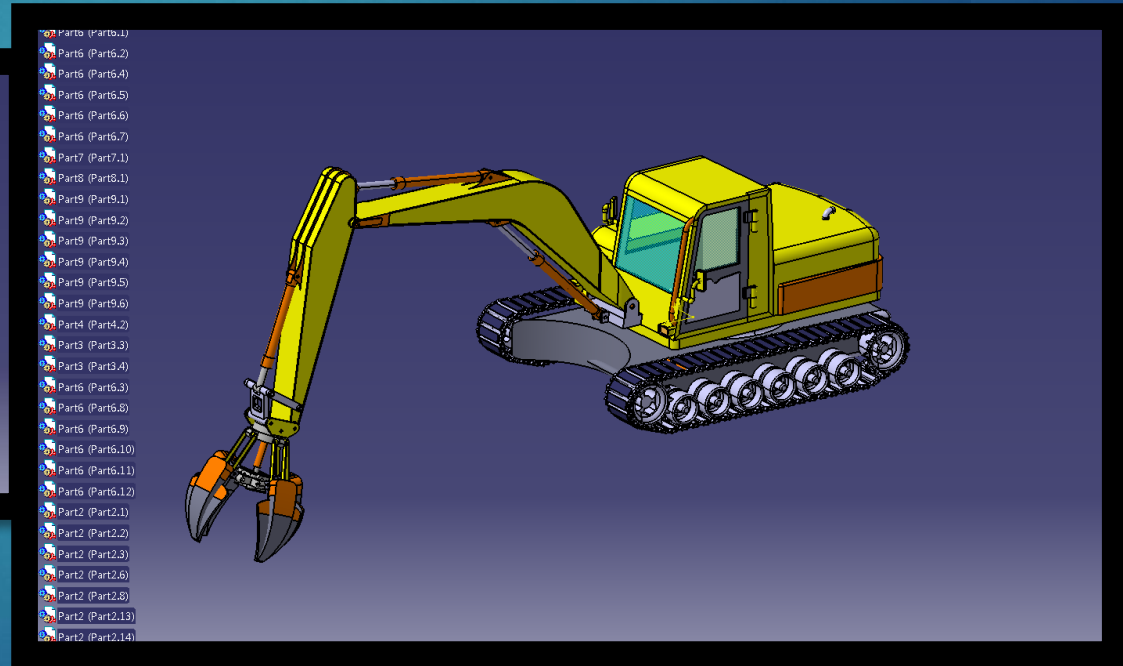
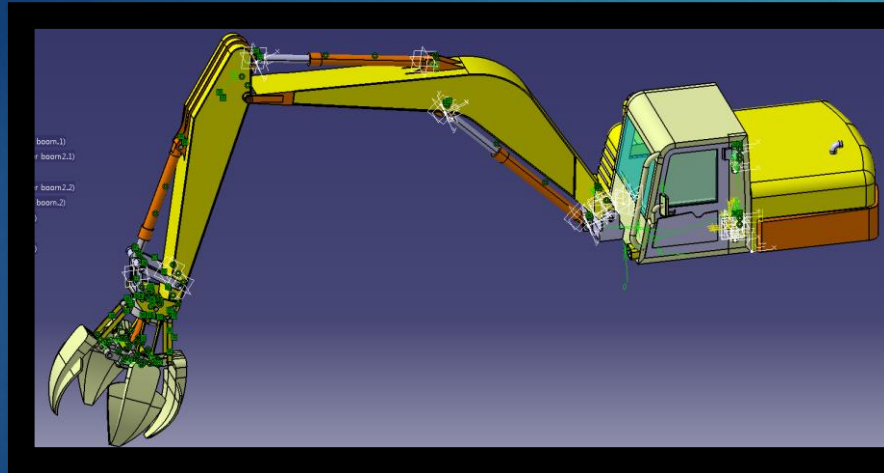
모델 생성 과정 - 포크레인 붐/ 몸통

▶ 구현 영상

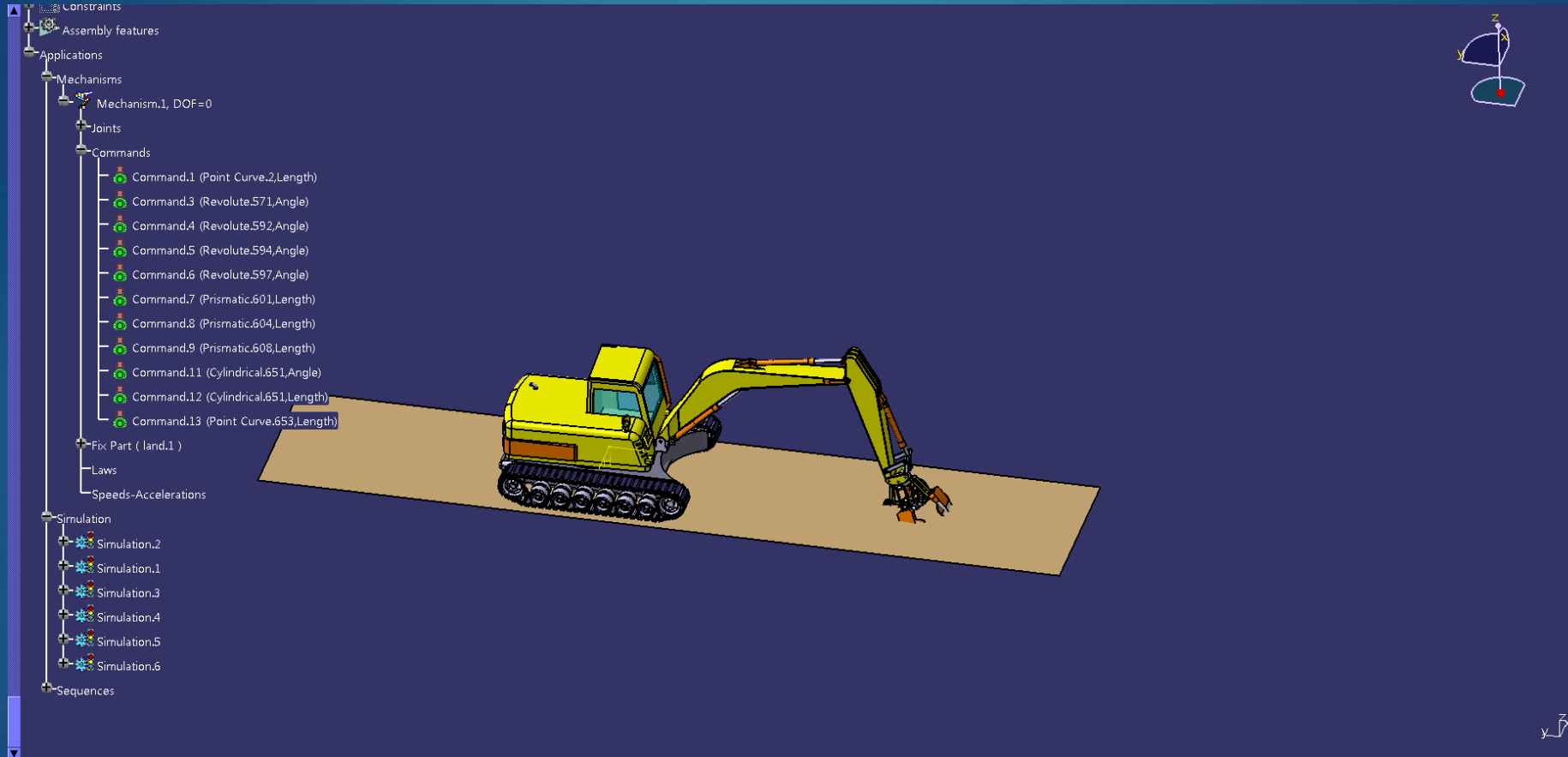


모델 생성 과정 - 파트 조합

▶ 포크레인 암, 붐, 몸통, 궤도 조합



모델 움직임 구현



힘들었던 점

- ▶ 부품 수가 지나치게 많음
- ▶ Sequence 영상 저장 불가
- ▶ 치수조정 어려움
- ▶ Product 를 불러올 때 Kinematics 부여 불가

감사합니다