Curiosity

X

OLYMPUS

미래자동차공학과
한지윤 김보민 양정용

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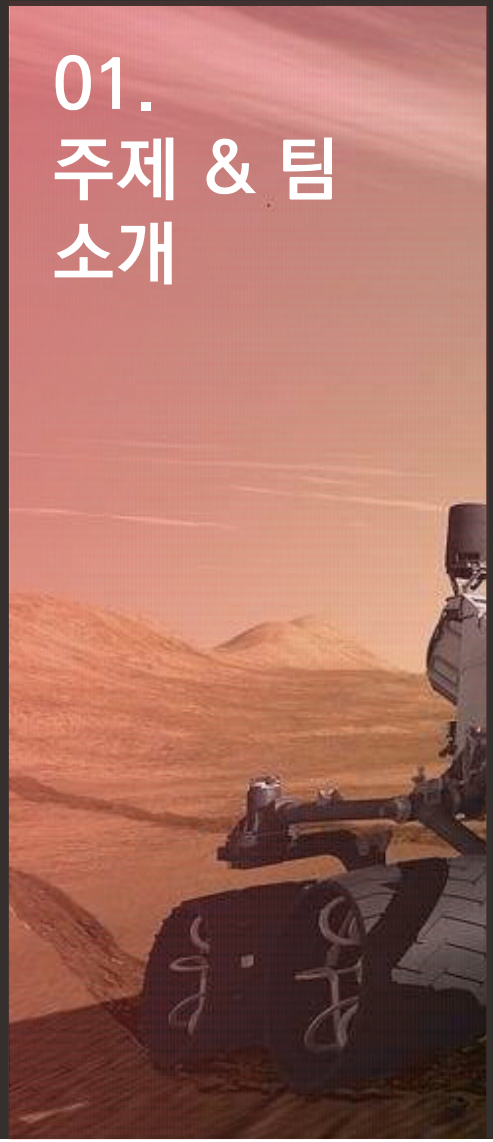
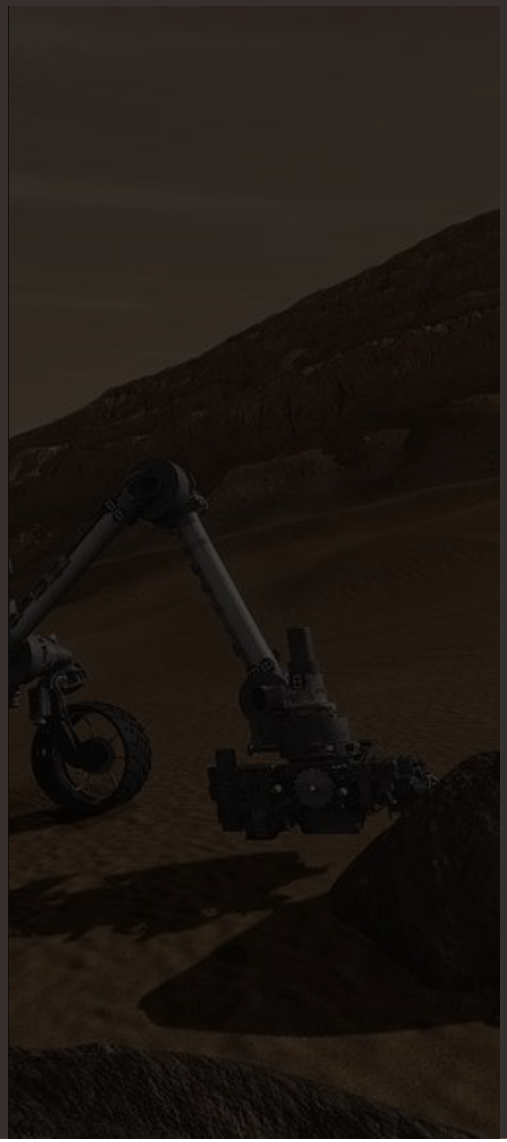
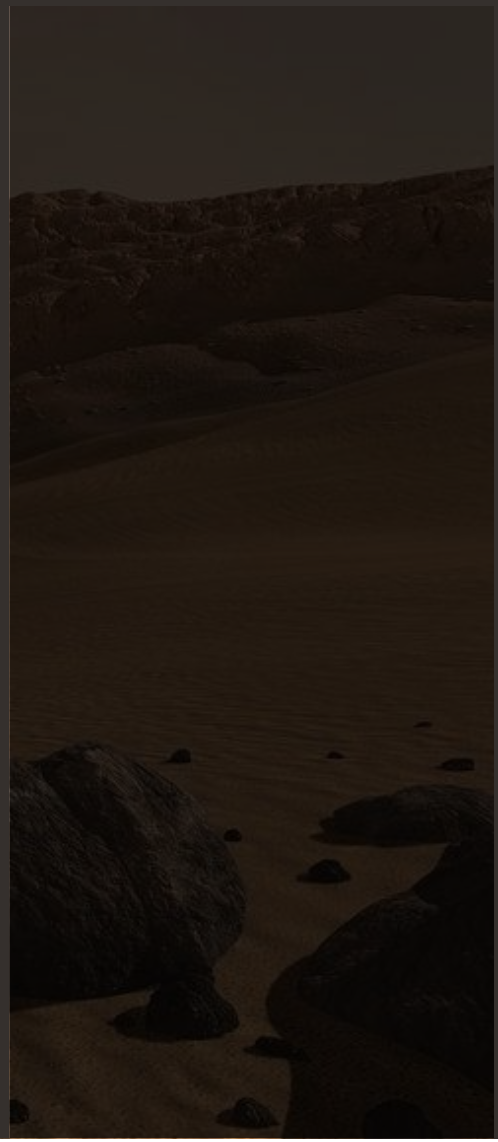
- 주제선정 동기 & 팀명 소개
- 모델링 과정 Part Design & GSD
- Curiosity Kinematics
- 프로젝트 어려웠던 점

01.
주제 & 팀 소개

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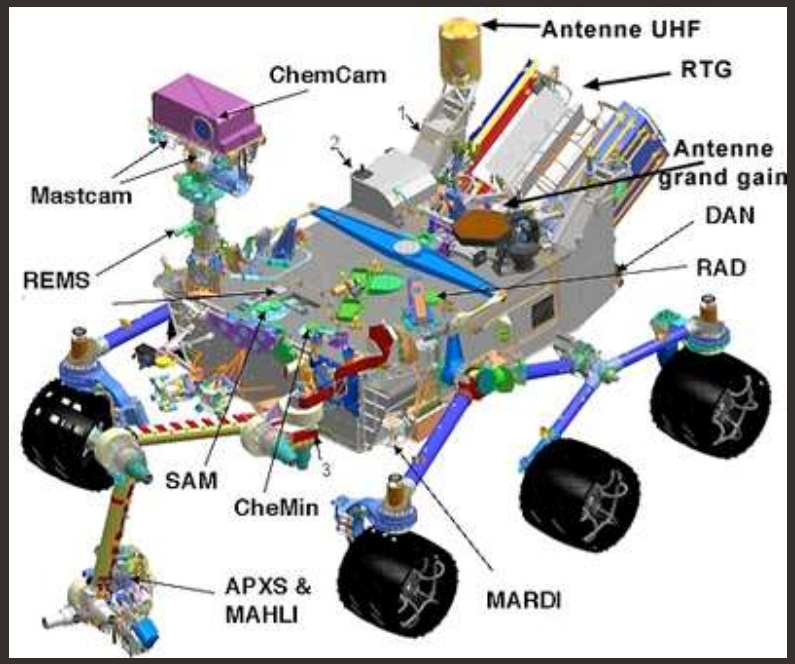
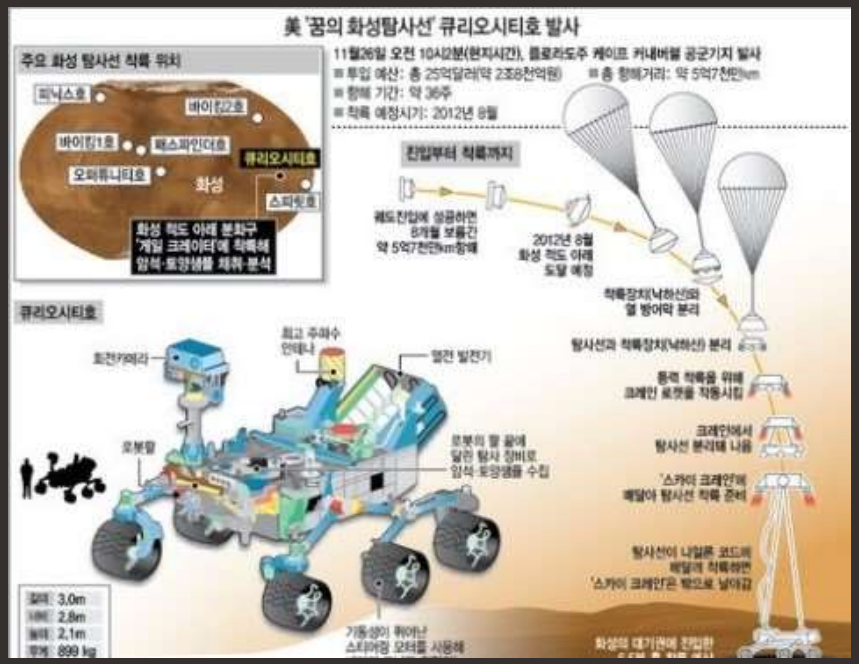
the netherlands

Curiosity 란?

참고자료

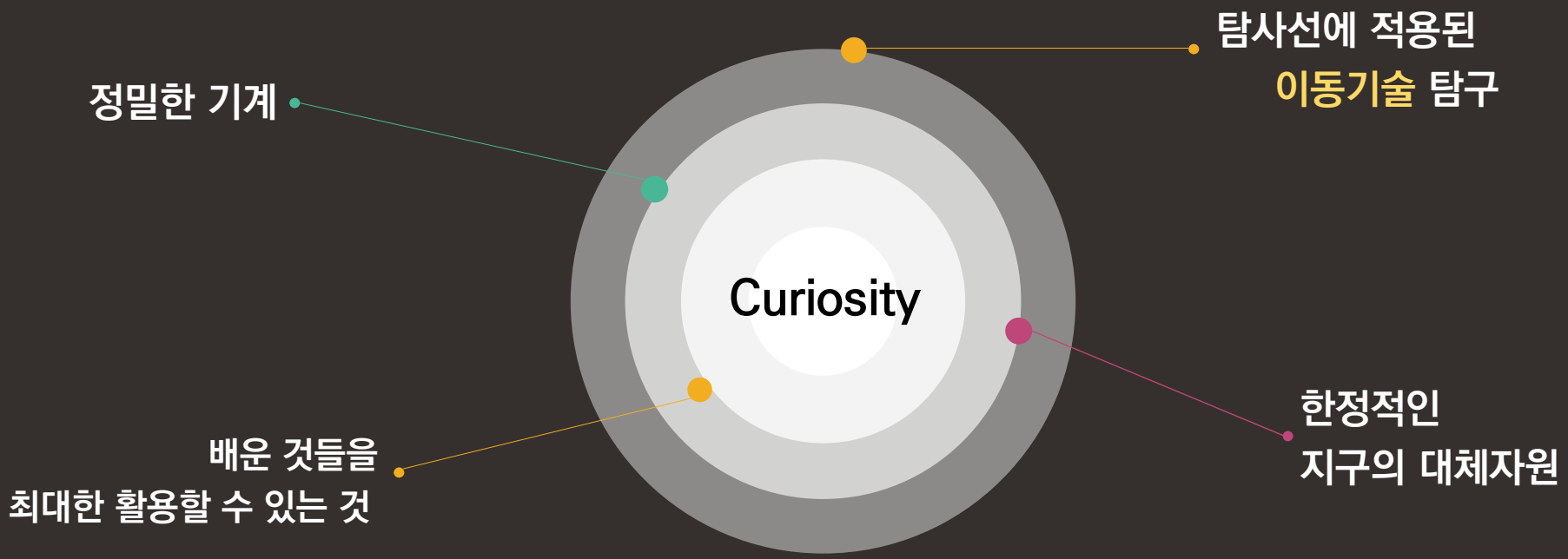


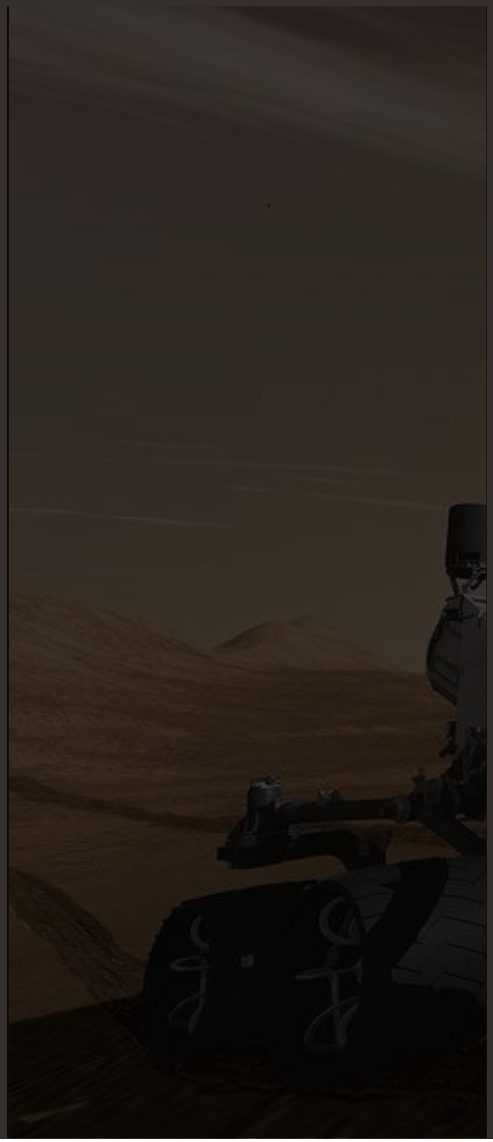


NGC https://youtu.be/VGylAuoqTvM
Wikipedia https://ko.wikipedia.org/wiki/%ED%81%90%EB%A6%AC%EC%98%A4%EC%8B%9C%ED%8B%B0_(%ED%83%90%EC%82%AC%EC%B0%A8)

주제선정 동기

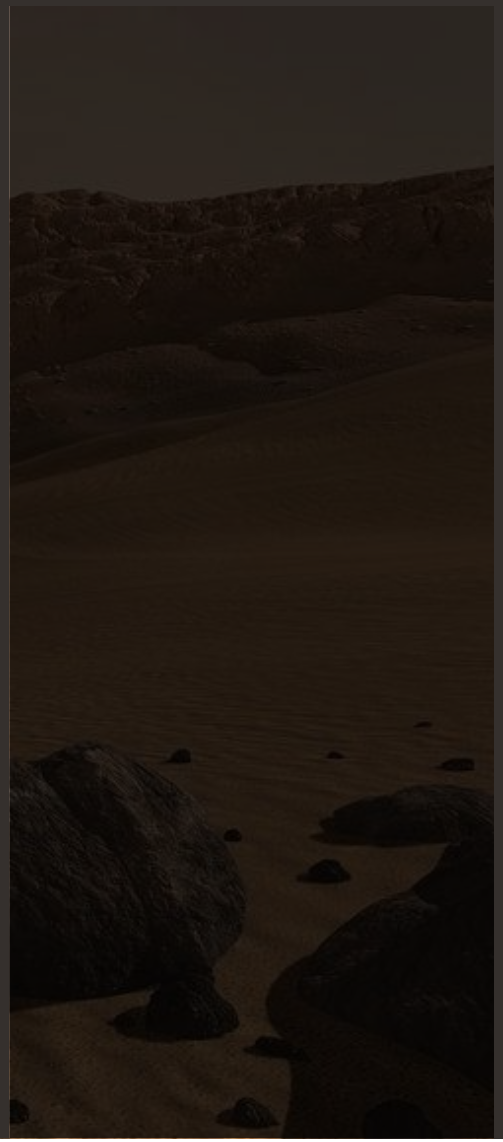
왜 Curiosity 인가?

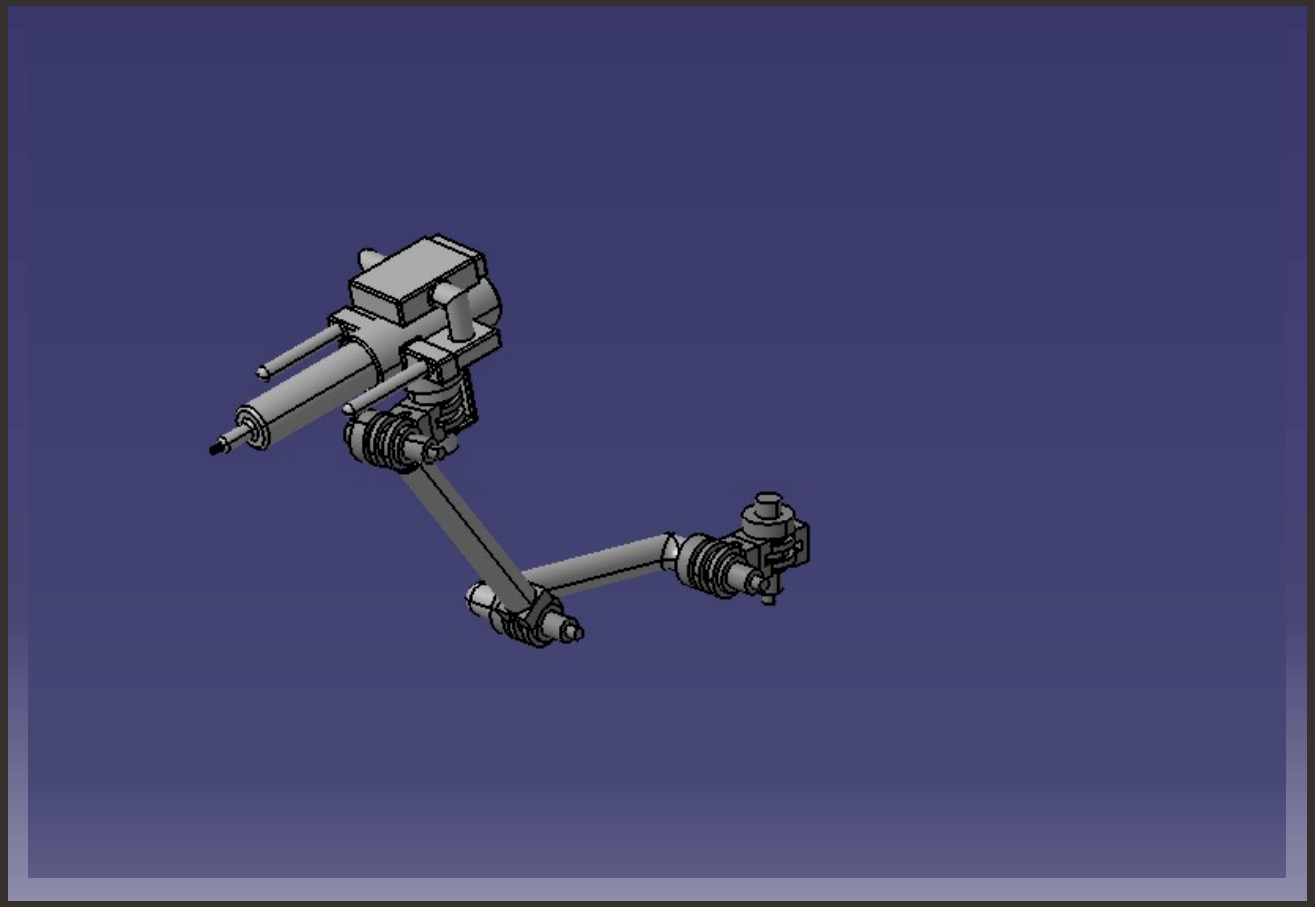




02.
모델링
과정

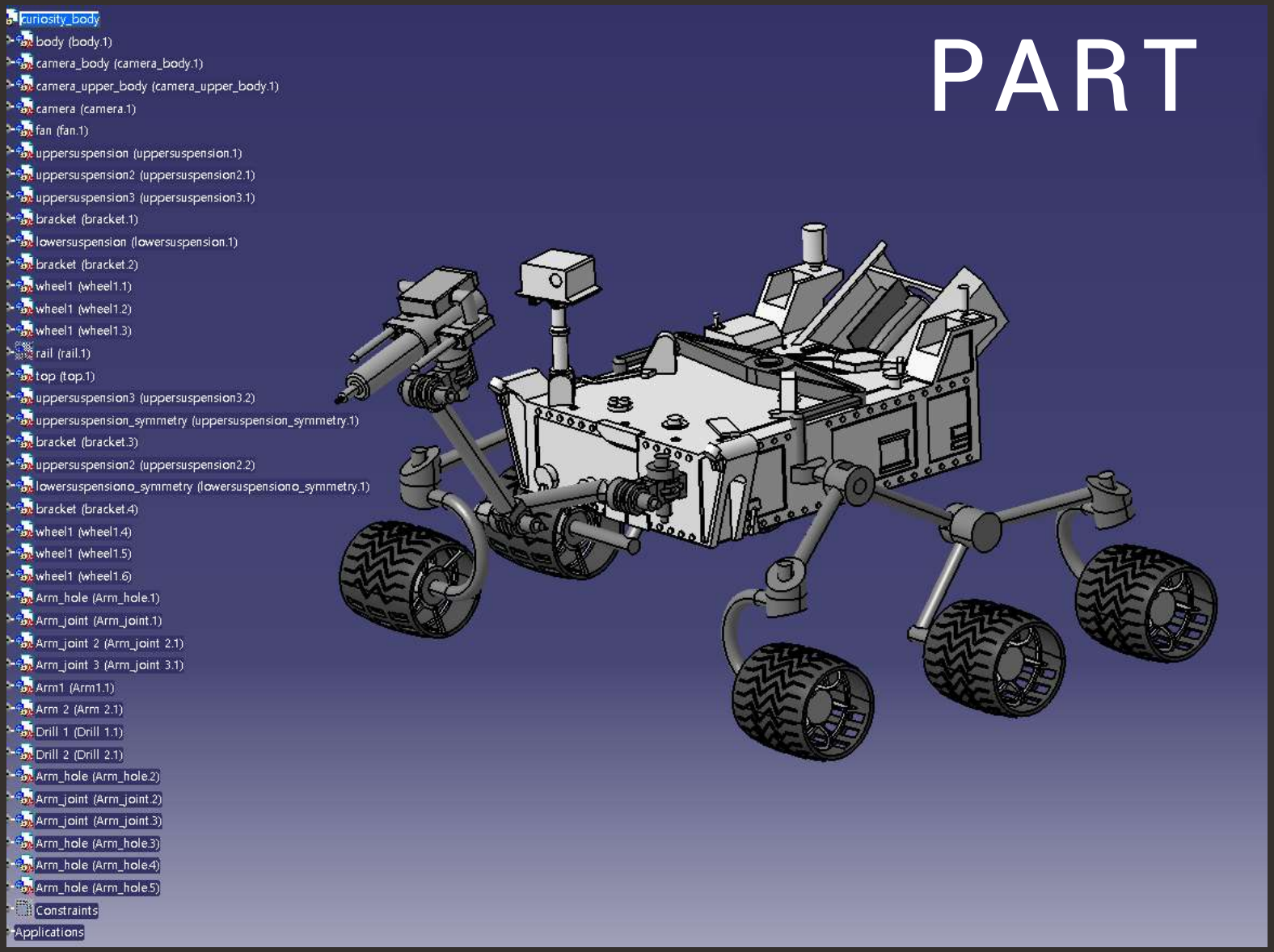
03.
DMU
KINEMATICS





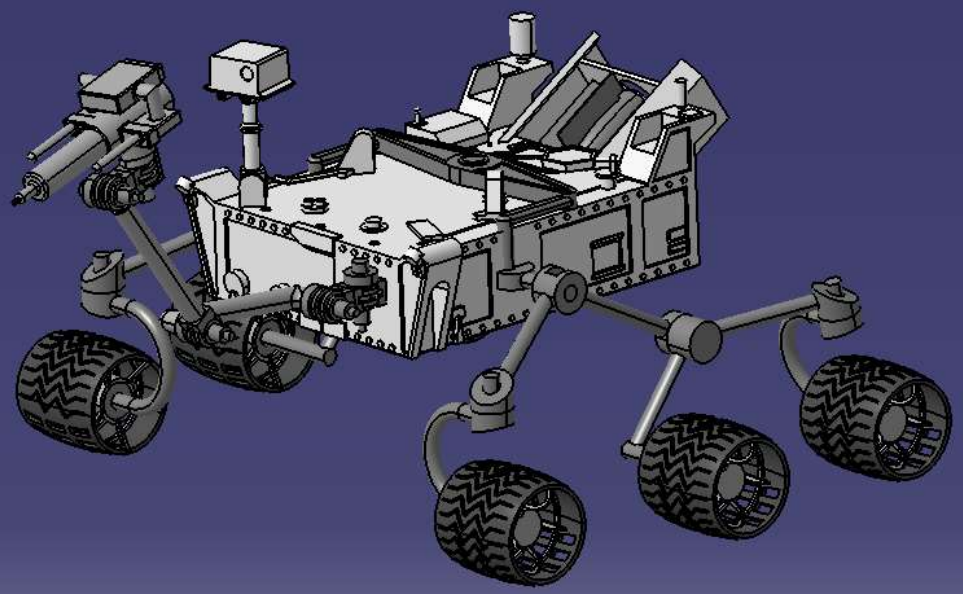
1. Body
2. Robot Arm
3. Wheel

PART

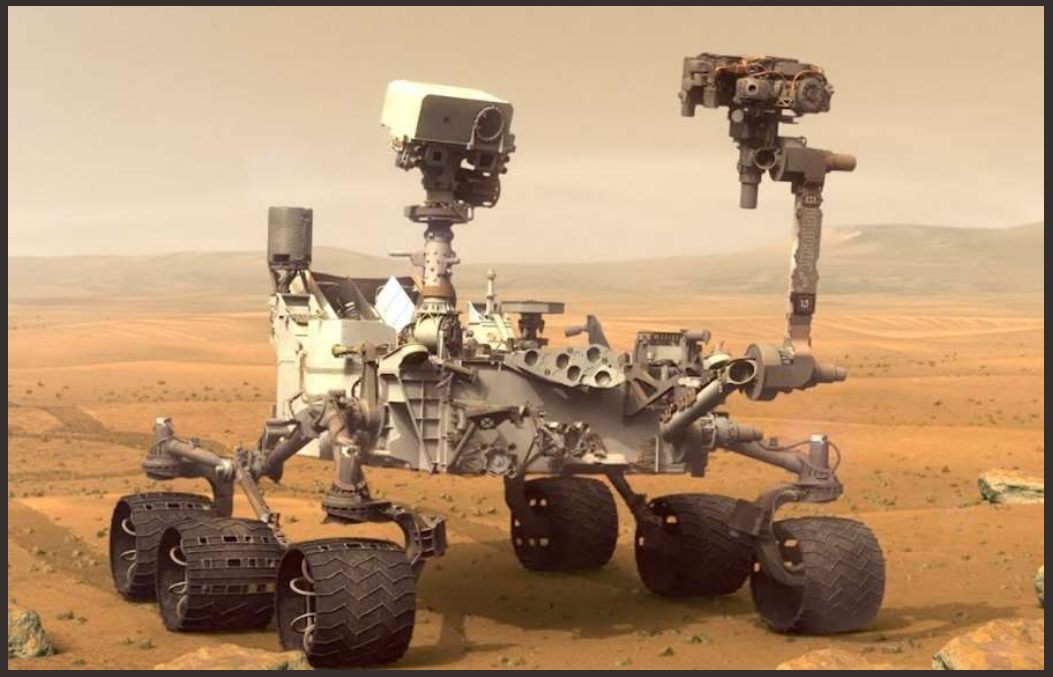

curiosity_body
body (body.1)
camera_body (camera_body.1)
camera_upper_body (camera_upper_body.1)
camera (camera.1)
fan (fan.1)
uppersuspension (uppersuspension.1)
uppersuspension2 (uppersuspension2.1)
uppersuspension3 (uppersuspension3.1)
bracket (bracket.1)
lowersuspension (lowersuspension.1)
bracket (bracket.2)
wheel1 (wheel1.1)
wheel1 (wheel1.2)
wheel1 (wheel1.3)
rail (rail.1)
top (top.1)
uppersuspension3 (uppersuspension3.2)
uppersuspension_symmetry (uppersuspension_symmetry.1)
bracket (bracket.3)
uppersuspension2 (uppersuspension2.2)
lowersuspensiono_symmetry (lowersuspensiono_symmetry.1)
bracket (bracket.4)
wheel1 (wheel1.4)
wheel1 (wheel1.5)
wheel1 (wheel1.6)
Arm_hole (Arm_hole.1)
Arm_joint (Arm_joint.1)
Arm_joint 2 (Arm_joint 2.1)
Arm_joint 3 (Arm_joint 3.1)
Arm1 (Arm1.1)
Arm 2 (Arm 2.1)
Drill 1 (Drill 1.1)
Drill 2 (Drill 2.1)
Arm_hole (Arm_hole.2)
Arm_joint (Arm_joint.2)
Arm_joint (Arm_joint.3)
Arm_hole (Arm_hole.3)
Arm_hole (Arm_hole.4)
Arm_hole (Arm_hole.5)
Constraints
Applications

JOINT

- Joints
  - Revolute.1 (camera_body.1,body.1)
  - Revolute.2 (camera_body.1,camera_upper_body.1)
  - Revolute.3 (camera.1,camera_upper_body.1)
  - Rigid.4 (uppersuspension3.1,body.1)
  - Rigid.5 (uppersuspension3.1,uppersuspension.1)
  - Rigid.6 (uppersuspension.1,uppersuspension2.1)
  - Rigid.7 (uppersuspension2.1,lowersuspension.1)
  - Rigid.8 (uppersuspension.1,bracket.1)
  - Rigid.9 (lowersuspension.1,bracket.2)
  - Slide Curve.10 (wheel1.1,rail.1)
  - Slide Curve.11 (wheel1.2,rail.1)
  - Slide Curve.12 (wheel1.3,rail.1)
  - Roll Curve.13 (wheel1.1,rail.1)
  - Roll Curve.14 (wheel1.2,rail.1)
  - Roll Curve.15 (wheel1.3,rail.1)
  - Planar.16 (rail.1,uppersuspension.1)
  - Revolute.17 (bracket.1,wheel1.1)
  - Revolute.18 (wheel1.2,lowersuspension.1)
  - Revolute.19 (wheel1.3,bracket.2)
  - Rigid.20 (body.1,fan.1)
  - Rigid.21 (top.1,body.1)
  - Rigid.22 (uppersuspension3.2,body.1)
  - Rigid.23 (uppersuspension_symmetry.1,uppersuspension3.2)
  - Rigid.24 (bracket.3,uppersuspension_symmetry.1)
  - Rigid.25 (uppersuspension2.2,uppersuspension3.2)
  - Rigid.26 (lowersuspensiono_symmetry.1,uppersuspension2.2)
  - Rigid.27 (bracket.4,lowersuspensiono_symmetry.1)
  - Rigid.28 (wheel1.4,wheel1.1)
  - Rigid.29 (wheel1.5,wheel1.2)
  - Rigid.30 (wheel1.6,wheel1.3)
  - Rigid.31 (Arm_hole.1,body.1)
  - Rigid.32 (Arm_hole.1,Arm_joint.3)
  - Rigid.33 (Arm_hole.3,Arm_hole.4)
  - Revolute.34 (Arm_joint.3,Arm_hole.4)
  - Revolute.35 (Arm_joint.2,Arm_hole.3)
  - Rigid.36 (Arm1.1,Arm_joint.2)
  - Rigid.37 (Arm1.1,Arm_joint.1)
  - Revolute.38 (Arm_joint.1,Arm_joint 3.1)
  - Rigid.39 (Arm_joint 3.1,Arm 2.1)
  - Rigid.40 (Arm_joint 2.1,Arm 2.1)
  - Revolute.41 (Arm_joint 2.1,Arm_hole.5)
  - Rigid.42 (Arm_hole.5,Arm_hole.2)
  - Revolute.43 (Arm_hole.2,Drill 1.1)
  - Screw.44 (Drill 2.1,Drill 1.1)



| BODY |

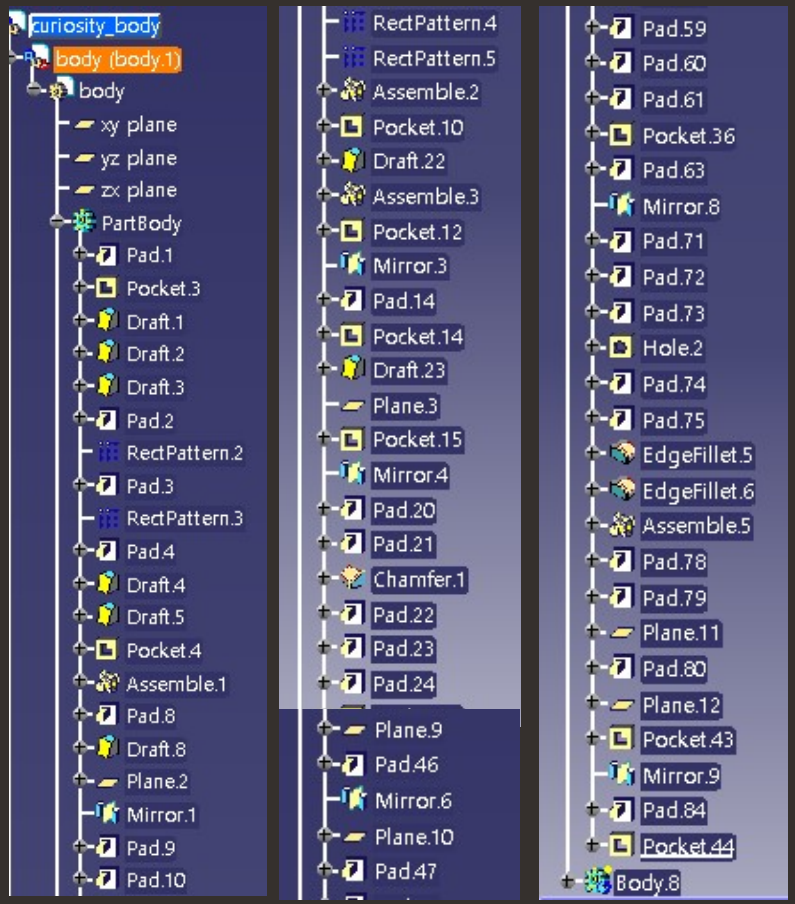


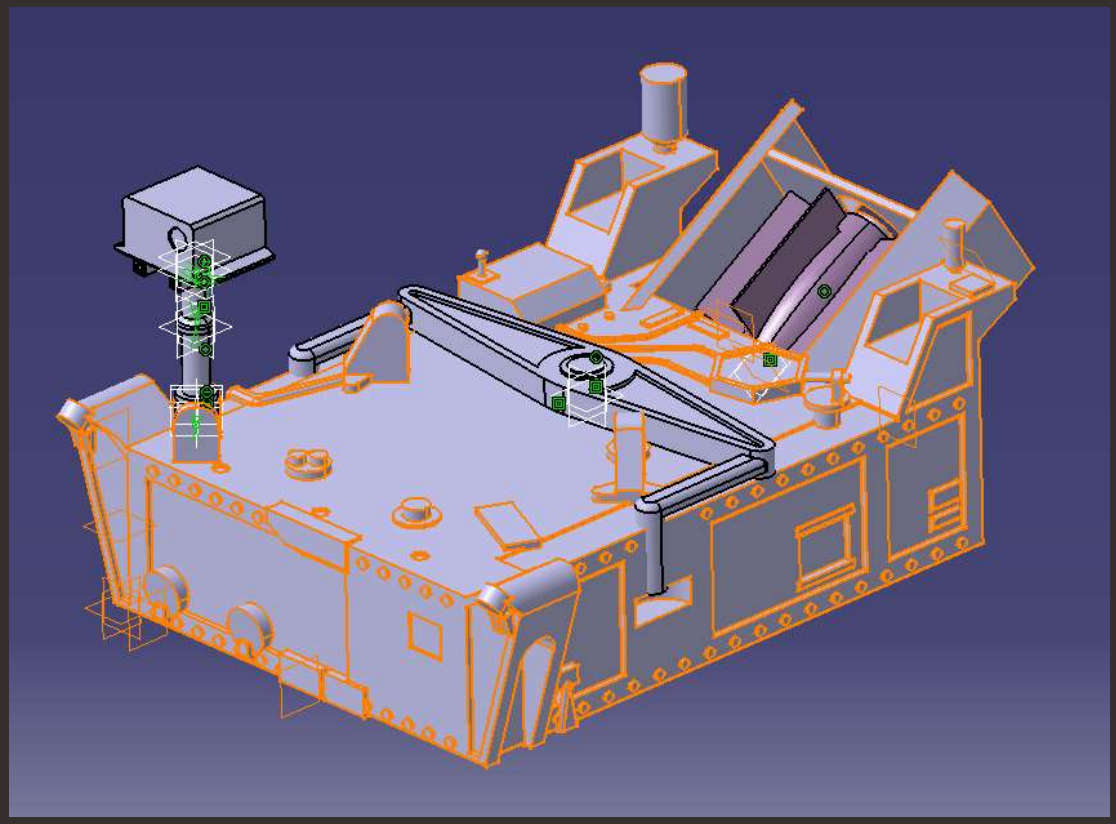
카메라와 탐사선의 몸체로 구성

여러 디테일 표현

| BODY |

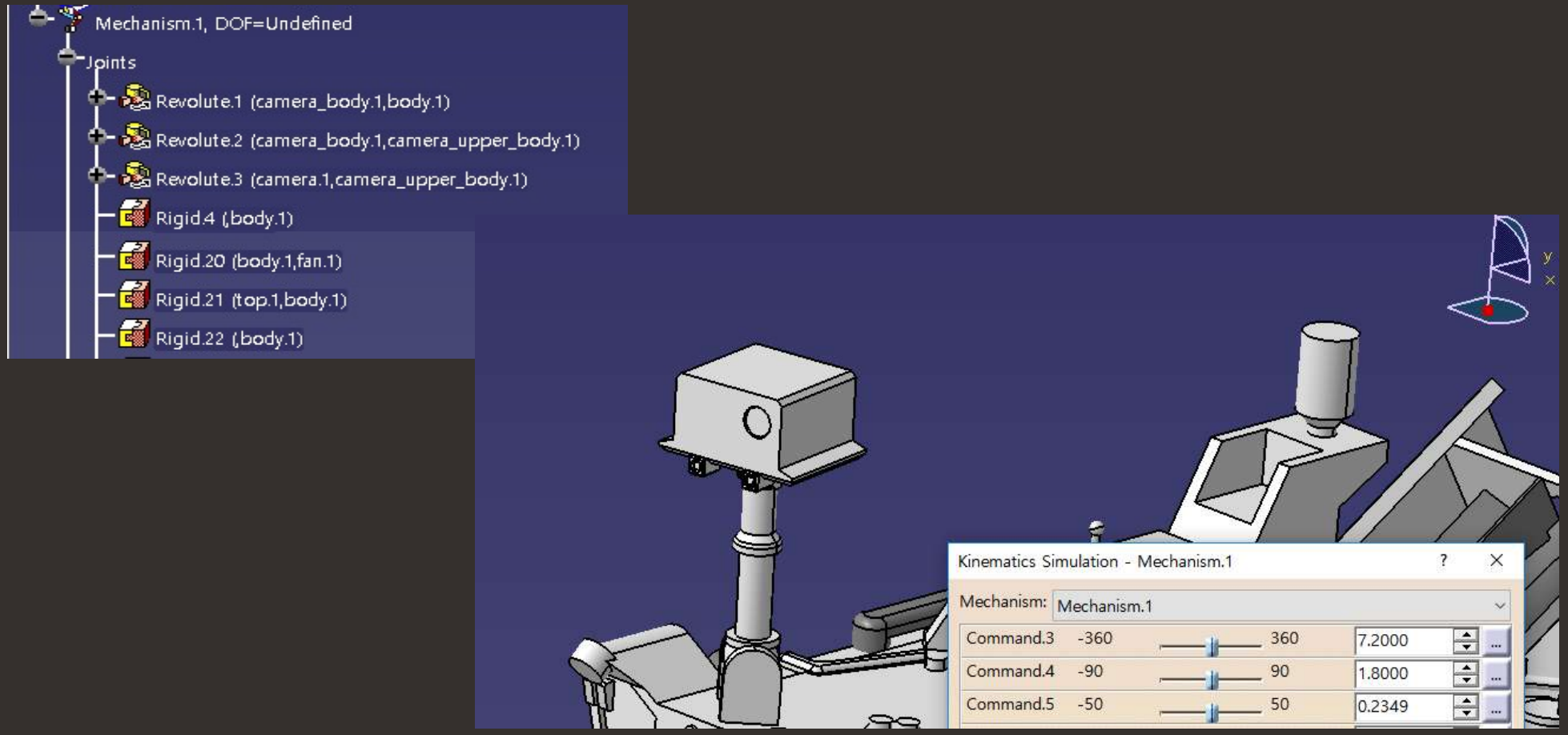
Part Design & GSD





| BODY |

DMU Kinematics



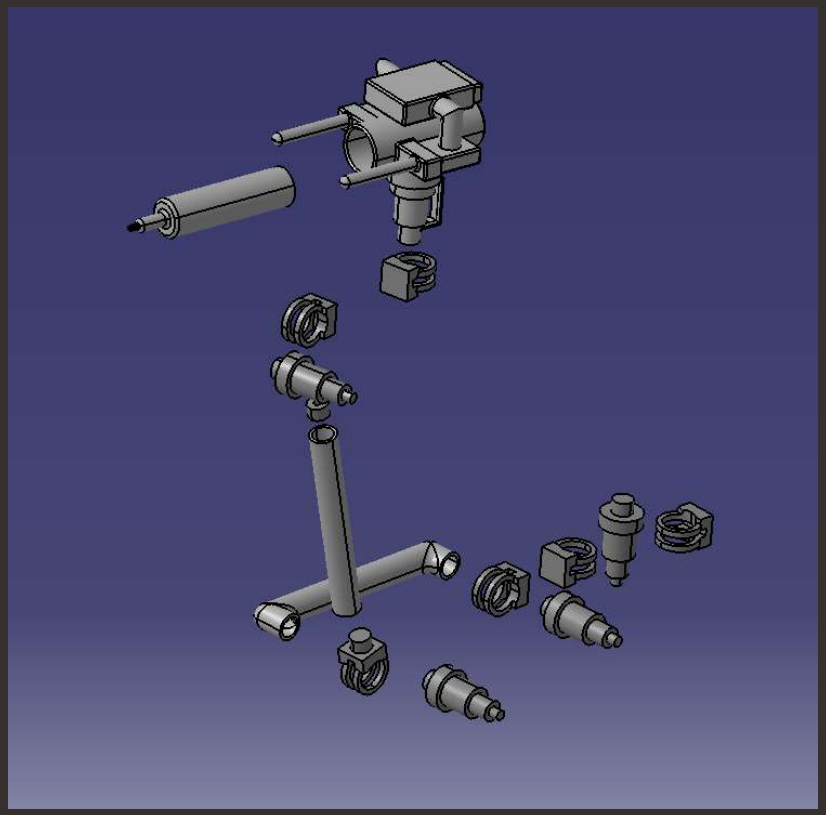
| ROBOT ARM |

암석 채취를 위한

드릴과 로봇 팔

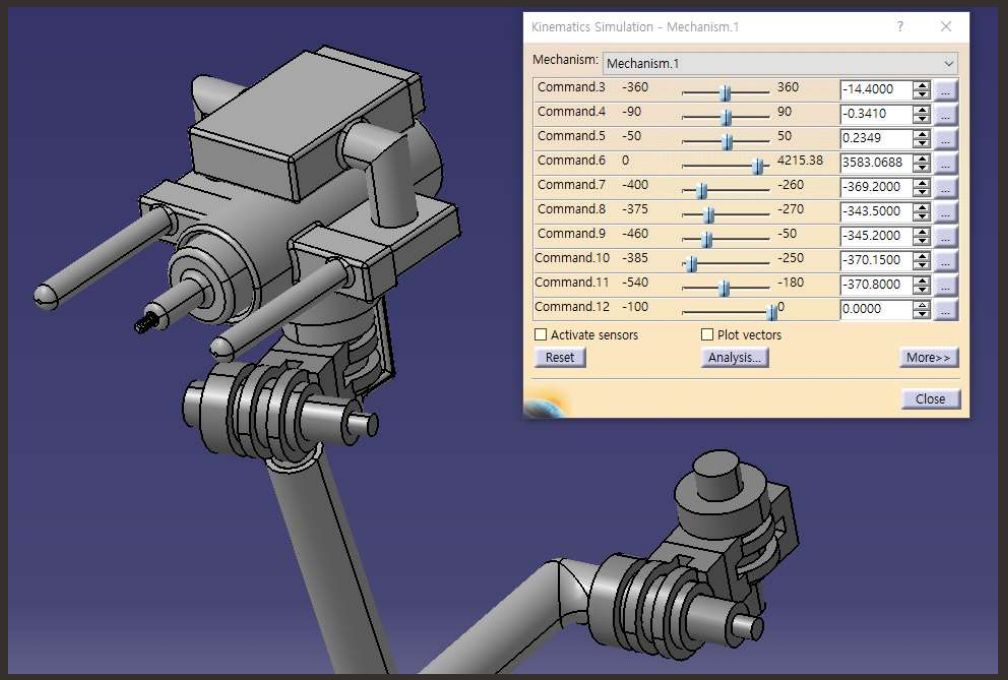
| ROBOT ARM |

Part design & GSD

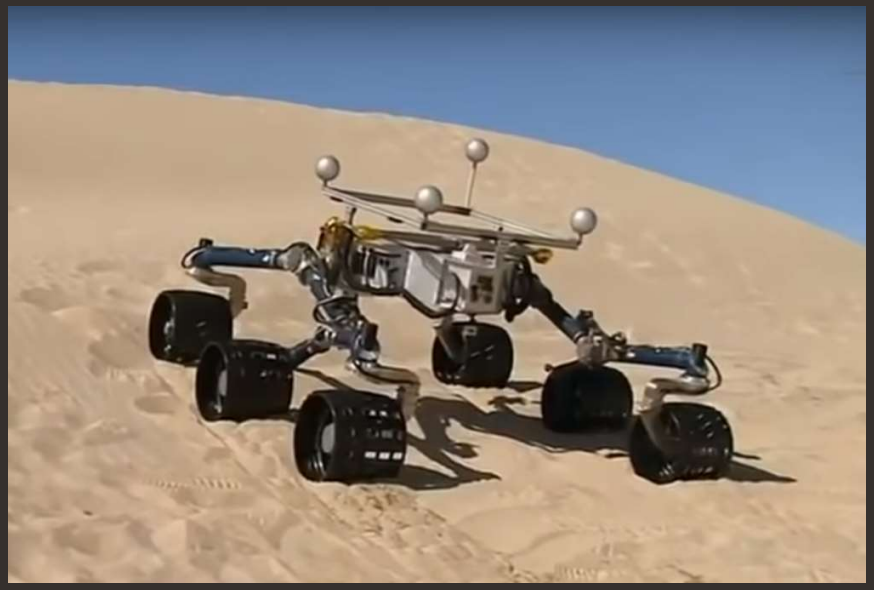


| ROBOT ARM |

DMU Kinematics



| WHEEL |

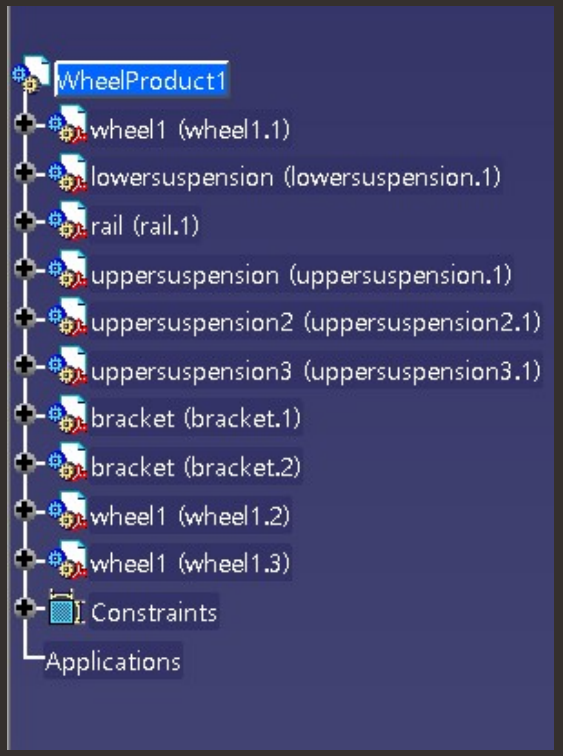


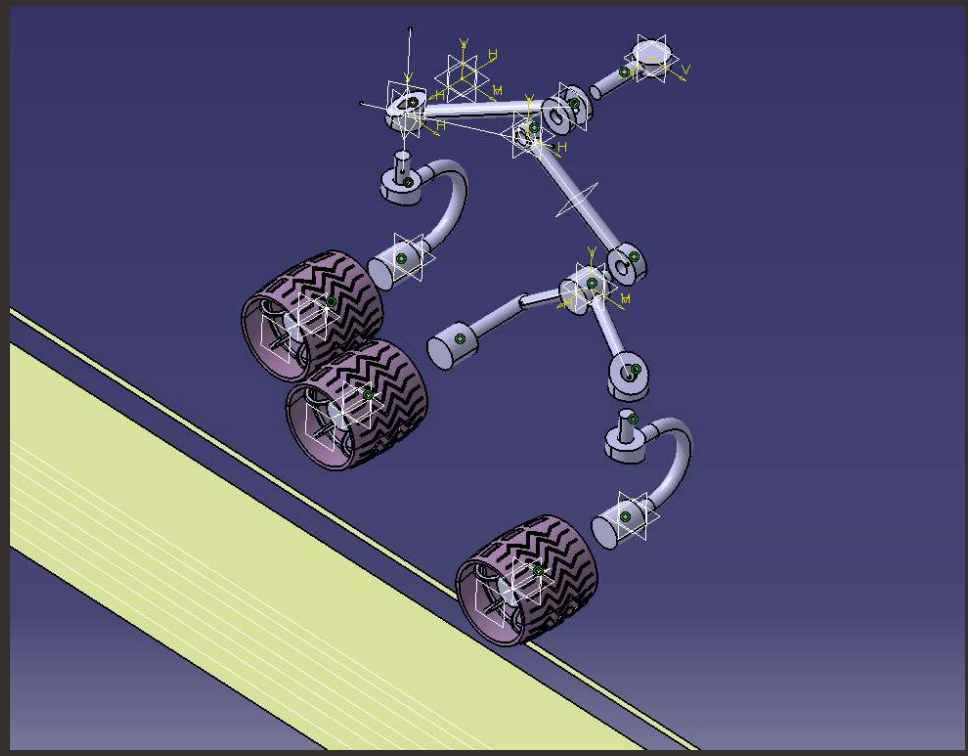
탐사선의 이동/착륙 장치

화성 지형에 적합

| WHEEL |

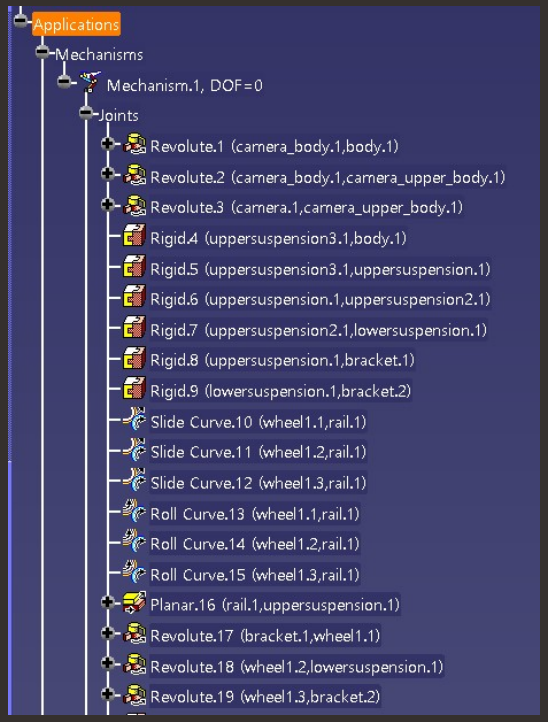
Part Design & GSD

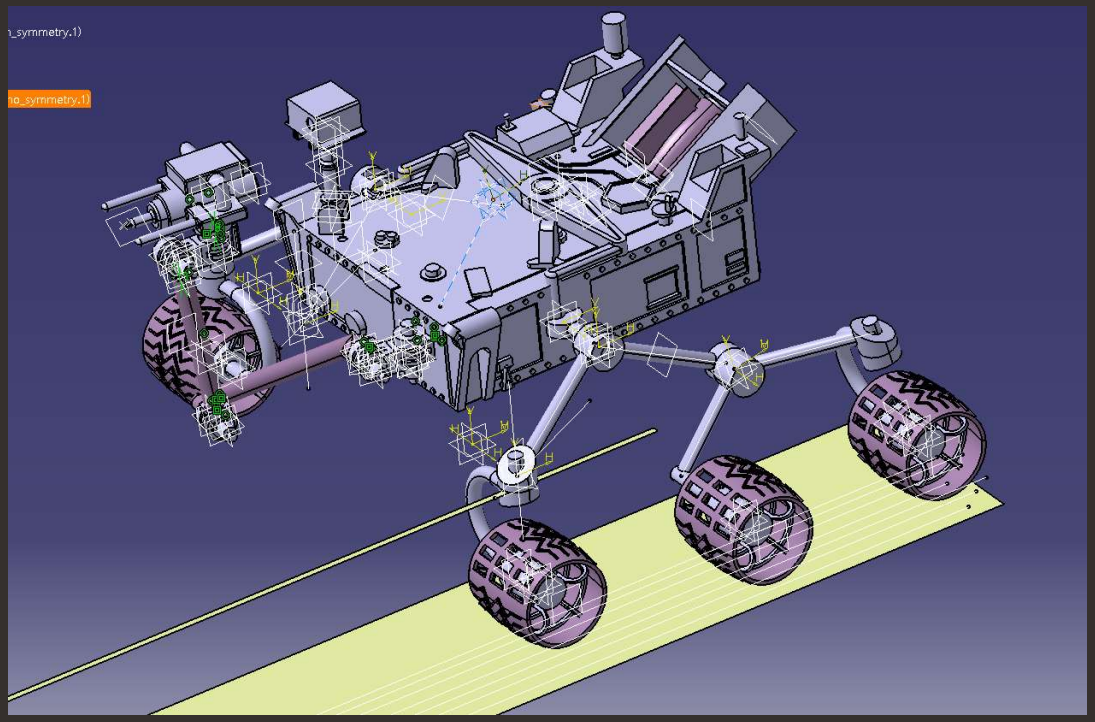




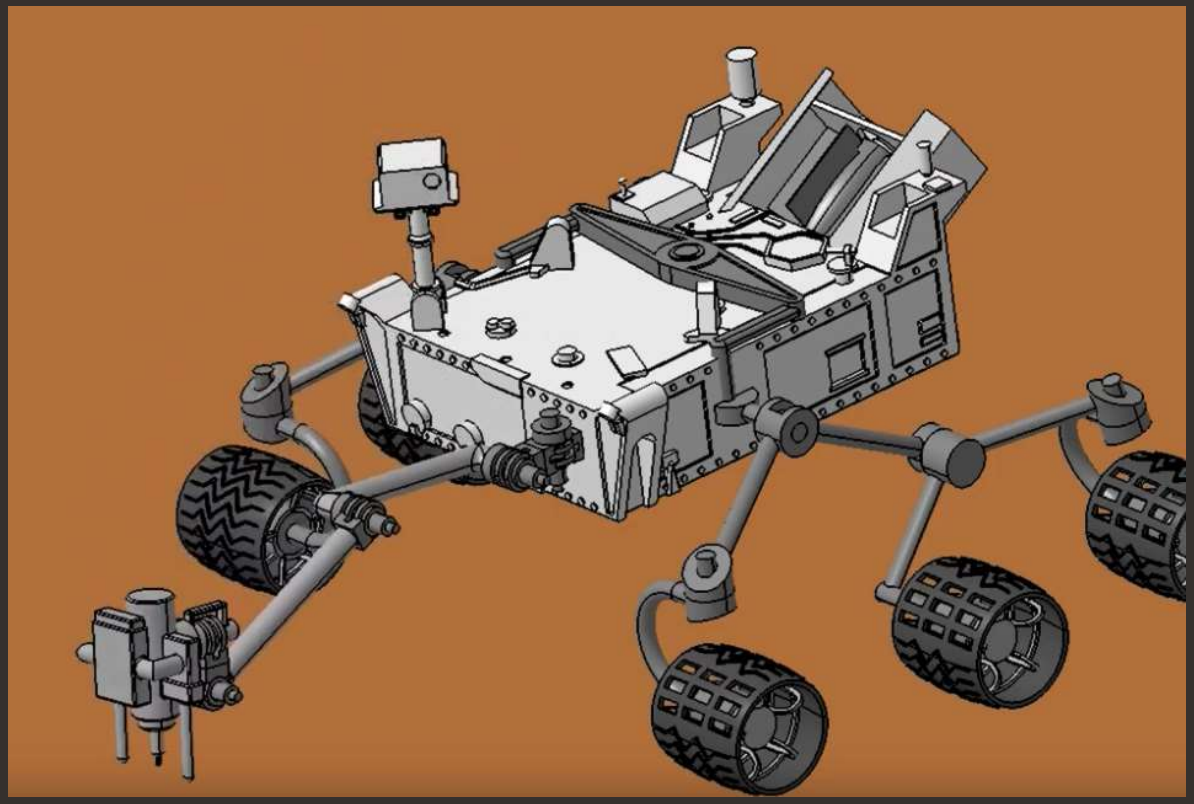
| WHEEL |

DMU Kinematics



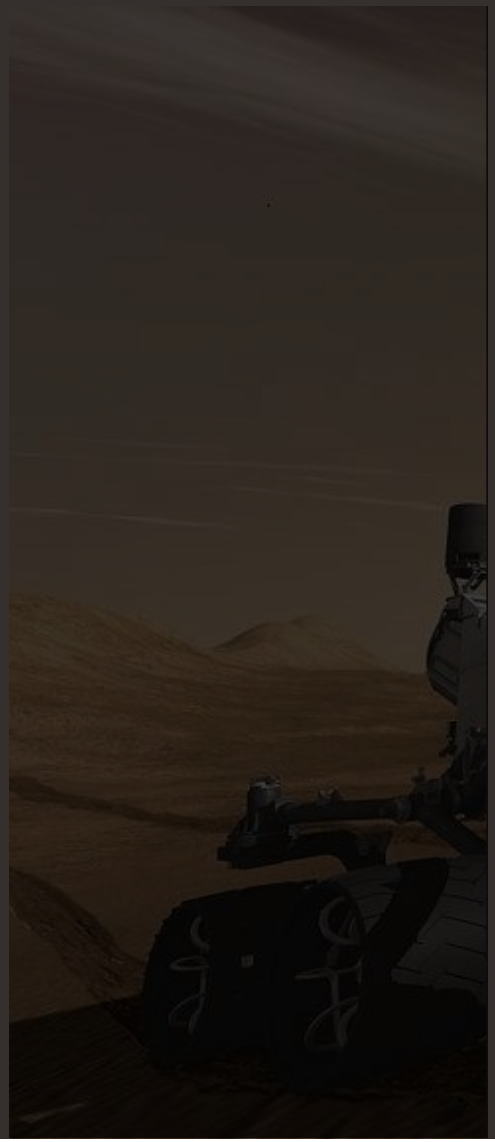


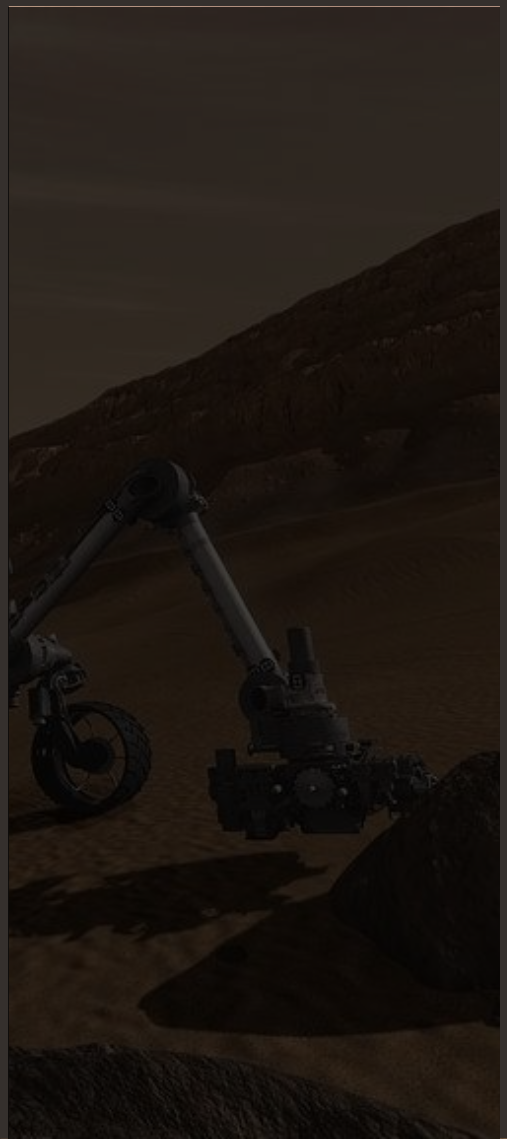
| Kinematics |



Youtube : https://youtu.be/ua4pKb-RIxw

참고 : Mars Science Laboratory Curiosity Rover Animation





04.
어려웠던 점

| 어려웠던 점 |

1. 모델의 디테일 설정

→ Body 부분의 디테일 범위 설정에 어려움

2. Kinematics

→ product끼리 합칠 때 error


Q & A