

A CAR WASHING MACHINE

2021036417 안수빈 2021082806 김보림

거품조

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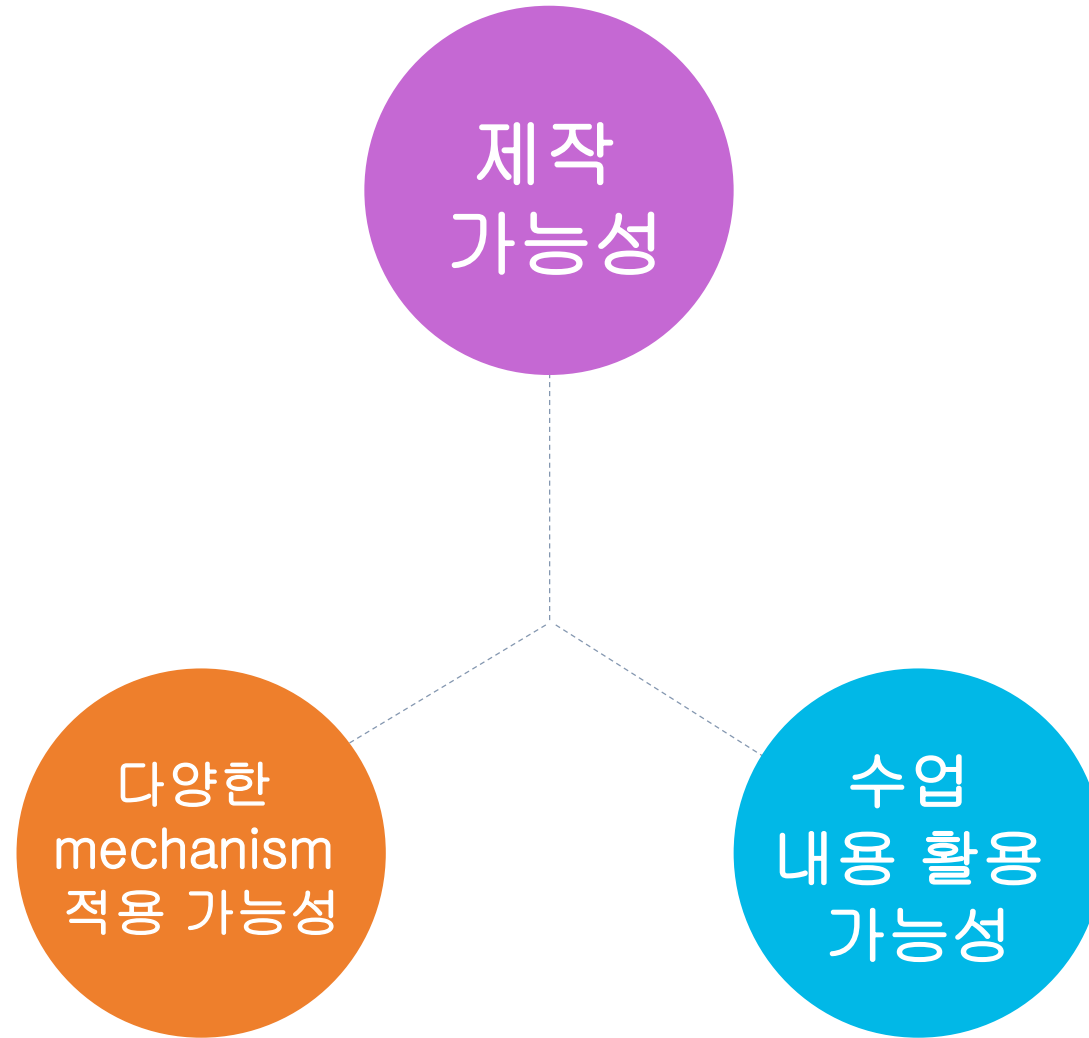




1

팀명 소개 및
주제 선정 배경

팀명 및 주제 선정 배경



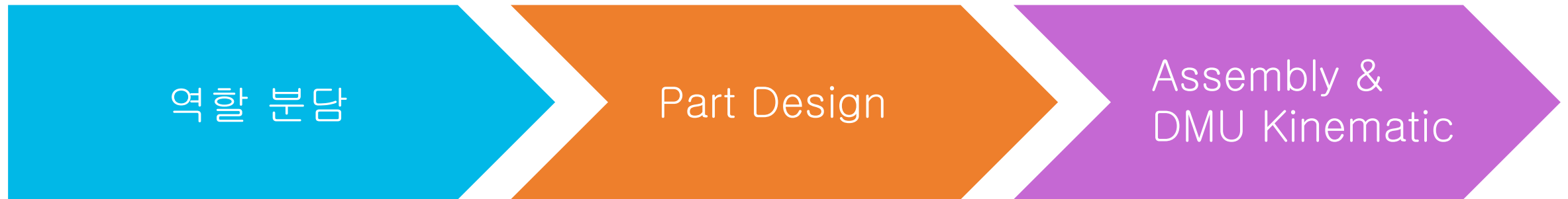
A blurred, high-speed train moving through a tunnel, creating a sense of motion and depth. The train is centered in the frame, moving away from the viewer. The tunnel walls and ceiling are visible, with some lights and structural elements. The overall color palette is cool, with blues and greys, accented by the bright light at the end of the tunnel.

2

Modeling



Modeling 과정



역할 분담

김보령

자료 조사

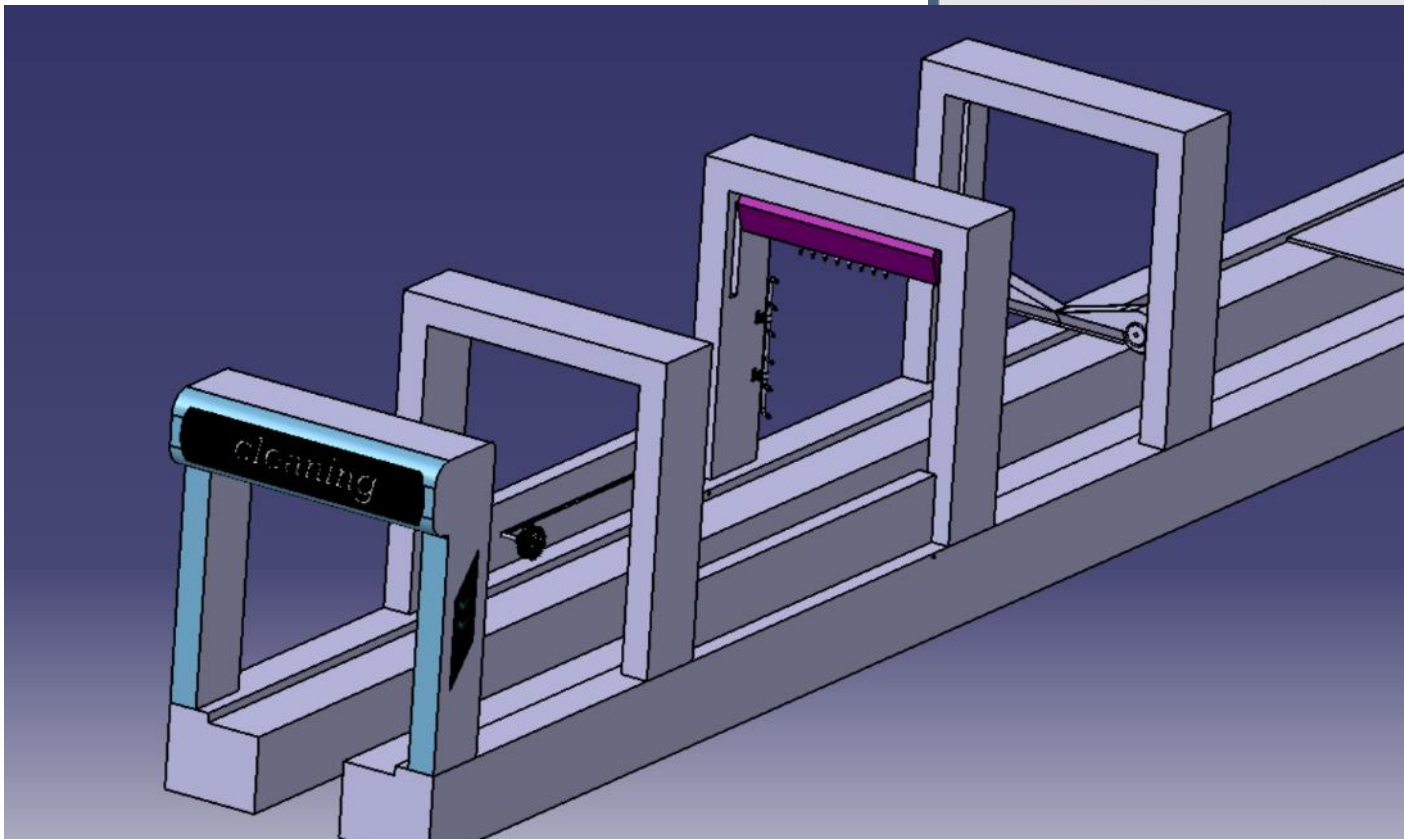
Start gate, Soap gate, Dry gate 디자인
Assembly 및 DMU Kinematic, Drafting
영상 제작

안수빈

자료조사

Rinse gate, Sliding, Wheel brush 디자인
Assembly 및 DMU Kinematic, Drafting
PPT 제작

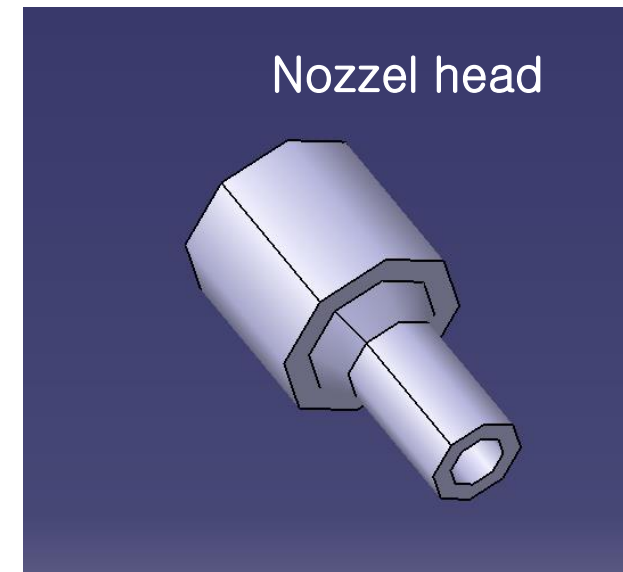
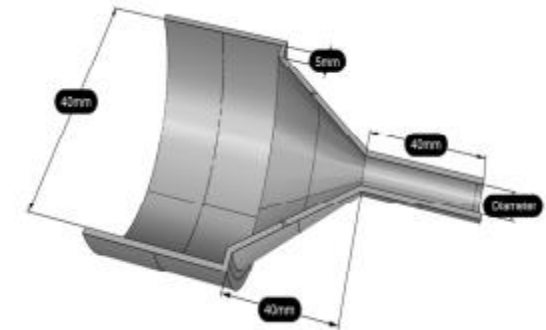
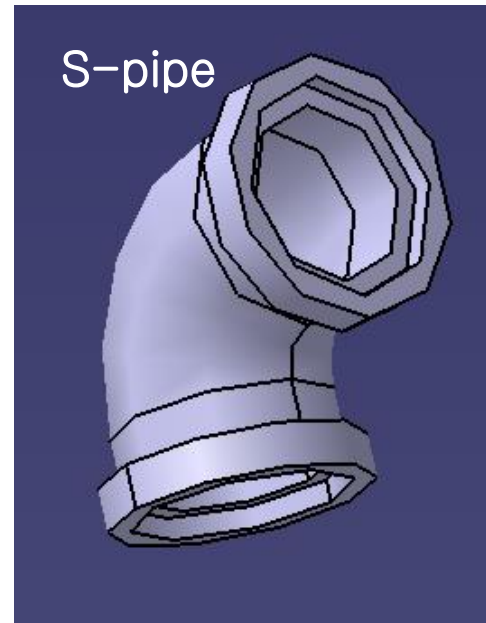
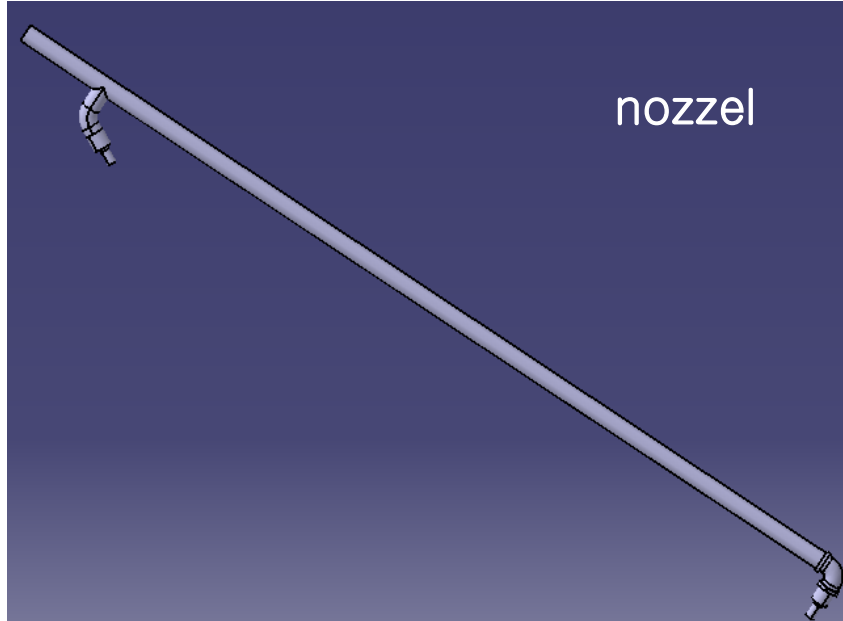
Overall Shape



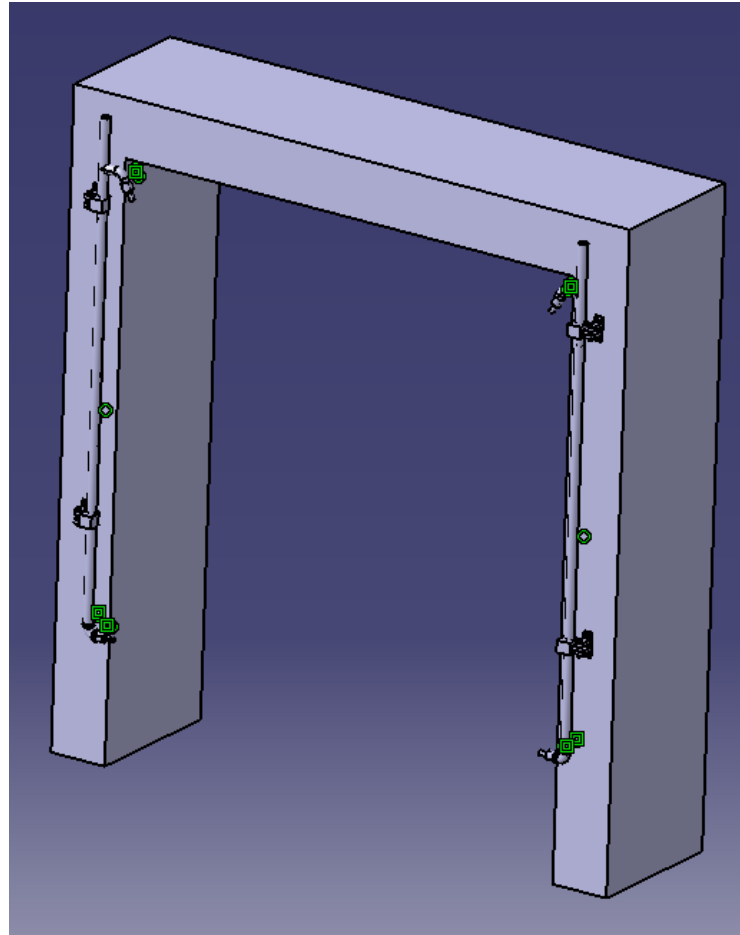
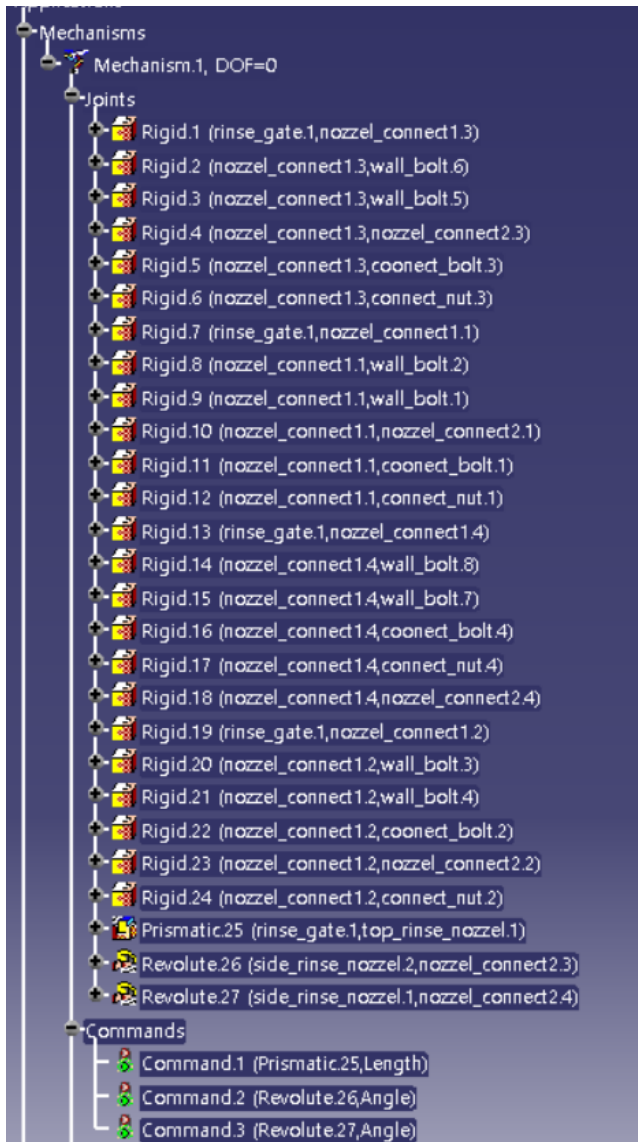
Part Design_ Start Gate



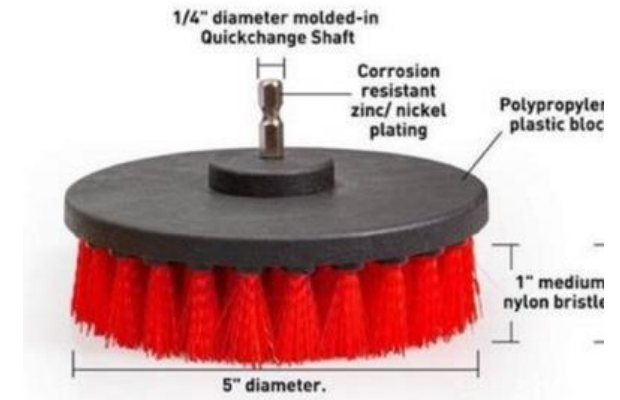
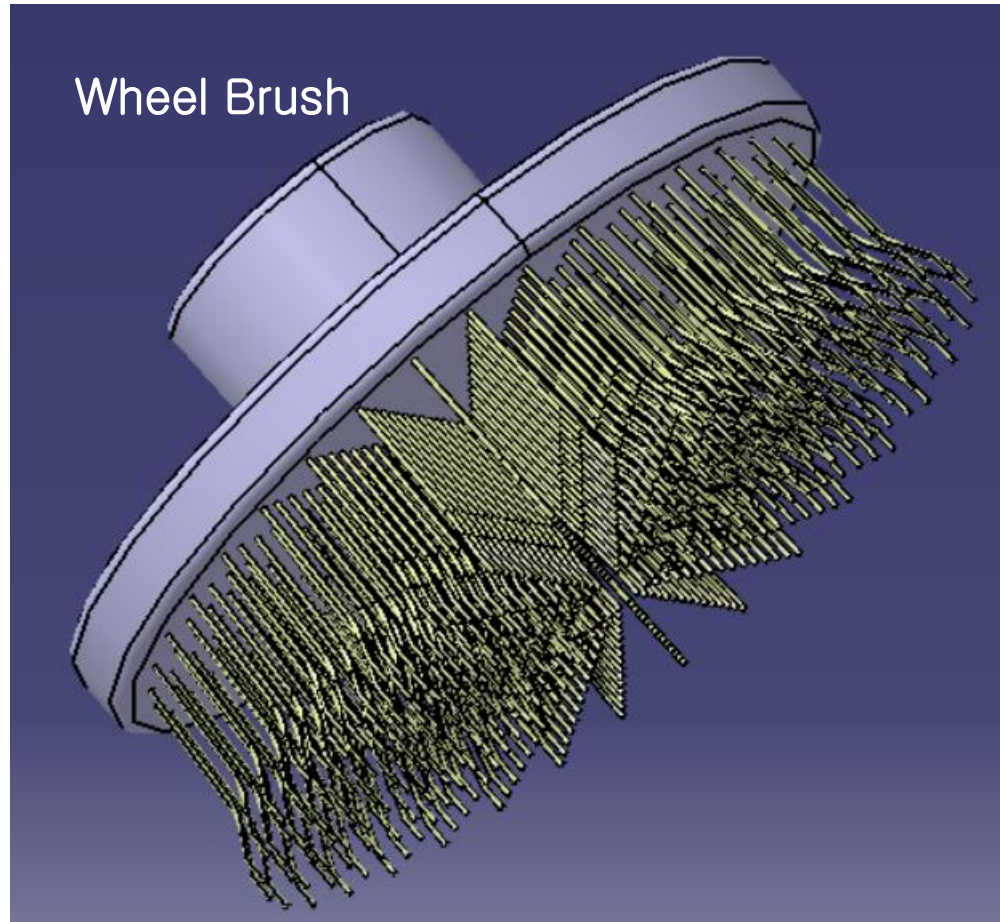
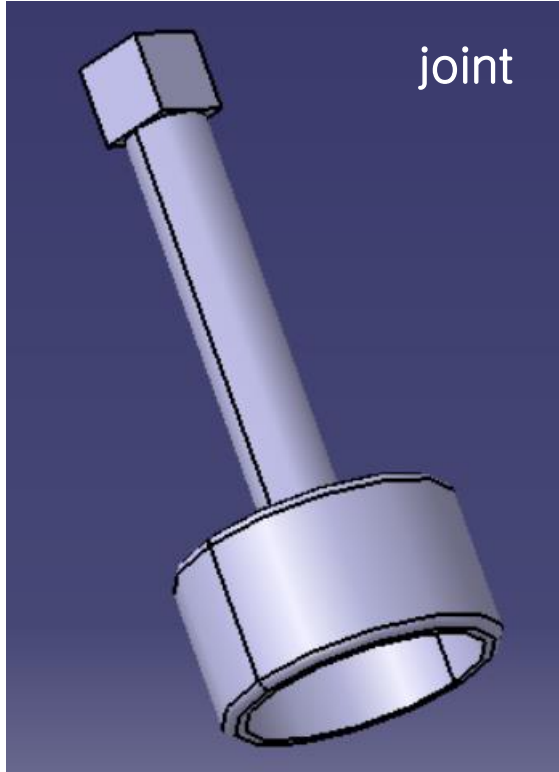
Part Design_ Soap Gate



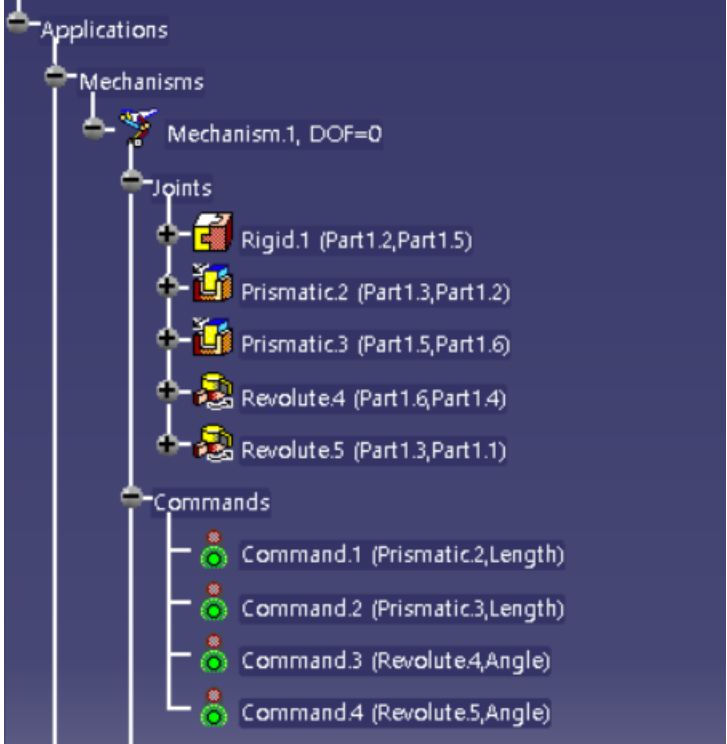
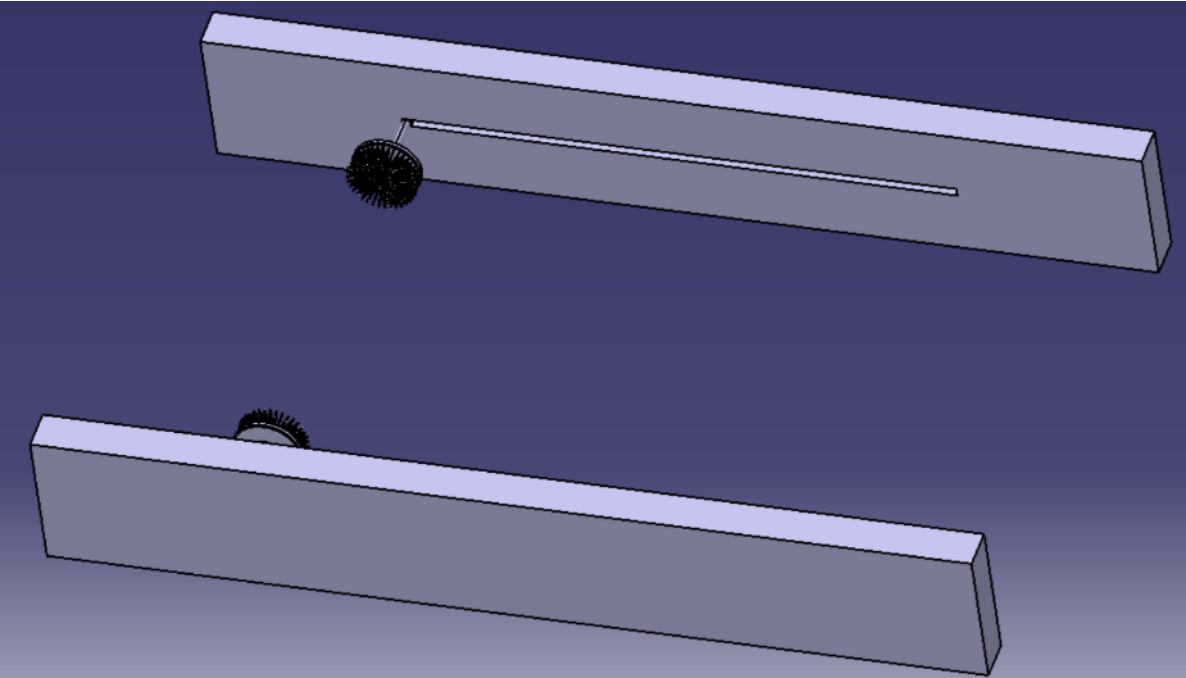
Assembly&DMU Kinematic_ Soap Gate



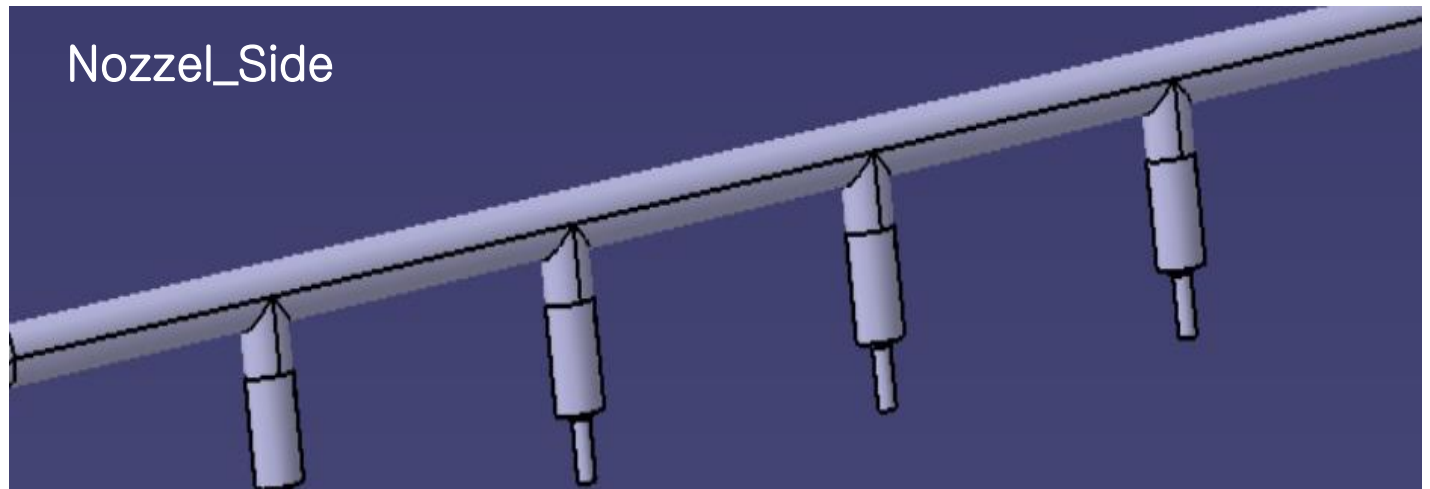
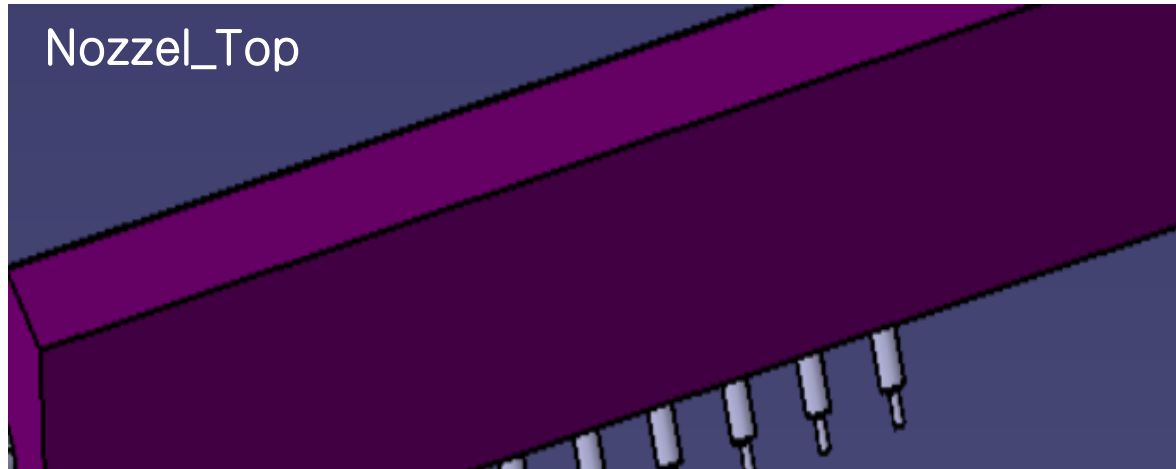
Part Design_ Wheel Brush



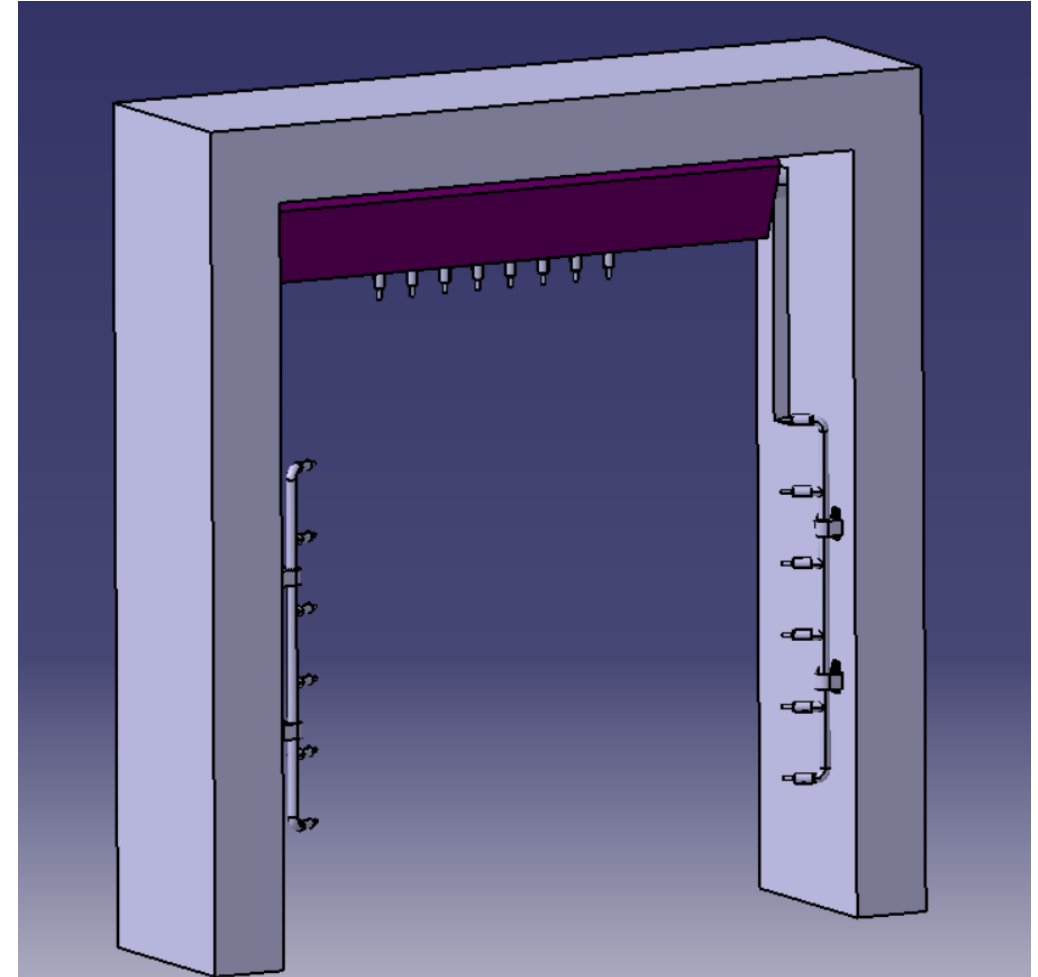
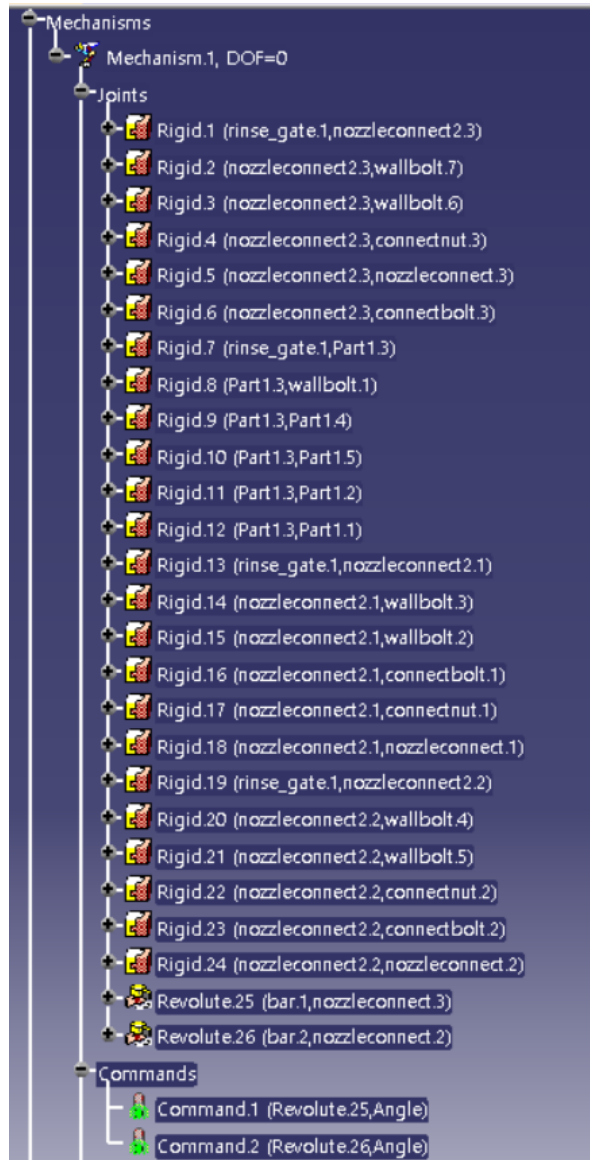
Assembly&DMU Kinematic_ Wheel brush



Part Design_ Rinse Gate



Assembly&DMU Kinematic_ Rinse Gate



Part Design_ Dry Gate

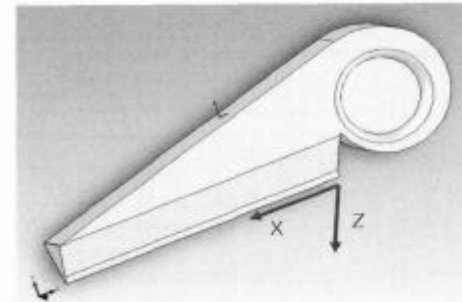
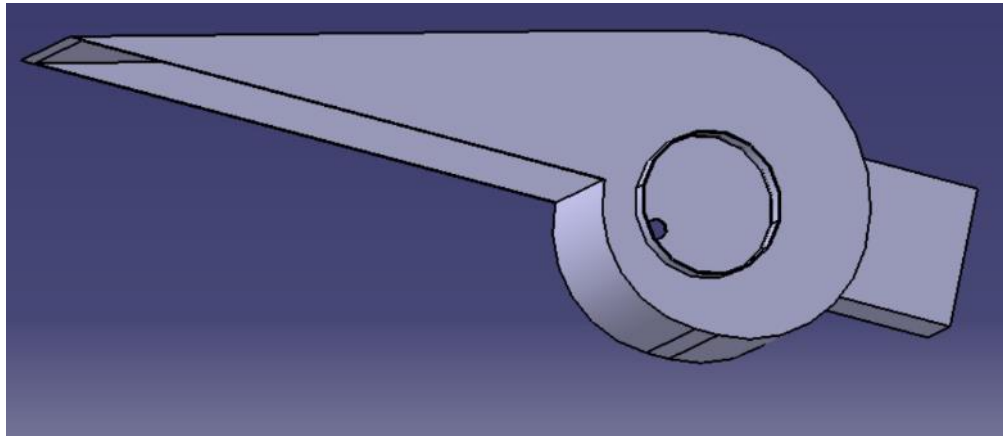


Fig. 2 Geometry of an air nozzle system

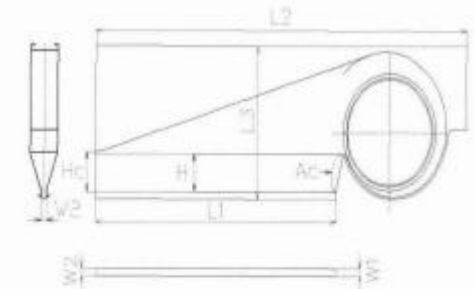


Fig. 4 Geometric parameters of the air nozzle system

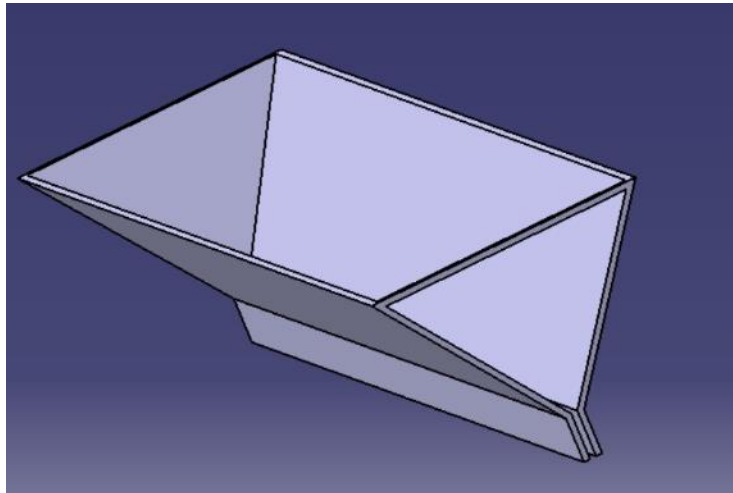
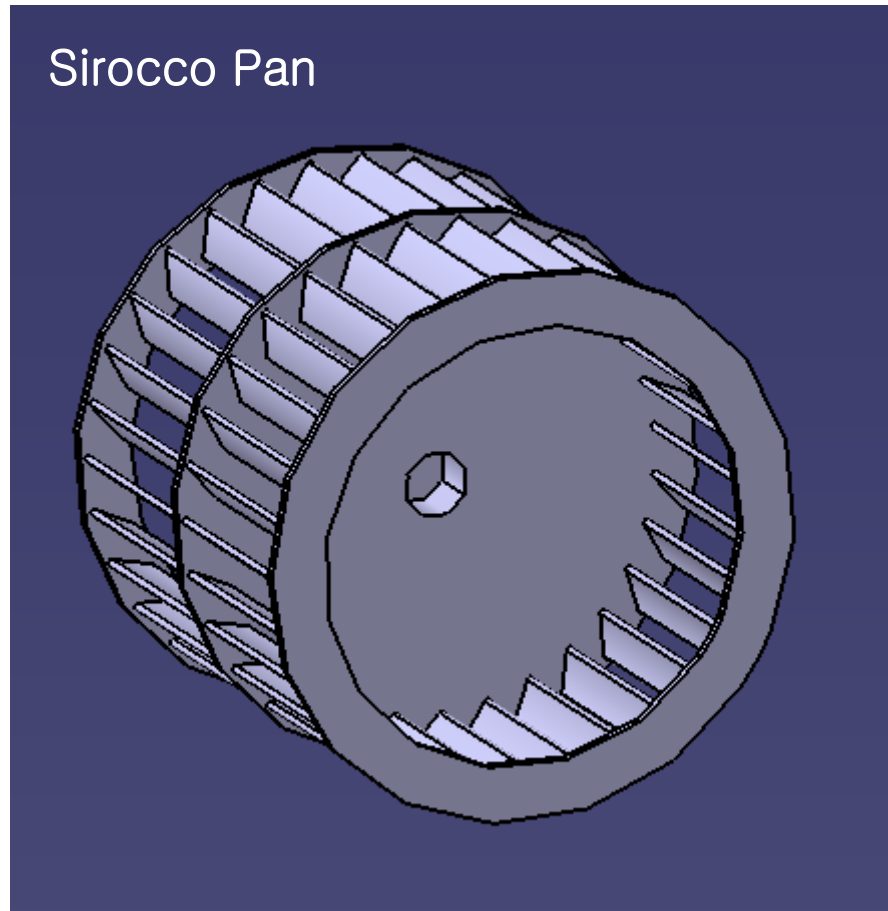


Fig. 3 Photo of an automatic car wash machine

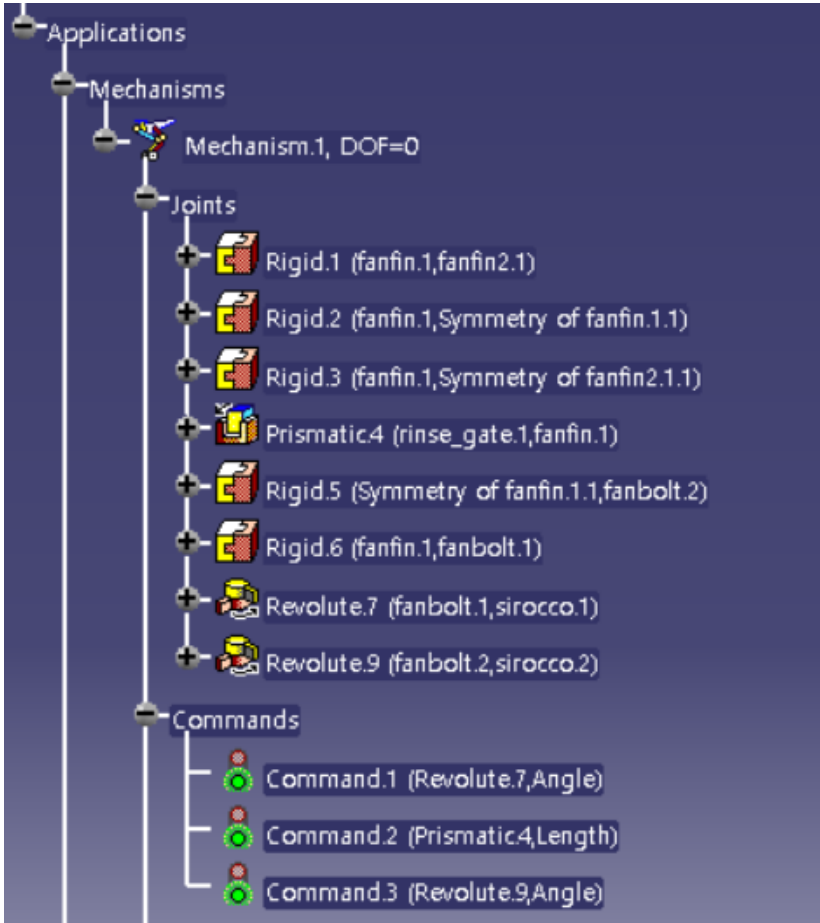
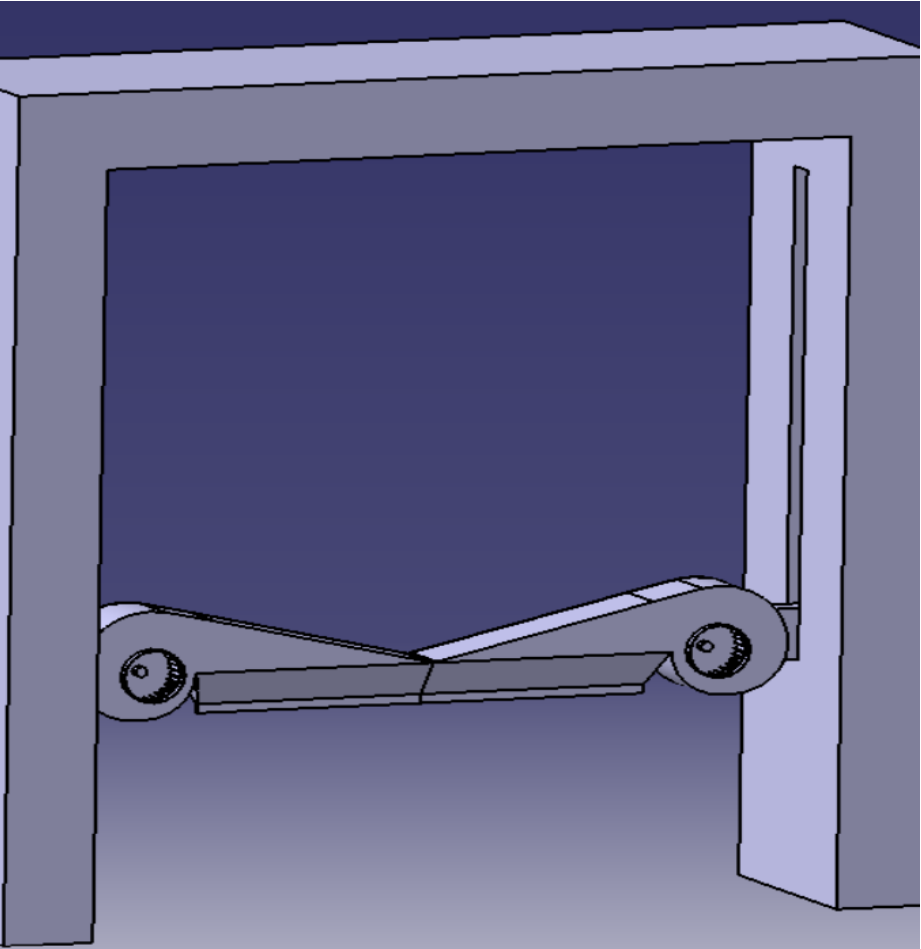
Table 1 Summary of 2⁸ factorial DOE set and CFD results

No	Hc (mm)	W2 (mm)	H (mm)	Ac (mm)	Q (l/min)	V _T (%)	U _T	V _L (%)	U _L
2k 01	20	10	80	0	36.6	29.34	0.983	31.09	0.970
2k 02	100	10	80	40	36.8	29.59	0.988	29.04	0.994
2k 03	20	14	80	40	42.9	31.97	0.997	30.33	0.997
2k 04	100	14	80	0	43.6	33.99	0.989	31.84	0.975
2k 05	20	10	120	40	37.2	31.14	0.995	30.79	0.995
2k 06	100	10	120	0	38.1	33.44	0.99	33.14	0.968
2k 07	20	14	120	0	42.8	32.68	0.991	33.06	0.969
2k 08	100	14	120	40	44.5	35.50	0.993	32.30	0.995
Center Point	60	12	100	20	40.9	34.09	0.997	33.75	0.996

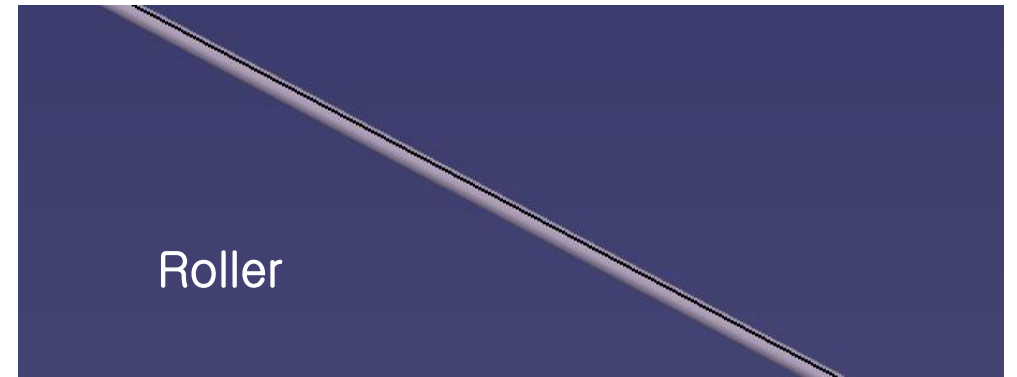
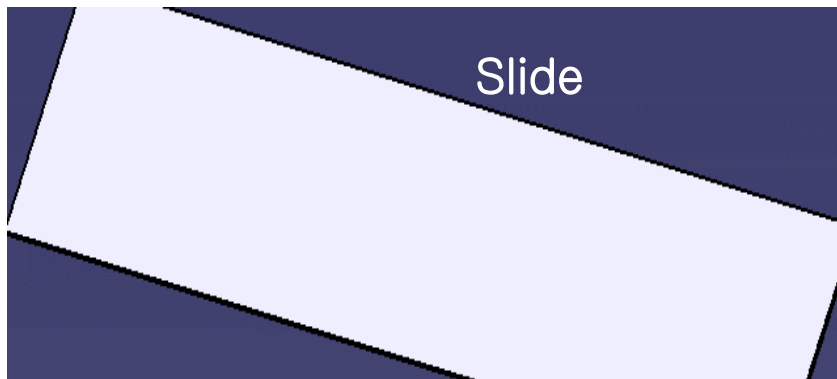
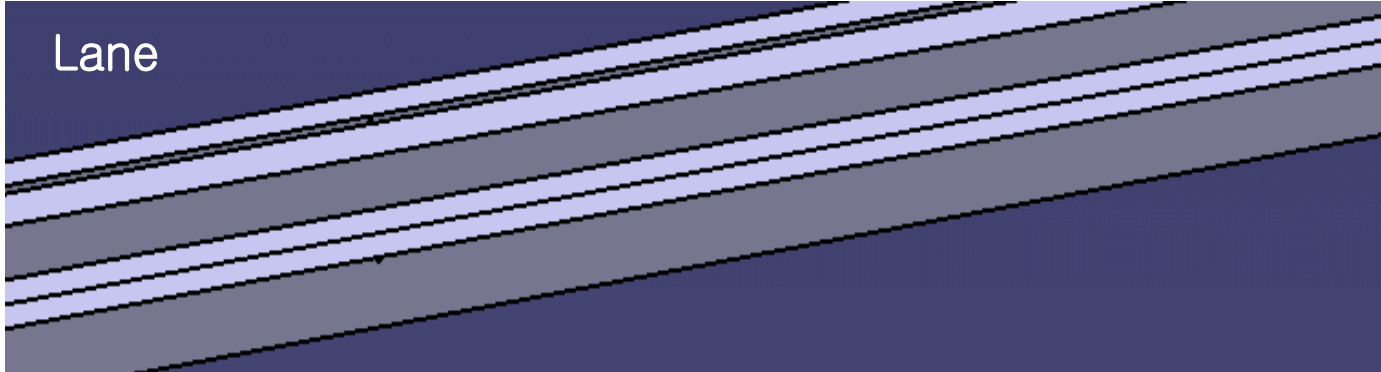
Part Design_ Dry Gate



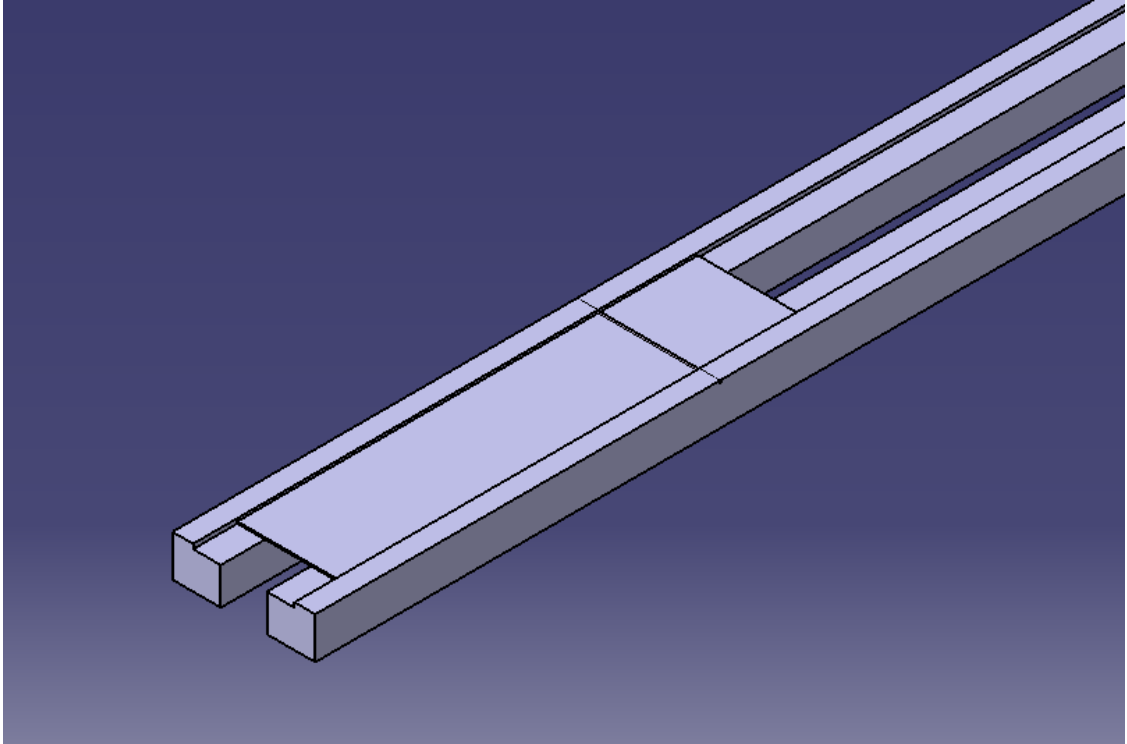
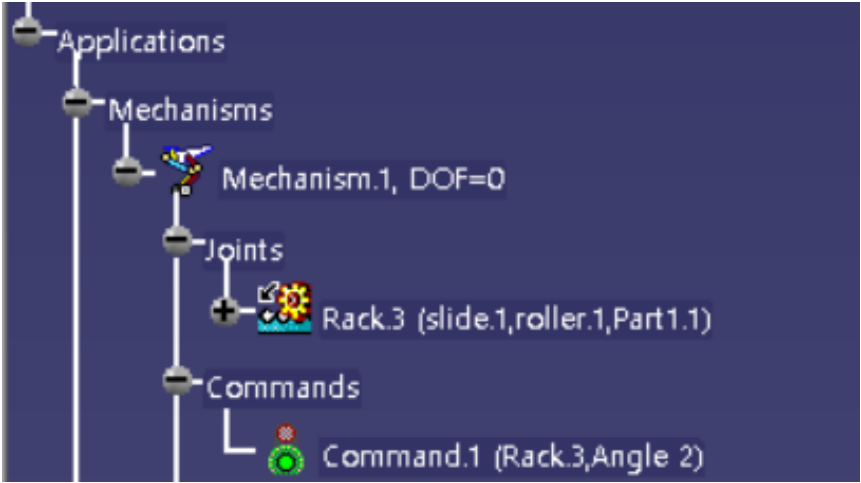
Assembly&DMU Kinematic_Dry Gate



Part Design_ Sliding machine



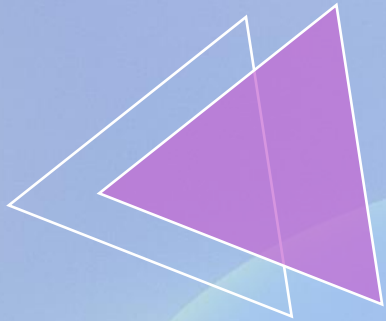
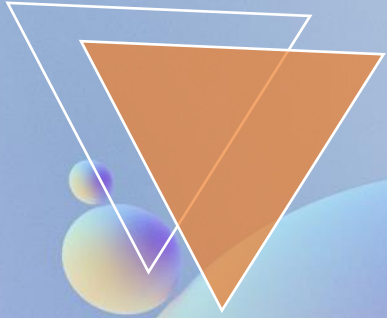
Assembly&DMU Kinematic_ Sliding Machine



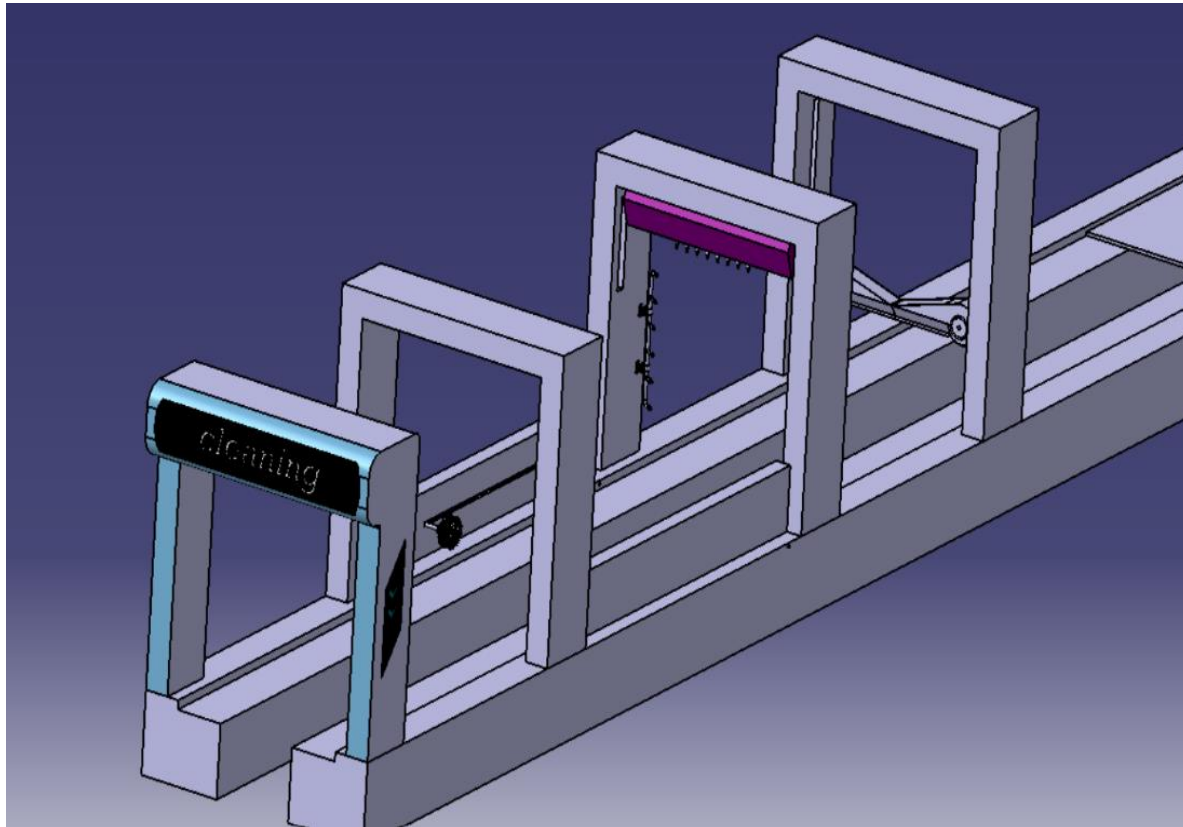


3

Kinematic 영상



Kinematic 영상 링크



<https://youtu.be/eR0Ctigikv0>



4

한계점

아쉬운 점

- DMU Kinematic을 하는 과정에서 각각의 프로덕트에 키네마틱을 부여하고 마지막에 합치는 과정에 문제가 생겨 처음부터 다시 assembly하고 kinematic을 부여하느라 시간이 오래 걸림.

1

- 컨베이어 벨트 제작을 시도하였지만 실패

2

- 자동차도 모형을 제작하여 kinematic 구현 시 이용하려고 했으나 실패함.

3

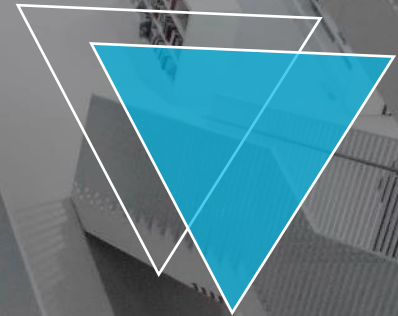
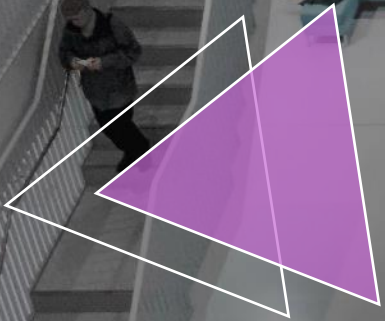
4

- 크기를 실제와 비슷하게 하려고 하였으나 너무 커져서 줄임.



5

참고문헌



Reference

1

HALLIM 공식 홈페이지
[MEGA CLENS JET > 터널형 세차기 | HALLIM \(hallims.co.kr\)](https://www.hallims.co.kr)

2

고압 노즐
이상열, 조대환, <고압 세척기의 분사 노즐에 관한 연구>, 2015년, p.562

Wheel Brush

[2/3.5/4/5" Electric Scrubber Brush Drill Brush Kit Plastic Round Cleaning Brush Extension Rod For Car Tires Car Cleaning Tools - Sponges, Cloths & Brushes - AliExpress](#)

3

건조기

정욱희, 최영석, 권오영, 이경용, <CFD 및 DOE를 활용한 자동세차기 노즐시스템의 최적 설계>, 2007년, p35, 36

시로코팬

[소형시로코팬\(SUS\) \(skfan.co.kr\)](https://www.skfan.co.kr)



Q & A

A futuristic, curved hallway with blue lighting and people walking. The hallway has a curved ceiling with recessed lights and a curved floor. The walls are made of dark, vertical panels. Several people are walking away from the camera in the distance. The overall atmosphere is modern and high-tech.

감사합니다