

Assembling of electromechanical telescopic actuator

(Internship at Durali System Design and Automation)

- Assembled 20 meters of electromechanical telescopic actuators specifically designed for the vertical movement of heavy loads (used in Tehran City Theatre stage lift)
- Gained hands-on experience assembling mechanical elements in the workshop



Modelling BMW M6

(In my first year as Bachelor student at Sharif University of Technology)

- Created a detailed model of a BMW M6 car body surface using SOLIDWORKS
- Applied my learned skills in MECH Engineering Graphics as a fresh year student
- Learned SOLIDWORKS surface feature

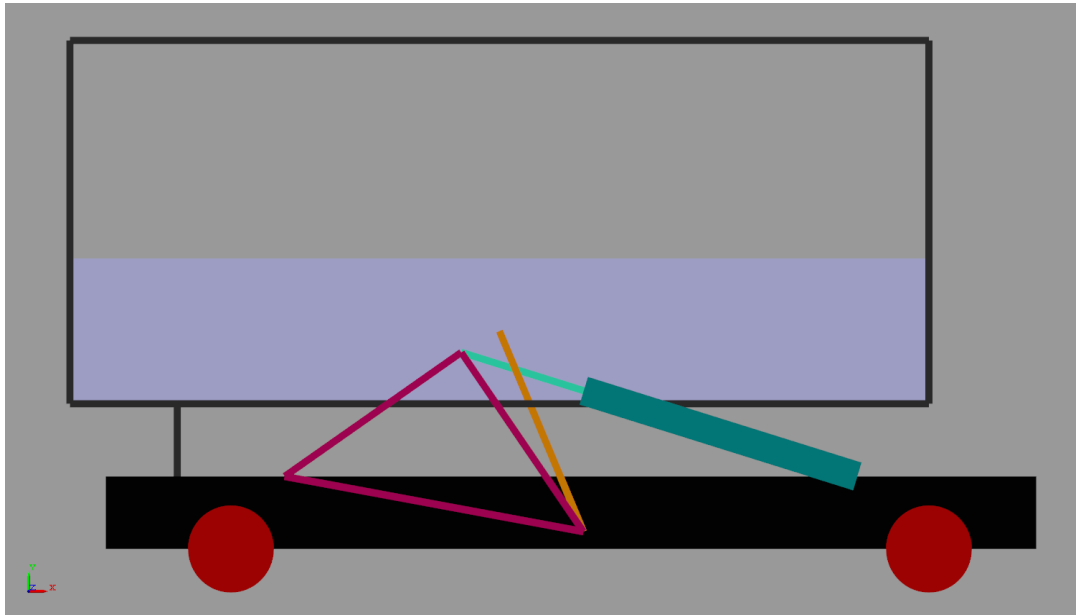


Simulation of a six-bar return mechanism for trucks

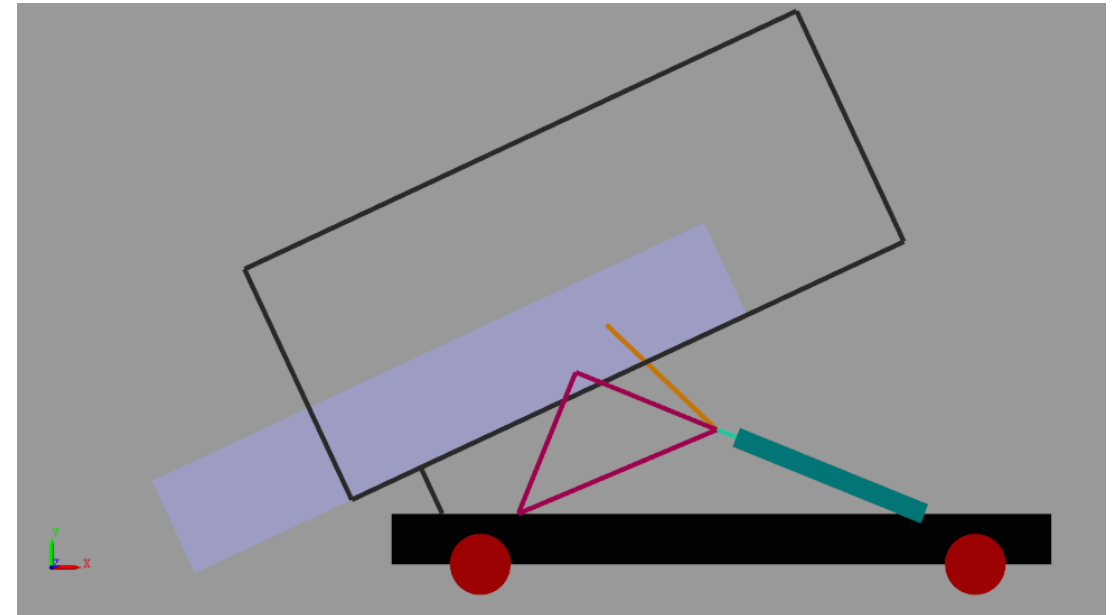
(In my 2nd year as Bachelor student at Sharif University of Technology)

- Simulated a six-bar return mechanism for trucks using SIMMECHANICS MATLAB
- Optimized bar dimensions by minimizing the applied force using “fminsearch” function in MATLAB

Stationary Stage



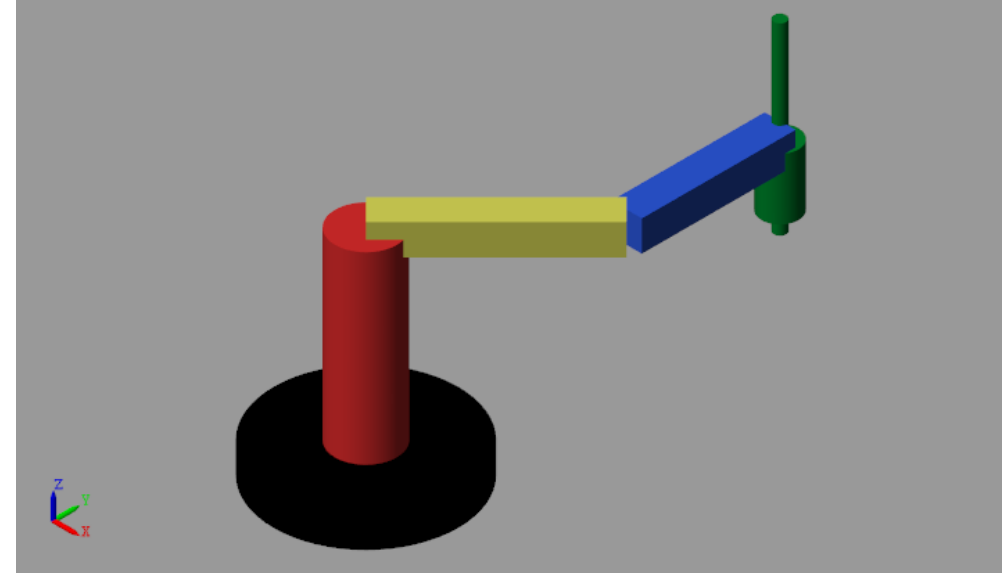
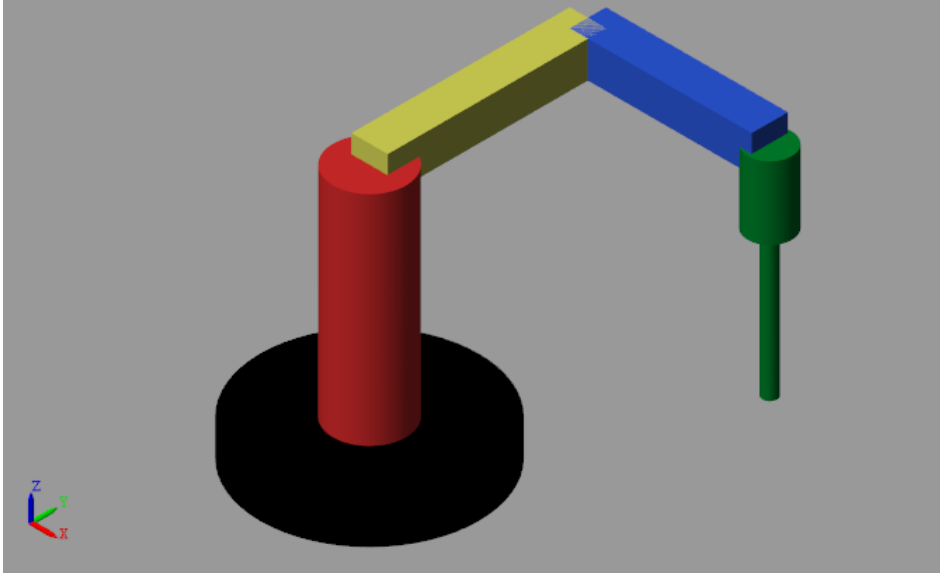
Rise - offloading stage



Simulation of a SCARA Robot

(In my 3rd year as Bachelor student at Sharif University of Technology)

- Simulated a SCARA robot using SIMULINK/SIMMECHANICS
- Wrote a MATLAB function to generate the inverse kinematic solution of the SCARA robot
- Trajectory Planning for SCARA Robot using trapezoidal velocity profile

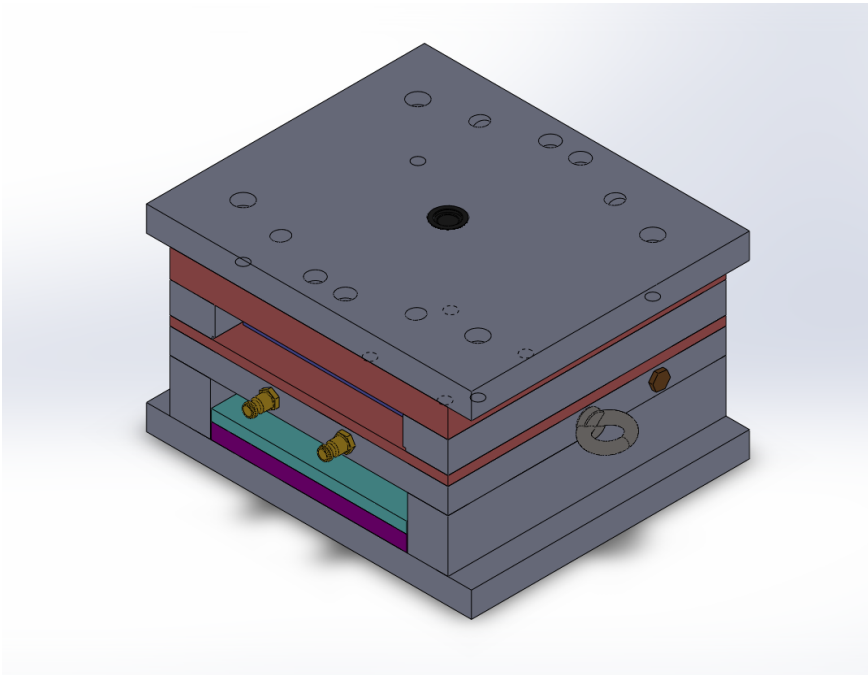


Plastic Mold Injection Design

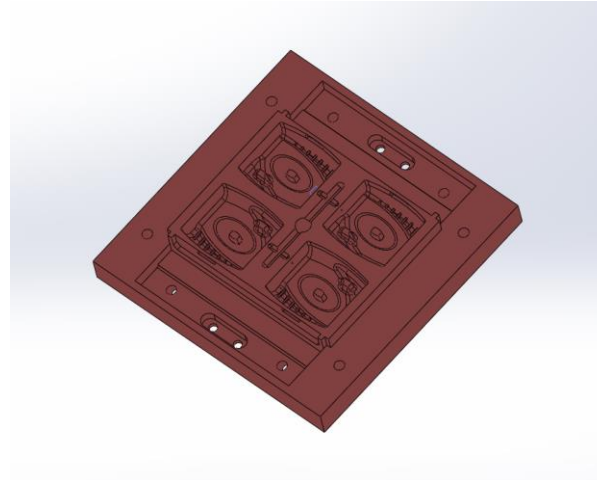
(In my 4th year as Bachelor student at Sharif University of Technology)

- Designed and assembled a complete mold for a specific plastic part using SOLIDWORKS

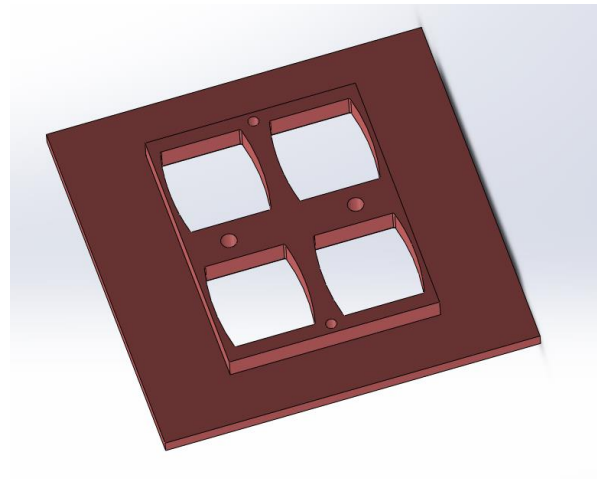
Mold Assembly



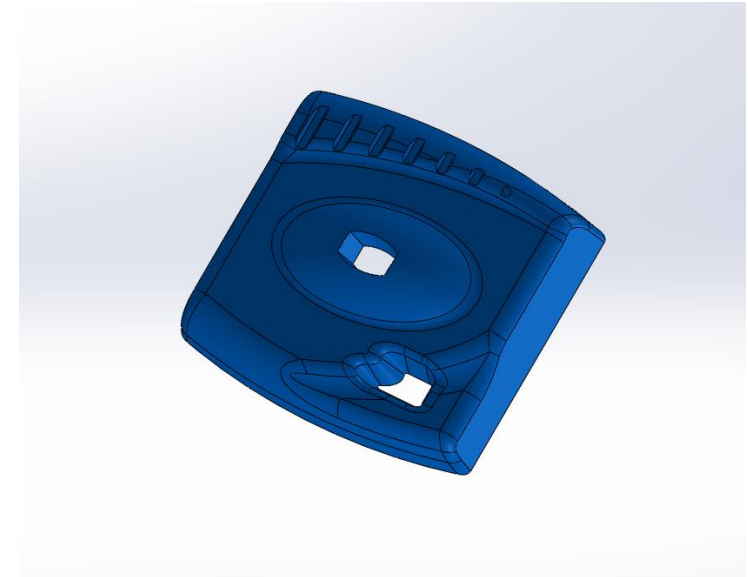
Cavity Plate



Core Plate



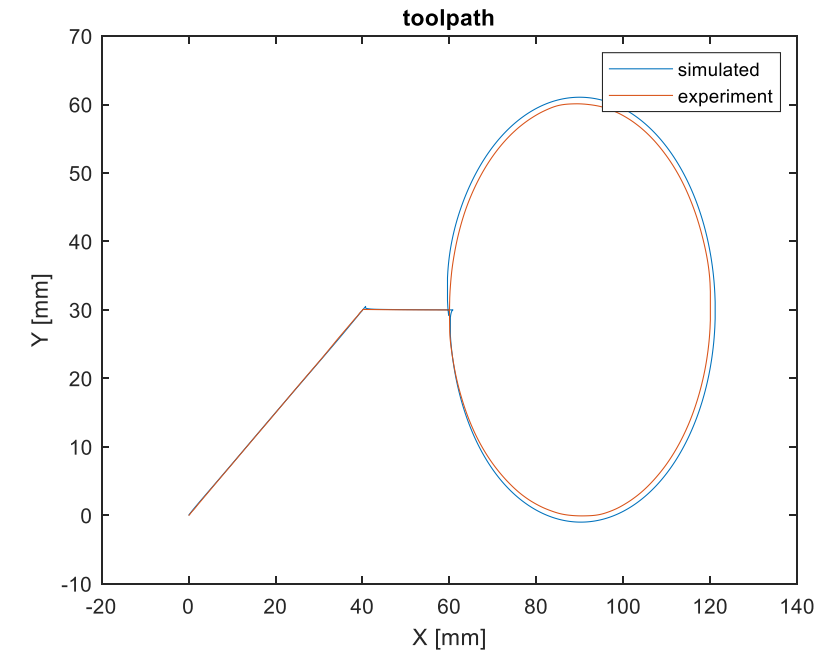
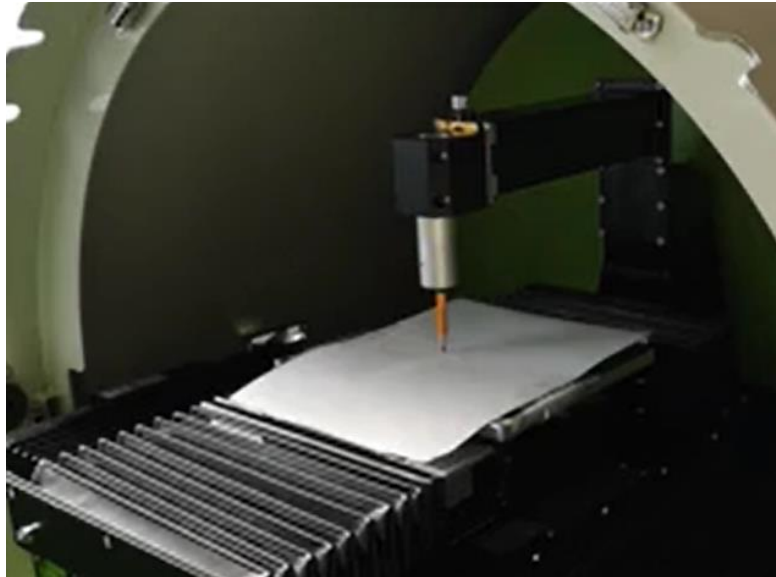
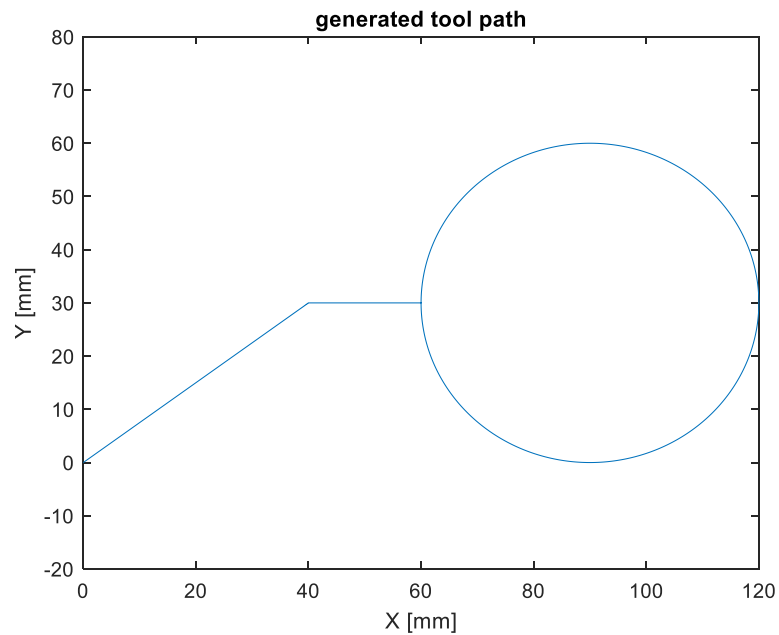
Molded Part



Simulation of Contouring Performance in Two Axis Ball-Screw Table

(In my 1st year as Master student at the University of British Columbia)

- Generated toolpath in discrete domain with fixed interpolation period using trapezoidal feedrate profile
- Simulated XY ball screw table in SIMULNIK using the experimentally verified dynamics of the table
- Designed lead-lag controller
- Implemented the trajectory on real XY table



Digital twin assisted process monitoring and control in CNC Machine

([Maser Thesis](#) 2020-2022)

- Developed a digital twin system for monitoring and control of 5-axis CNC machine
- Analyzing false tool breakage, tool wear and chatter alarm by optimizing the respective monitoring and detection algorithms on CNC machine

