

SANTOSH BARHATTE

MEng Mechanical Engineering Graduate



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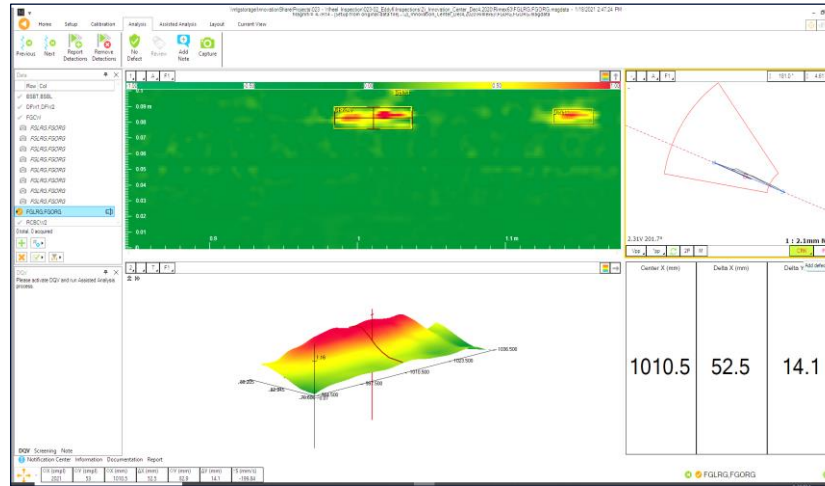
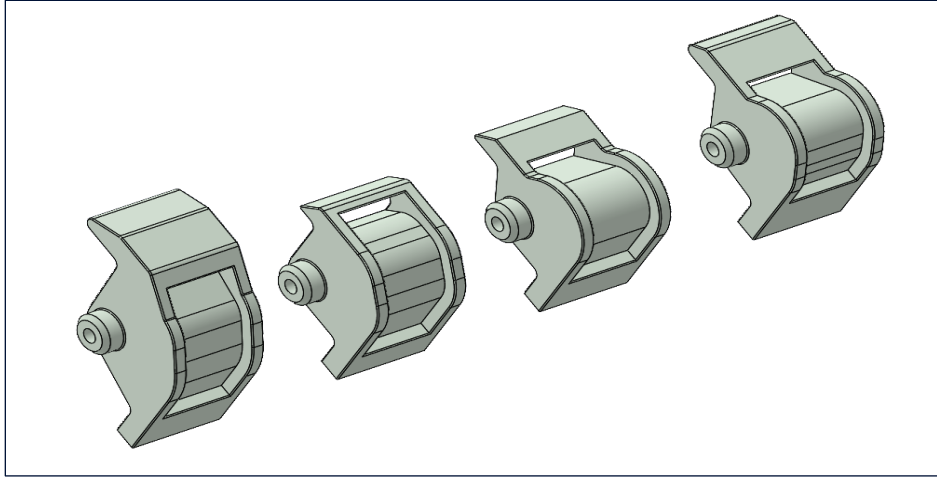


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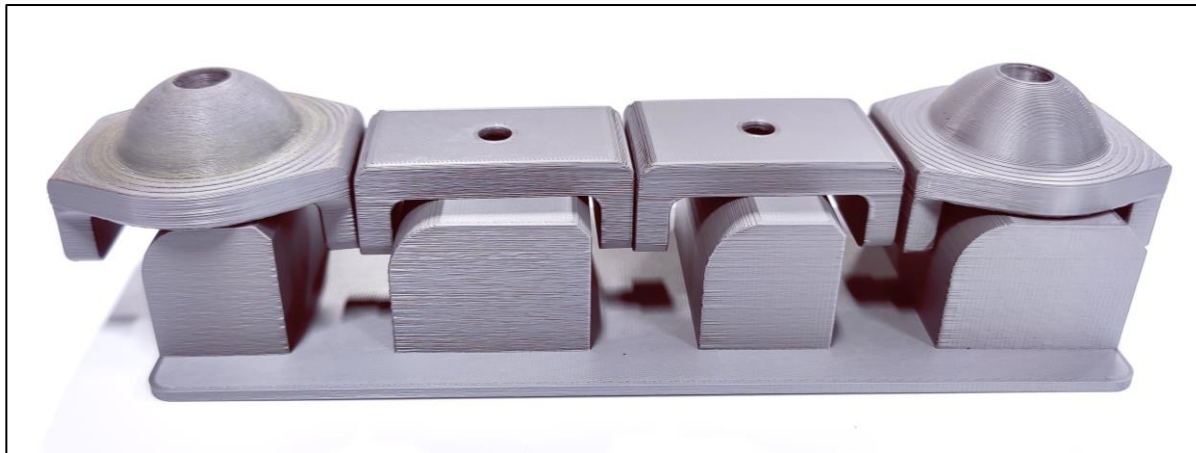
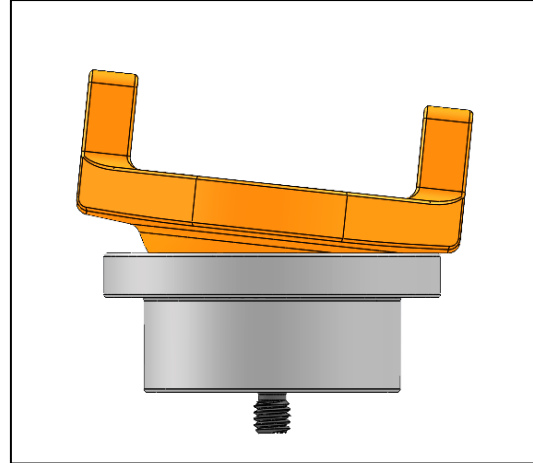
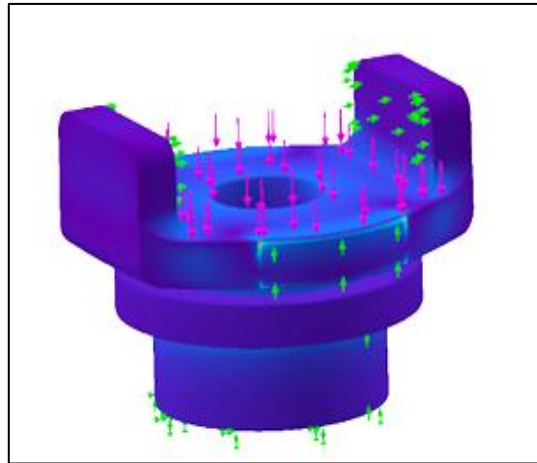
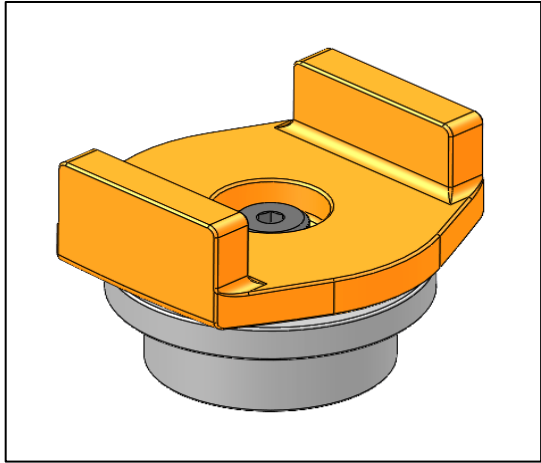
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Wheel Inspection (Non-Destructive Testing) Probe Holders

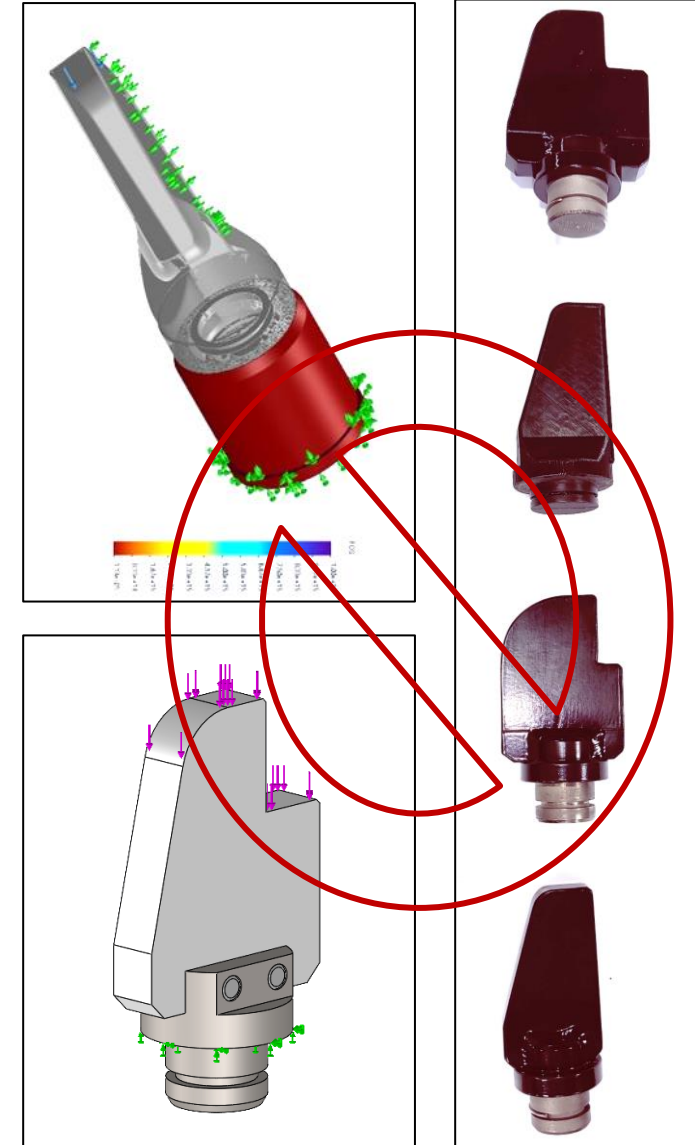


Designed 4 probe holders to make NDT of complex geometry at welds on OTR wheels used in mines, 65% cost reduction using 3D Peel (3D scan), SolidWorks, Prusa slicer (3D Print G-code).

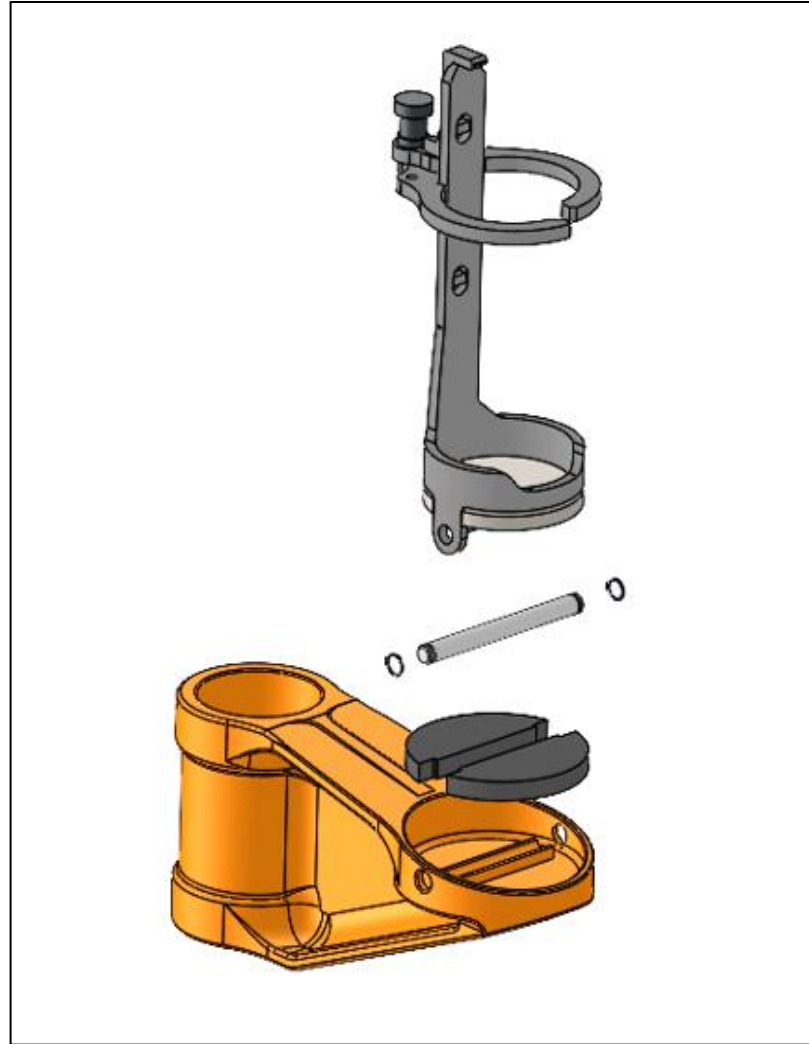
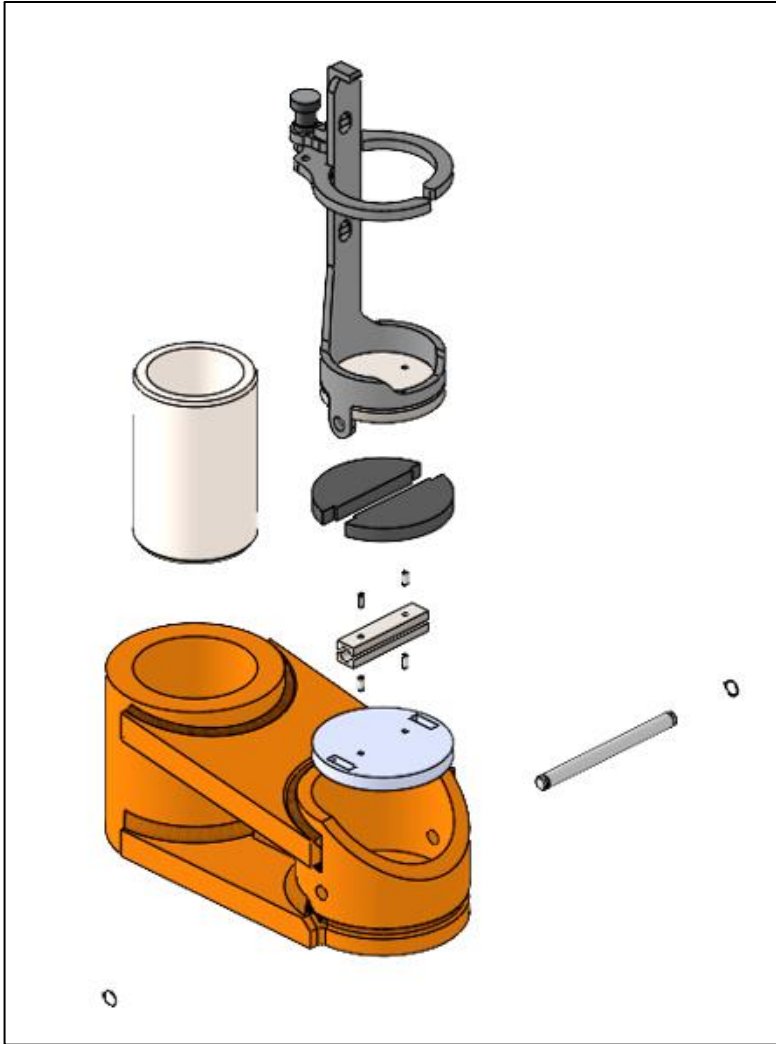
RAC 30 Swivel Ram Insert



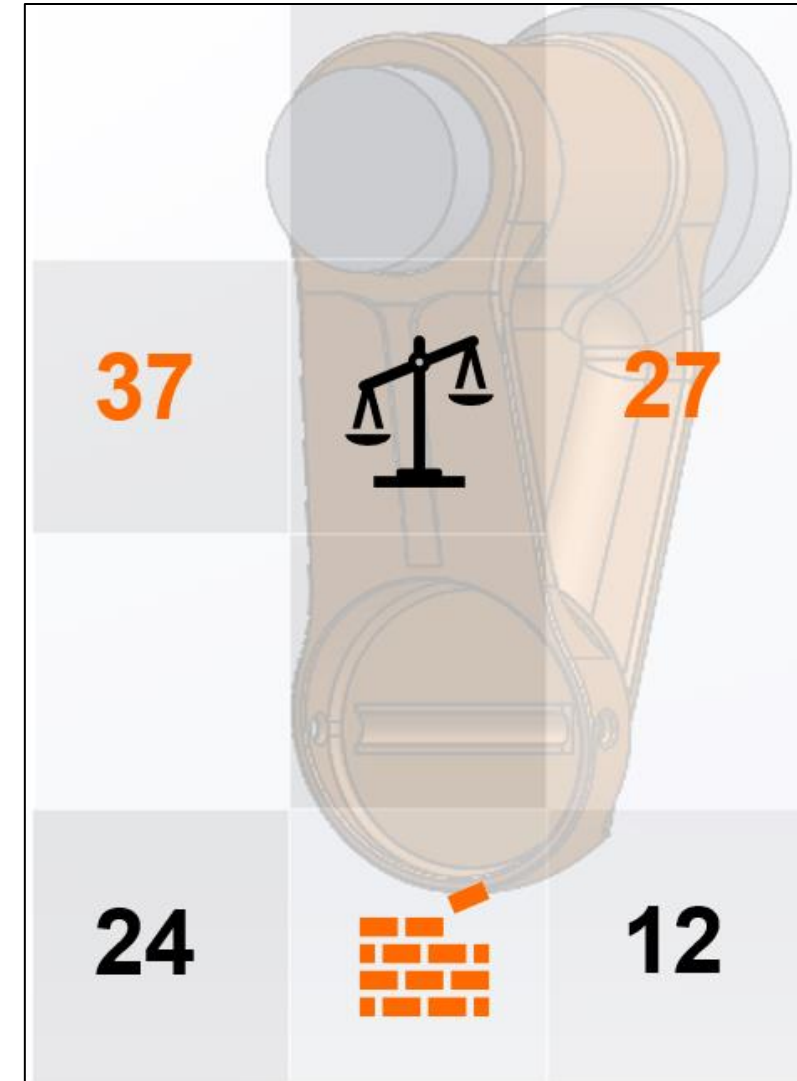
Successfully addressed ram side loading failure used to break mining tire beads with FEA analysis on existing inserts, replacing all inserts with innovative universal swivel inserts.



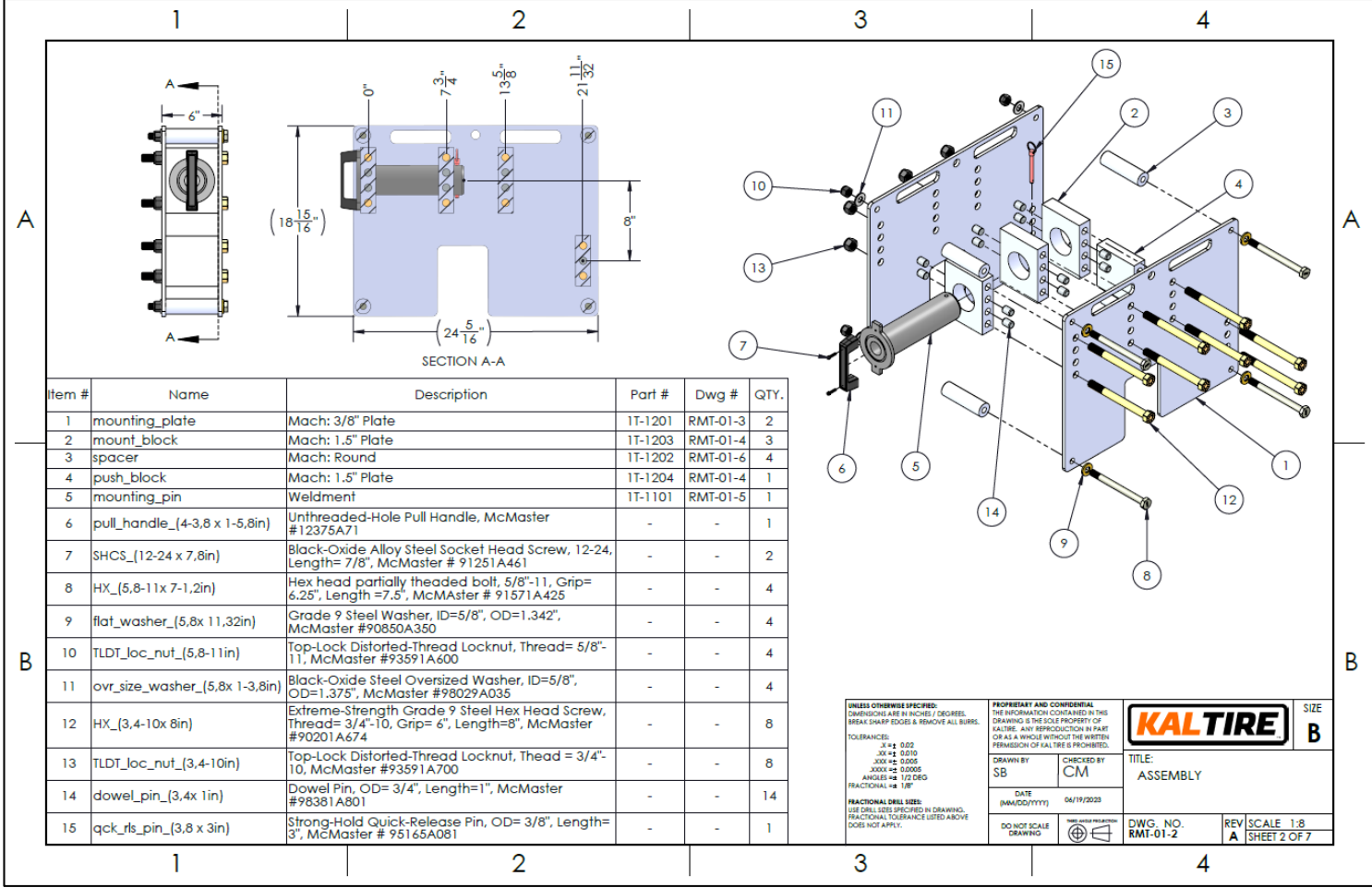
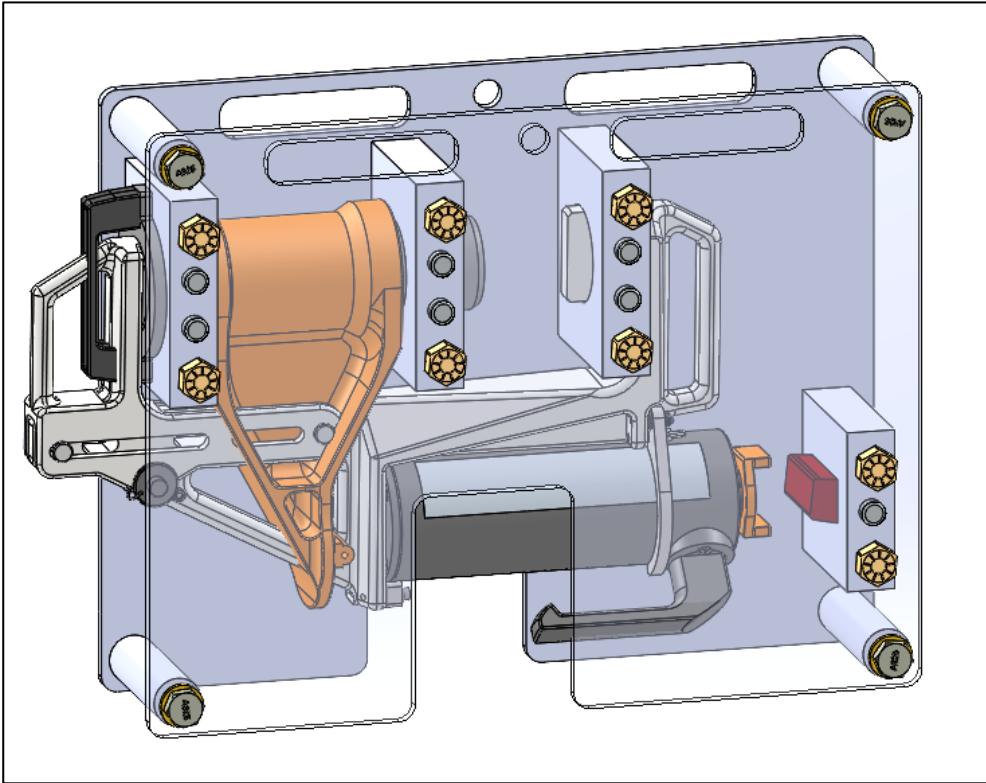
CAT 793 Tire Bead Braker



Updated design to utilize complete travel of ram by analysing test data, FEA analysis and done topological optimization with weight reduction from 37 to 27 lbs and number of components from 24 to 12.

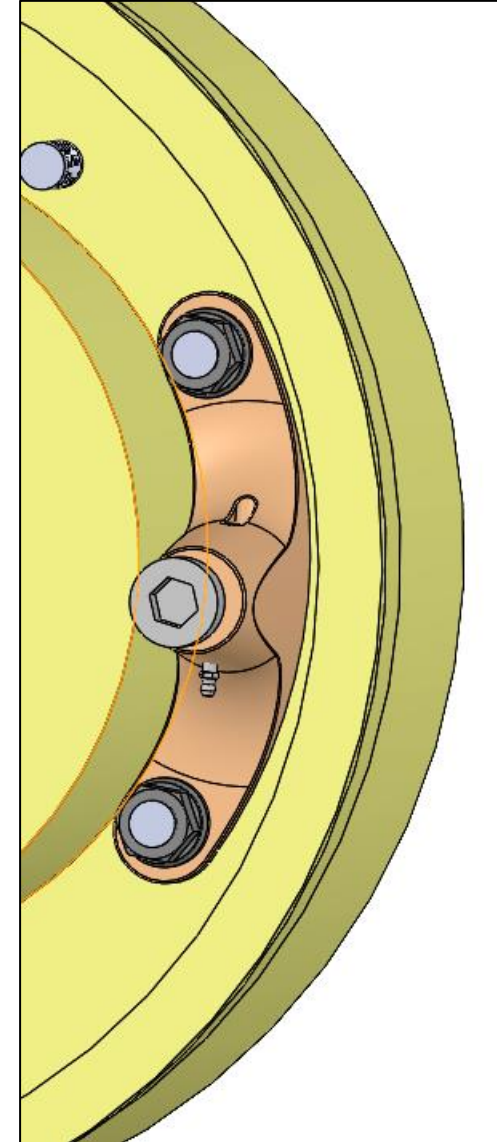
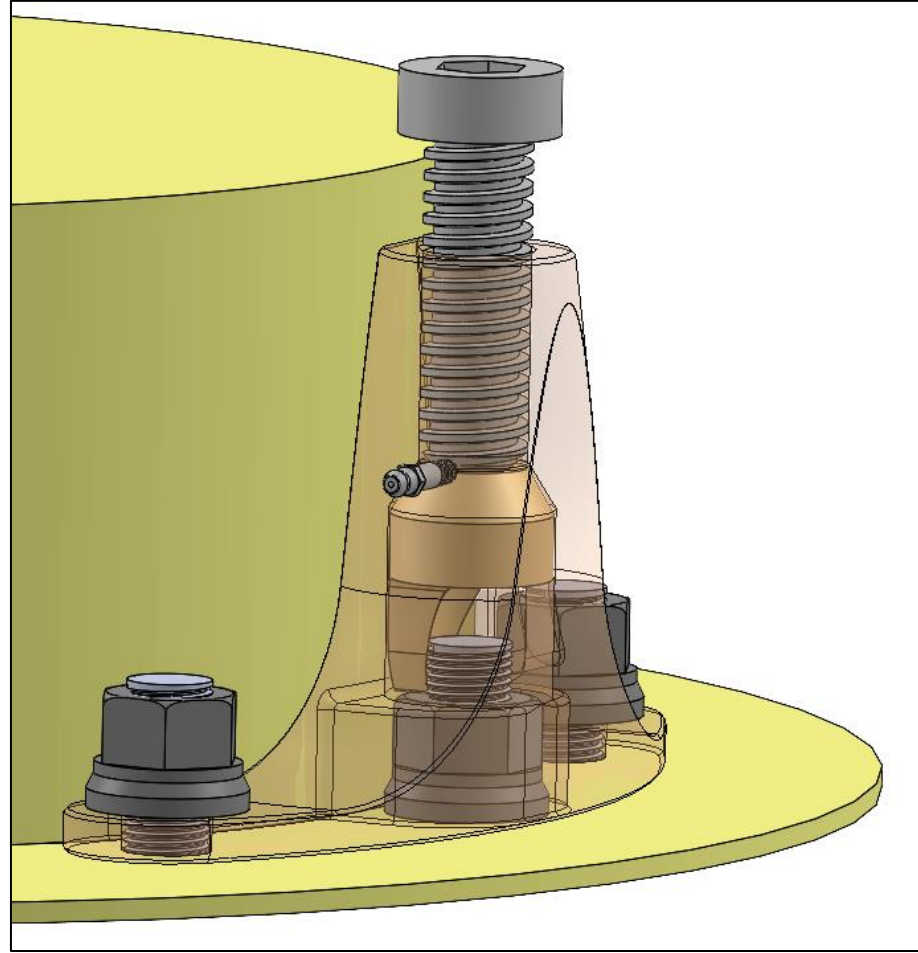
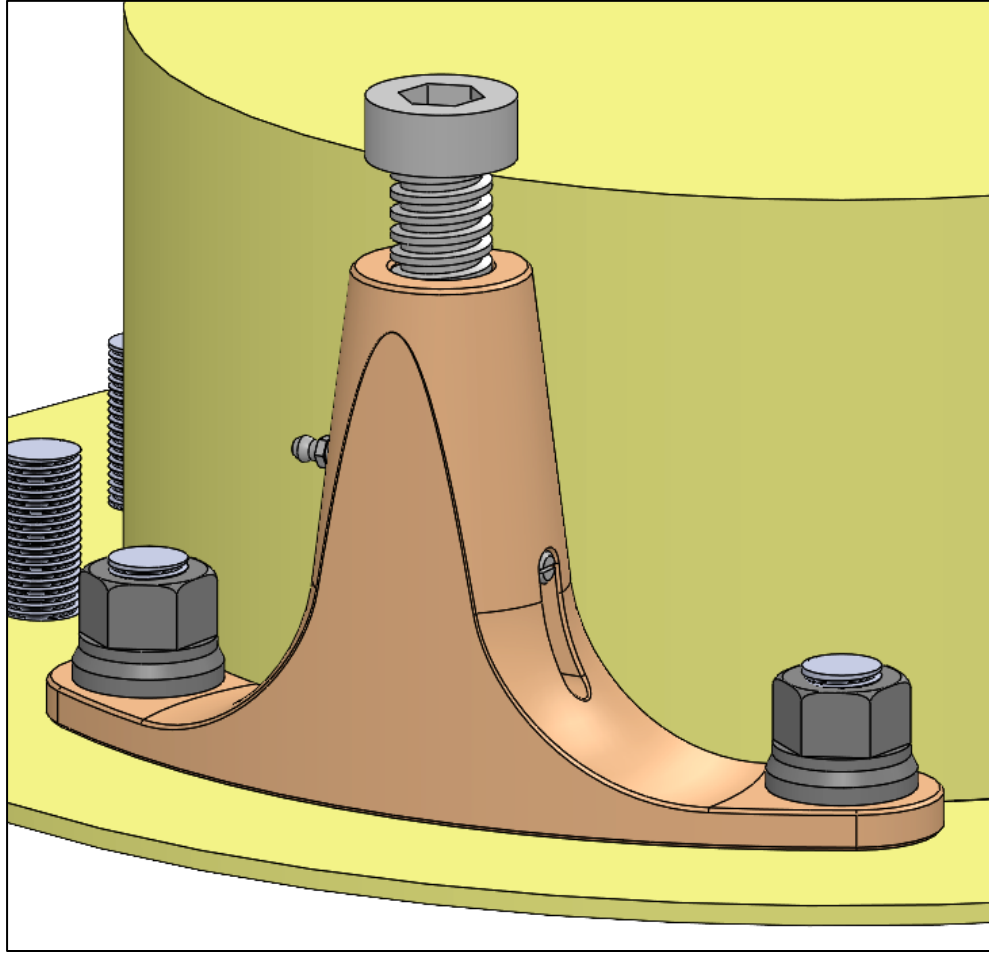


Adjustable Test Jig to Test All Ram Mounts and Inserts Under One Jig



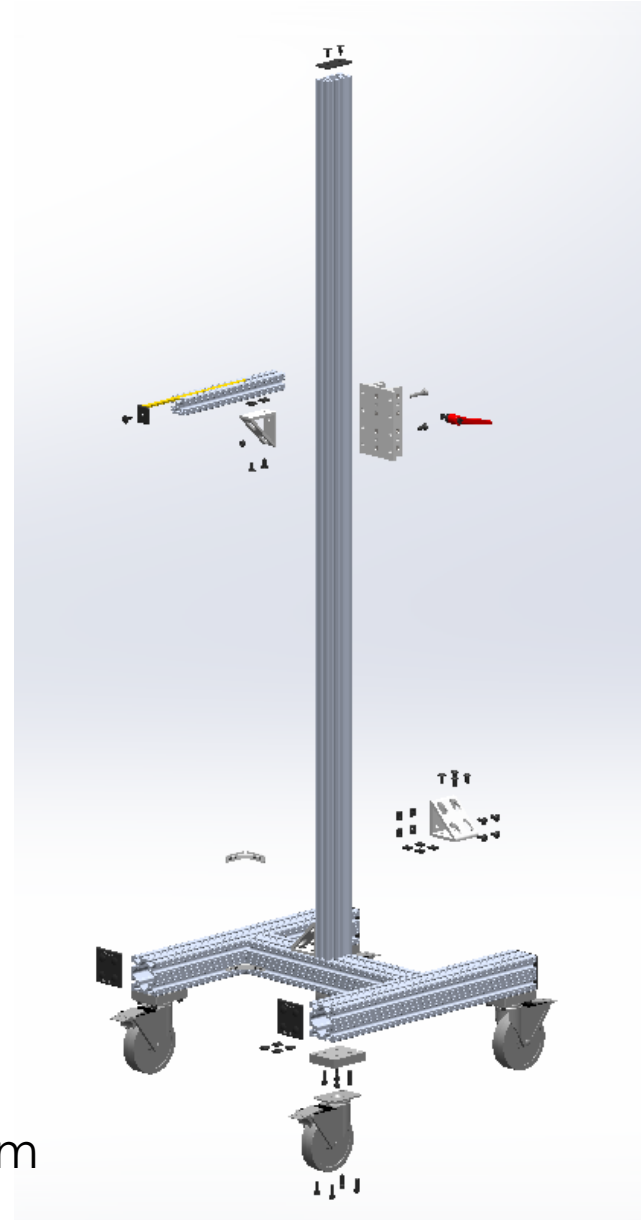
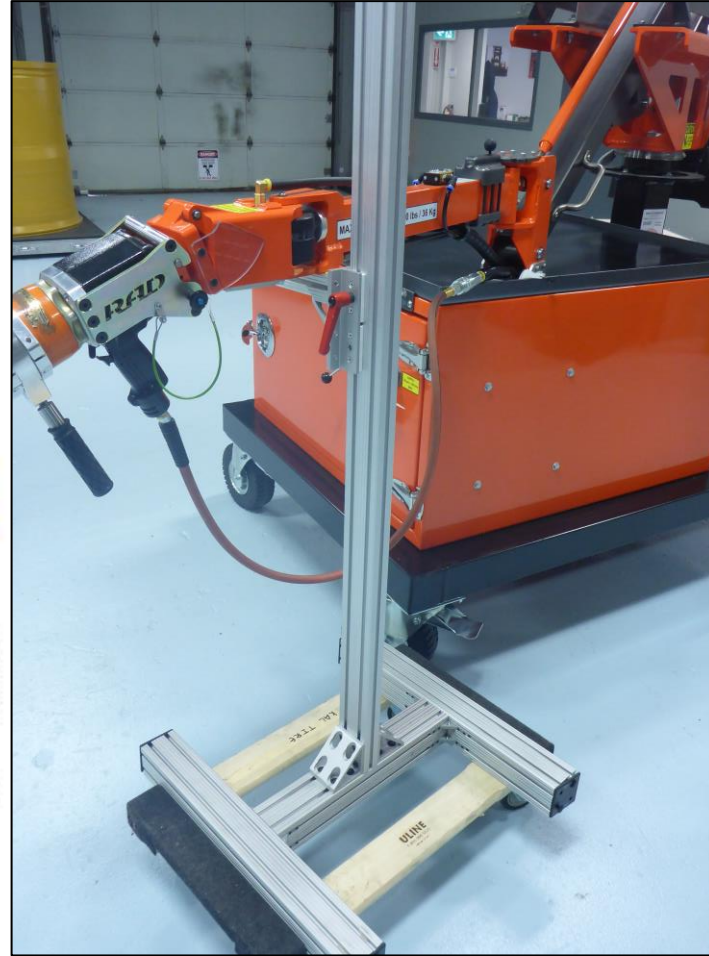
Designed versatile Jig to perform realistic in-house testing with capability to test up to 50 tons of load

OTR Nut Splitter



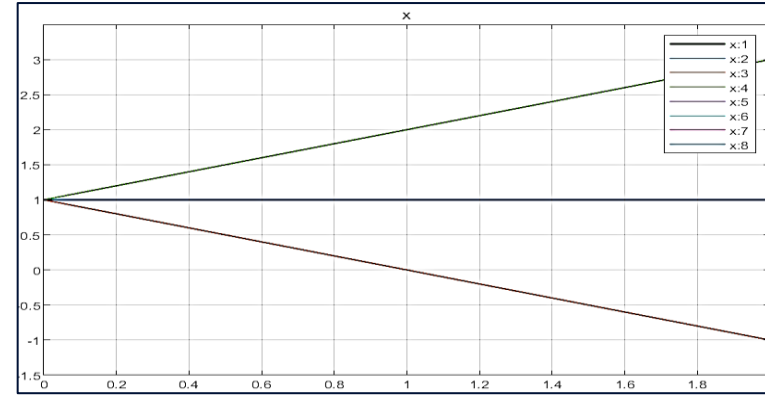
Designed custom nut splitter to apply high force and fit in the tight space to remove corroded high strength nuts

Lift Arm Support

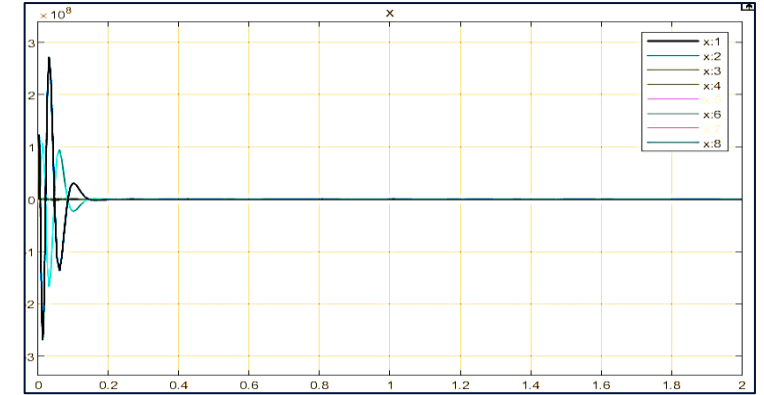


Designed using 80/20 structures and connectors to support lift arm

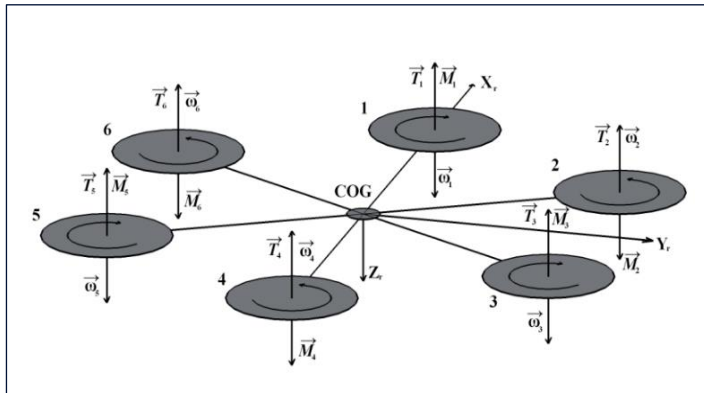
Modelling and Control of Hexa-Copter



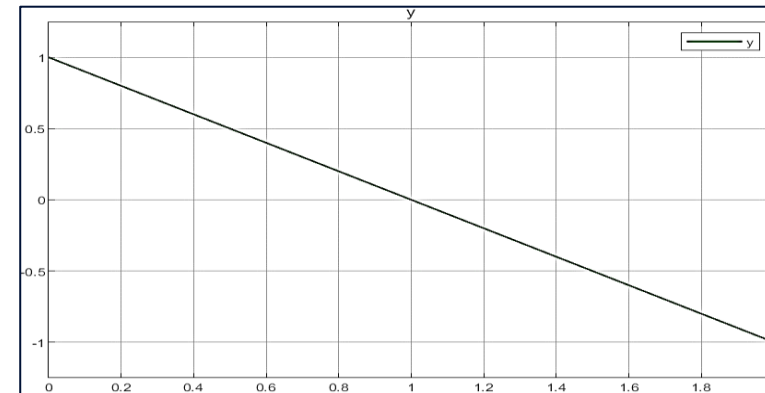
Open Loop States Response



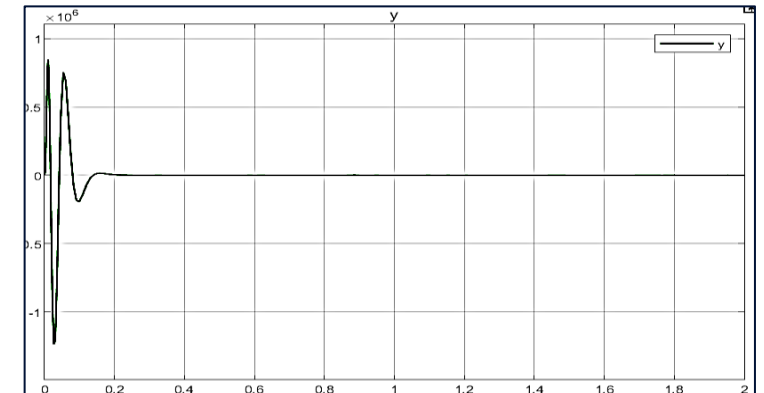
Closed Loop States Response



FBD for modelling and notations



Open Loop Output Response



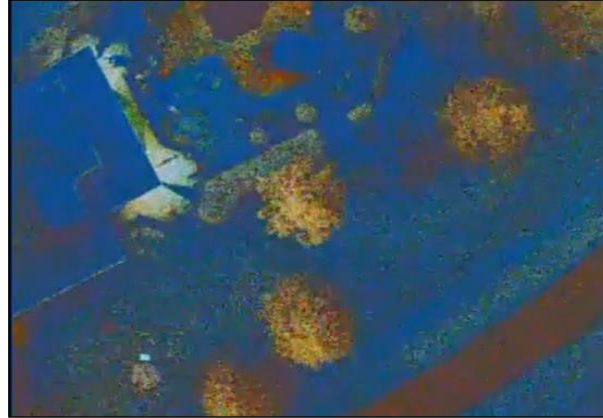
Closed Loop Output Response

Used MATLAB scripting, Simulink, State Space Controller Design

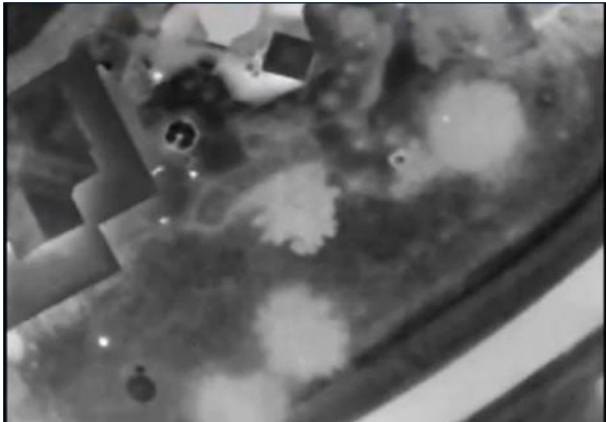
Night Vision for AVs



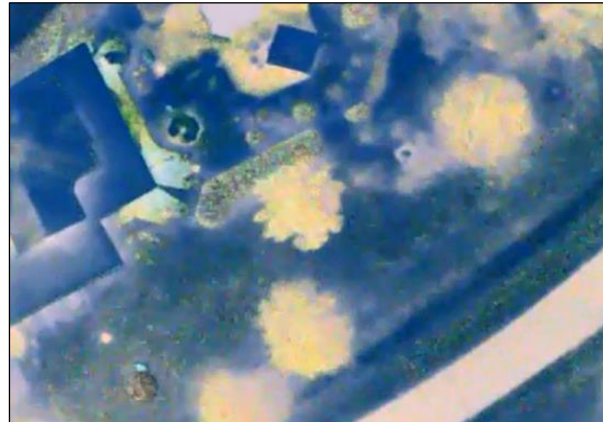
Raw Visible



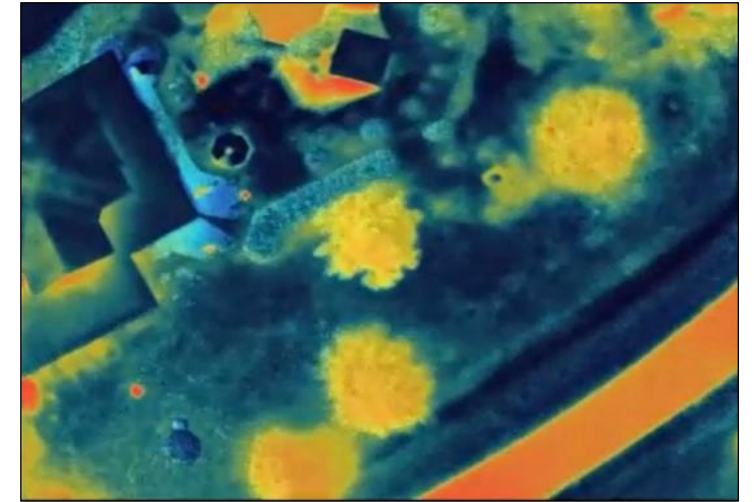
Fused: Visible Biased



Raw Thermal IR



Fused: Thermal IR Biased



Fused: Thermal Coloured

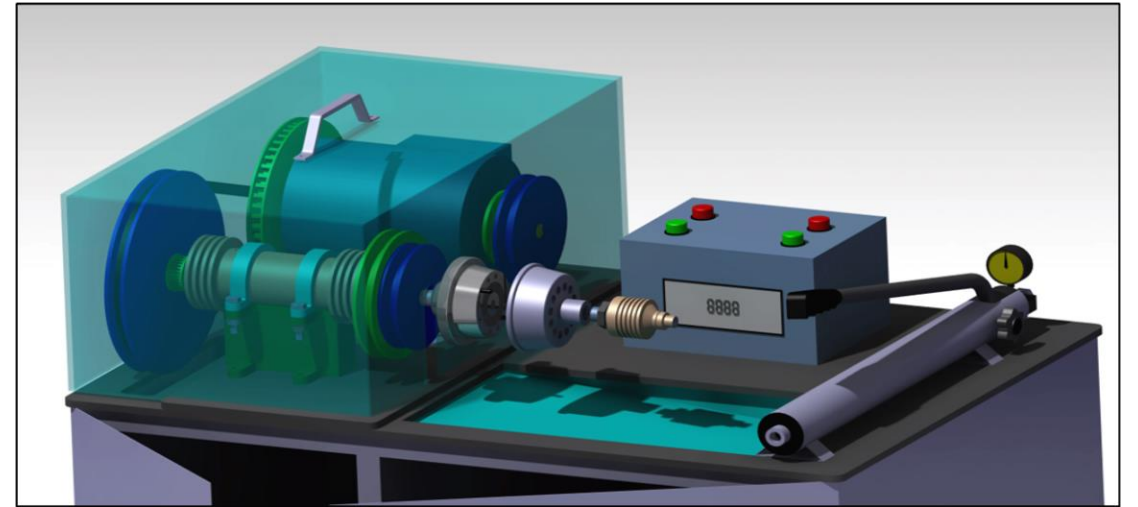
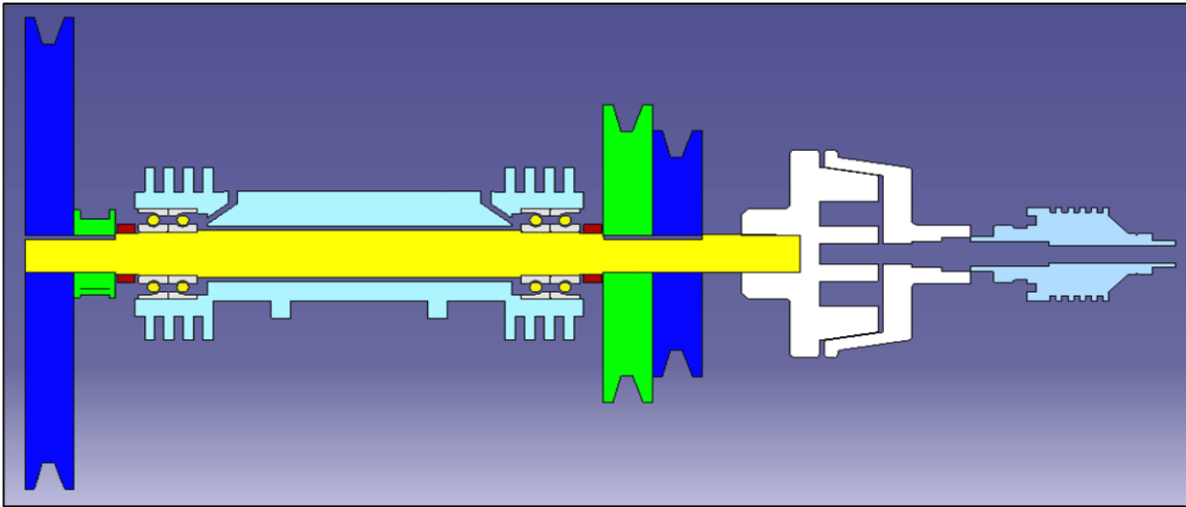
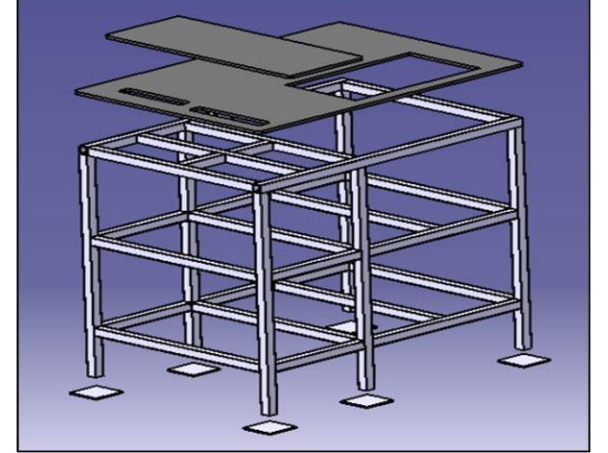
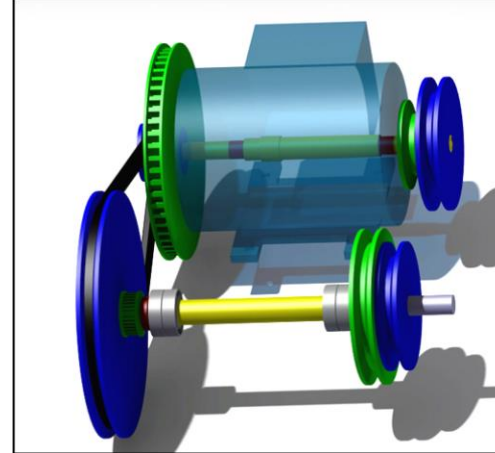
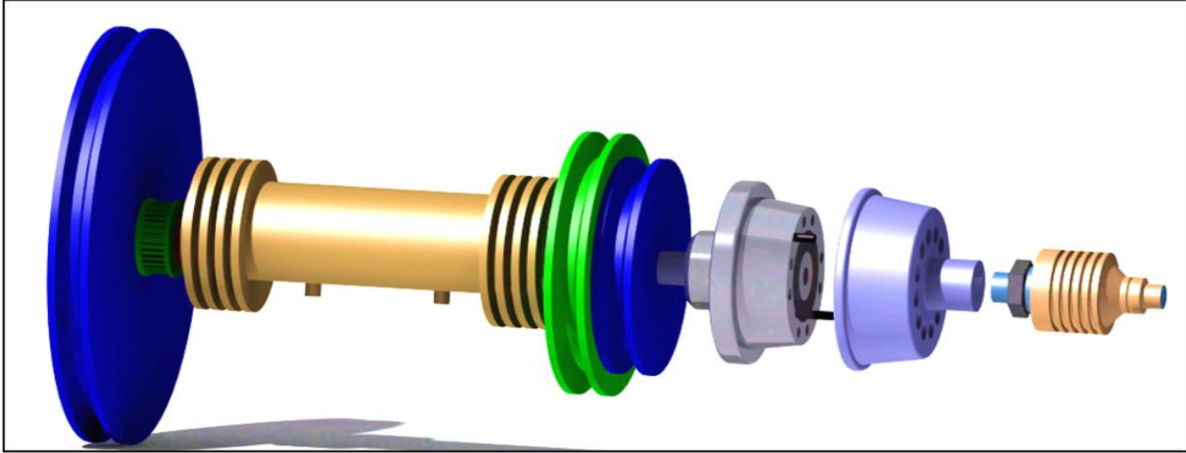
Studied superimposing thermal IR + raw image to tackle poor vision

India's FSAE Motorsports Event: Formula Bharat 2018-2021



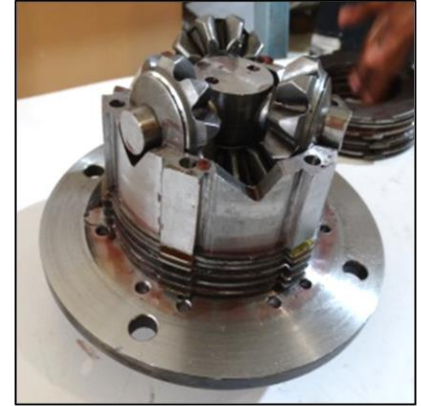
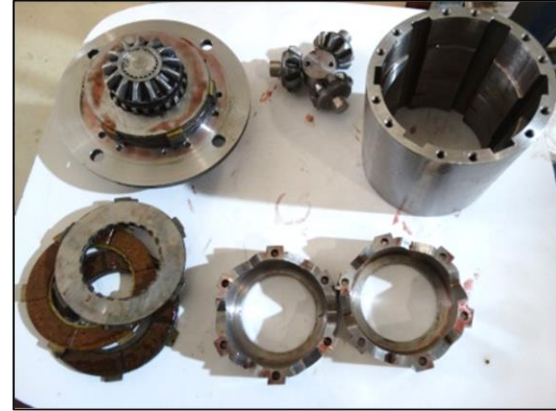
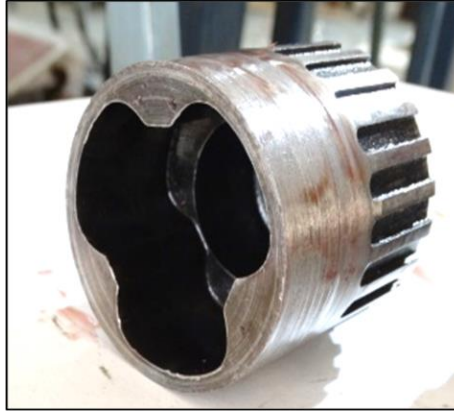
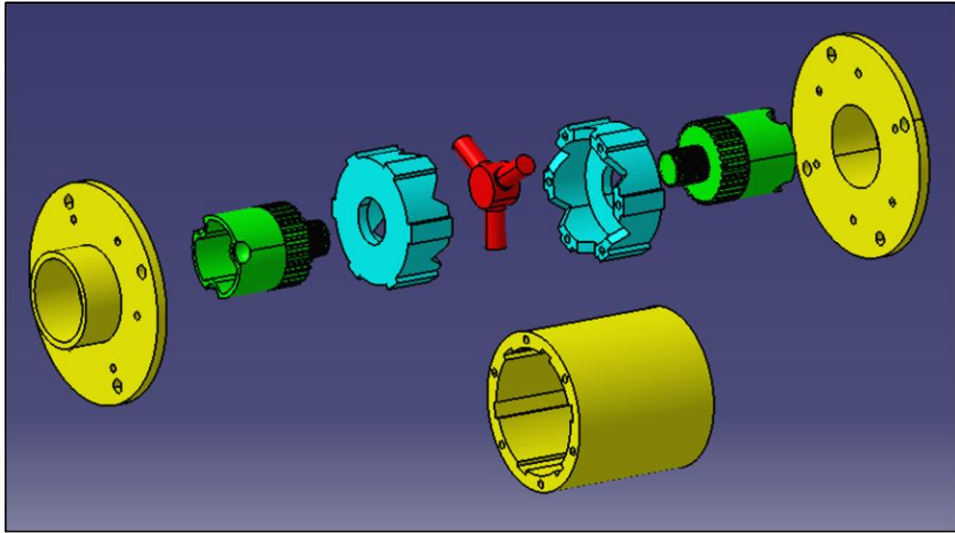
Organizing Team: Staff Member(Judge), West Region Mentor, Technical Scrutineer, Race-track Manager

Rotary Union Test Rig



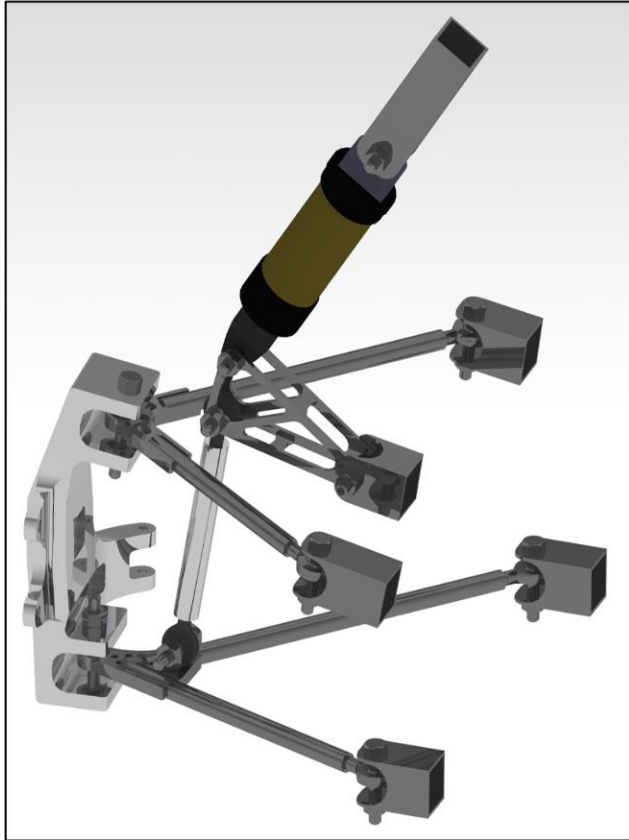
Designed jig to test different 115 rotary unions testing from 50 to 15,000 rpm at 1500 bar static pressure

Limited Slip Differential for FSAE Race Car



Developed LSD clutch pack differential to extract maximum performance from FSAE car using 3 ram set up

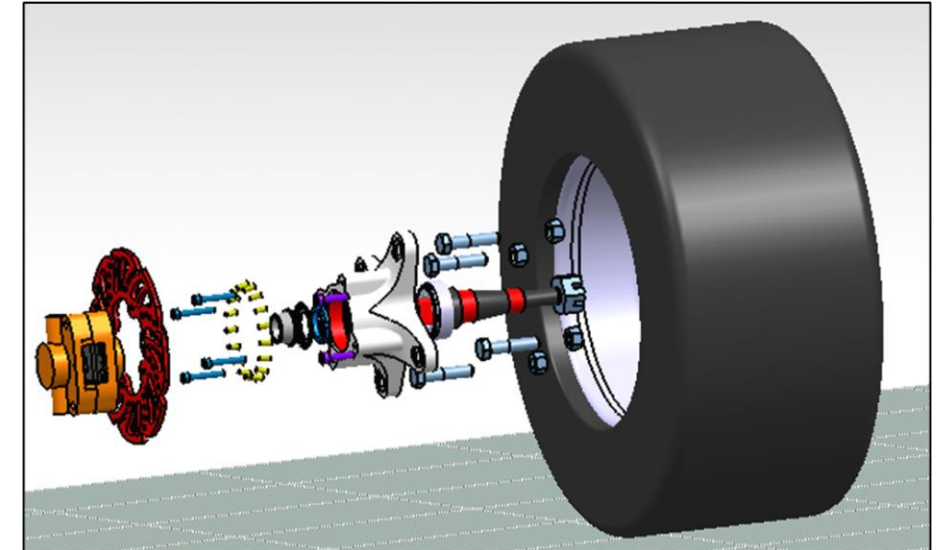
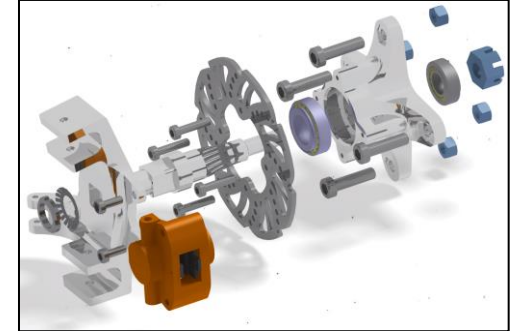
SUPRA SAEINDIA 2017: Steering Department Head, Product Manager



Push rod front suspension



Steering system



Front wheel assembly

Designed FSAE race car optimized steering, onboard front suspension and wheel assembly

SUPRA SAEINDIA 2017: Steering Department Head, Product Manager



Designed FSAE race car optimized steering, onboard front suspension and wheel assembly

[Click here to check our state of the art design's performance on race track](#)

Note: Projects I worked on from 2018 to 2021 at Tata Consultancy Services for Jaguar Land Rover and Lucid Motors and from 2022 to 2023 at Kal Tire Mining Tire Group were confidential. I can share more details about them in the interview.

Thank you!



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