

ULTRALIGHT MINI BAJA TRANSMISSION WITH PARTIAL SLIP DIFFEERENTIAL

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The University of Texas Pan- American SAE Mini Baja Team has elected to redesign the existing transmission in order to achieve better performance and better competition results. The goal of the project is to design a lighter, more durable transmission for the team to assist in the improvement of competition success. This will be achieved through conducting extensive analysis on materials with higher strength to weight ratios than what is currently used as well as determining where material can be removed from the gear bodies, while still allowing for the successful operation of the transmission under the harshest of conditions.. This was accomplished by utilizing the tools of Finite Element Analysis software to develop a spoke pattern in the gear which effectively reduced a large amount of rotational inertia. After a successful reduction of five pounds on the previous transmission design the proposed design was able to outperform the previous best acceleration times of the vehicle.



