

Senior Design Project Description

Company Name	Schaffler	Date Submitted	June 15, 2017
Project Title	Electric Axle Transmission Demonstrator Vehicle (SG_DEMO)	Planned Starting Semester	Fall 2017

Personnel

Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project. 250 hours are expected per person.

Complete the following table if this information is known, otherwise the Senior Design Committee will develop based on the project scope:

Discipline	Number	Discipline	Number
Mechanical	4	Electrical	1
Computer		Systems	1
Other ()			

Project Overview:

Schaeffler is a manufacturer of transmissions for automotive electric axles. One of our advanced concepts utilizes an experimental gearing to create the speed ratio and the axle differential functions. We wish to build a demonstrator with this transmission installed into an electric vehicle to prove the feasibility of the concept and to begin testing the function.

Initial Project Requirements:

The project will be to build this demonstrator vehicle. This entails:

- selecting a suitable vehicle, perhaps a golf cart
- purchasing the vehicle (Schaffler will purchase and supply after selection)
- Developing the test criteria to measure transmission performance
- Conduct tests to baseline the performance of the stock transmission
- removing the stock axle and measuring all the critical features
- designing the experimental transmission to replace the stock trans (Schaeffler will assist with the technical details.)
- building the transmission (Schaeffler will provide machining resources to build the new parts)
- install the transmission back into the axle and the axle back into the vehicle
- test the performance of the vehicle

Expected Deliverables/Results:



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- Operating Electric vehicle with experimental transmission
- Full testing results for “before” and “after” transmission configurations

Disposition of Deliverables at the End of the Project:

Technical Supporter will take possession of the vehicle at the conclusion of the Expo.

List here any specific skills, requirements, knowledge needed or suggested (If none please state none):

- CAD modeling needs to be done with Pro E (Creo)
- Affinity for hands-on work
- Ability to travel as required to Supporters site in Ft. Mill, SC for Design reviews and or other team meetings. Travel expenses will be reimbursed from Project budget