

The Project Hyena Vision

Welcome to Project Hyena. Our vision is to revolutionize the automotive industry by providing a reliable aftermarket product compatible with most standard passenger vehicles which will reduce fuel consumption significantly.

Project Hyena is the development of a hydraulic regenerative braking system which will conserve the kinetic energy of the vehicle as potential energy while slowing down, and then be reversed to provide additional kinetic energy to the vehicle to accelerate once more. This kit must be compact, effective, safe and compatible with common passenger vehicles.

Hydraulic regenerative braking in automobiles is based around the driveshaft of the vehicle. A turbomachine mounted on the driveshaft uses its motion to transfer pneumatic pressure from one pressure tank to another while charging. This accumulated pressure is the “stored energy” which would otherwise be lost to the environment and unrecoverable. Once the operator returns to the accelerator, this system reverses and allows the accumulated pressure to accelerate the driveshaft until the pressure in both vessels returns to equilibrium. This automated process is repeated continuously during vehicle operation. Please read the following article on the general principles of hydraulic regenerative braking: [Hydraulic Regenerative Braking- HowStuffWorks.com](http://HowStuffWorks.com)

The electronic interface must interact with the CAN system of the vehicle (see reference regarding vehicle CAN systems) to receive input of the vehicle’s instantaneous acceleration and driver intention (i.e. slowing down or speeding up). This will be the main function of the electronics department of the project along with pressure gauges and system feedback.

The Pneumatics team will be in charge of pressure vessels, lines, fittings and mounting locations as well as all testing regarding the pneumatic system. The Mechanisms team will spearhead the KE to PE converter turbomachine (effectiveness, efficiency, reliability) and it’s mounting to the driveshaft of the vehicle. Finally, the Logistics team will focus on project strategy, vehicle type compatibility, budgeting and sourcing materials.

The entire project will communicate through Slack, a project-focused communication interface where each sub-team will be able to organize their communication. Please note that as the project begins there will not be a sufficient number of members to create a “team” for each sub-team, therefore the teams should be regarded as denominations within the project to organize operations and progression. Everyone part of the project contributes to the entirety of the project.

With the success of Project Hyena comes a great innovation to the world. We are glad to have you a part of it.