The American transportation sector is responsible for the consumption of 28% of the total energy produced by the country every year. Due to their heavy usage and standard configuration, heavy trucks, such as tractor/trailer combinations, have become the focus of aerodynamic studies on drag minimization. Their aerodynamics are mainly characterized by flow separation and turbulent wakes. In addition to viscous pressure drag, vortex shedding also introduces yaw moments that inhibit maneuverability and that endanger, not only the operator, but all the other vehicles near the heavy truck.

With the use of two-dimensional computational models, the flow around a truck has been obtained. A study of drag minimization has been performed by adding active flow control systems to the trailing edge. The type of active flow control applied in the simulation is wake control, for which Coanda jets were modeled. This type of system reduces drag by reducing vortex shedding and increasing the back pressure. Our preliminary results show that using this active flow control method in a two-dimensional geometry reduces the drag coefficient by up to 72.8% and eliminates the yaw moment.