

Project : Desktop Tribometer

Client: Dr. Sarvestani

Email: sarvestani_a@mercer.edu

Effect of Environmental Condition on Rubber Friction: Application in Tire Friction

Budget: \$300

Tire treads of a car are in direct contact with the ground and responsible for transmitting forces essential for steering and acceleration. Any change in the frictional forces between the tire and the road will have a direct effect on the car maneuverability and performance. This senior design project purposes a method for estimation of frictional forces acting on tire treads under different environmental conditions. The main objective is to design a desktop tribometer to measure the friction force between a slider (made of tire tread material) and a substrate (pavement materials) in a controlled laboratory environment. Running the experiments at different velocities/temperatures provides a direct relationship between the velocity of sliding, heat transfer in the rubber, and the friction coefficient.

Prefer mechanical, electrical/computer engineers to work on the project.