

# Development of Fuel Efficient Smart Tires

**Status:** Available

**Group Members:** TBD

**Sponsor(s):**

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## Project Description

The evolution of vehicles has been continuous and drastic, however due to the historical low energy prices and public unawareness of the emissions' side effects, until recently efficiency had not been strategically targeted. Nowadays, modern vehicles are aerodynamic, lighter, and utilize more efficient accessories. Moreover, energy recycling devices that were not a part of the original vehicles, i.e. regenerative brakes and turbo chargers, are utilized as remedy. Tire rolling resistance is among the sources that alone contribute to 5%-15% of the total energy losses in passenger cars and 15%-30% in heavy trucks. Earlier studies indicate that lowering the rolling resistance by 10% will result in 2% improvement in fuel economy. So far, progress has been limited to modifications of tire tread and shoulder design and use of new materials in the tire belt. Further improvements through tire material and design modification are not highly anticipated due to the conflict with other important factors such as safety, life, traction, performance and cost. The ultimate goal of this capstone project is the development of a novel smart belt device which can be retrofitted into the tire to reduce the rolling resistance according to the tire's operating condition.