Tire Pressure Monitoring and Inflation Systems

As fuel costs increased there has been increasing interest in using technologies to actively monitor and manage tire pressures. Tire pressures affect both fuel use as well as tire wear. A variety of technical approaches have been used in tractors, trailers, and light duty vehicles. Many light cars and light trucks have tire pressure monitoring equipment installed as standard equipment.

Some trucking fleets are installing tire monitoring systems as well as central tire inflation systems to optimize tire inflations levels under different load and operating conditions.

For medium and heavy duty vehicles tires play a vital role affecting fuel use, traction, tire life, safety, ride quality, handling, braking and drive train life. In some applications like BC forestry tire pressure management has been researched and found to be beneficial in terms of safety and extending the haul season on weight restricted roads. This research has resulted in a new BC Ministry of Transportation policy (pdf) on the use of tire pressure control systems and seasonal load restrictions.

Transport Canada conducted a feasibility study in 2007 using a central tire pressure monitoring and inflation system on urban transit buses. Tire pressures in buses are normally set to handle maximum passenger loads. A tire pressure control system was installed on a city bus in Longueuil, Quebec, that allowed researchers to adjust pressures. The researchers found that reducing tire pressures for lighter passenger loads in off peak periods significantly improved the ride, and could possibly extend the service life of the pavement and the bus.