

## Vehicle Dynamics Simulator Laboratory

- The Vehicle Dynamics Simulator Laboratory was added to the [Automotive Research and Development Centre](#) (ARDC) in September 2019. It consists of two simulators – Dynamic Simulator and Compact Simulator
- It is the first of its kind in North America to offer nine directions of movement to replicate the inputs a human body normally receives when driving
- The simulators are capable of supporting:
  - Advanced Driver Assistance Systems (ADAS)
  - Human Machine Interface (HMI)
  - Driver Distraction
  - Vehicle Dynamics – ride and handling
  - Control System Design and Verification – Hardware in the Loop (HIL), Anti-lock Brake System (ABS) and Electronic Stability Control (ESC)
- By using driving simulators, the driver is immersed into a virtual environment where they are able to assess the ride and handling of a vehicle, perform tests on sensor technology for ADAS applications, evaluate different HMI configurations, assess driver distraction and evaluate powertrain engine performance combined with HIL
- The simulator sits on a three-micron cushion of air, which floats the entire four-tonne apparatus above the floor like a hovercraft or air hockey puck, allowing for seamless movements via the massive electric actuators
- Initially the lab will focus on Chassis Vehicle Dynamics
- The driving simulators do not require a prototype build, leading to reduced product development times and project validation costs
- Project investment of \$10.1M CAD

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