



All about Stanley

The body

- Engine: Turbocharged 5 cylinder in-line diesel
- Transmission: 6-speed Automatic
- Engine cubic capacity: 2460 cc
- Fuel Consumption: City 20.8 mpg - 13.6l/100km
Highway 34.9 mpg - 8.1l/100km
Combined 28.0 mpg - 10.1l/100km
- Power: 174 hp (at 3500 rpm) and 400 Nm torque (at 2000 rpm).
- See engineering fact sheet for details on off-road, other capabilities.

The “senses”

- Sight: Five laser rangefinders, monocular video camera; radar for long range sight
- Place: GPS sensor with 20 cm resolution for pose estimation; measurements of wheel speed for pose estimation.
- Balance: a 6DOF inertial measurement unit; GPS compass generates 2DOF balance information from two separate GPS antenna

The brains:

- Six Pentium M motherboards in a rugged rack mount.
- Battery-backed, electronically-controlled power system.
- Custom software in modules for:
 - Planning and optimization
 - Control
 - LIDAR – Light Detection And Ranging (like radar but with lasers)
 - Computer vision
 - Inertial Navigation
 - Reliability
- Samples data from instruments at rates varying from 10 Hz (times a second) to 100 Hz

Brief biography:

- To date Stanley has autonomously driven hundreds of miles in the Mojave Desert along the 2004 grand challenge course.
- Work started July 2004.
- Developed by a team of five engineers from the Volkswagen Electronics Research Laboratory and by more than 30 Stanford engineering faculty and students from computer science, mechanical engineering, and management science and engineering departments.
- MDV-Mohr Davidow Ventures has provided essential management oversight.
- Primary supporters are MDV-Mohr, Davidow Ventures; Red Bull; Volkswagen of America Electronics Research Laboratory; and Android. Secondary supporters are Intel, Honeywell, Coverity and TYZX.

