

Introduction to the Autonomous Vehicle Control Software



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The Big Picture



- The Van is an agent
 - Sensing the environment
 - Deciding what to do
 - Making it happen

Sensors



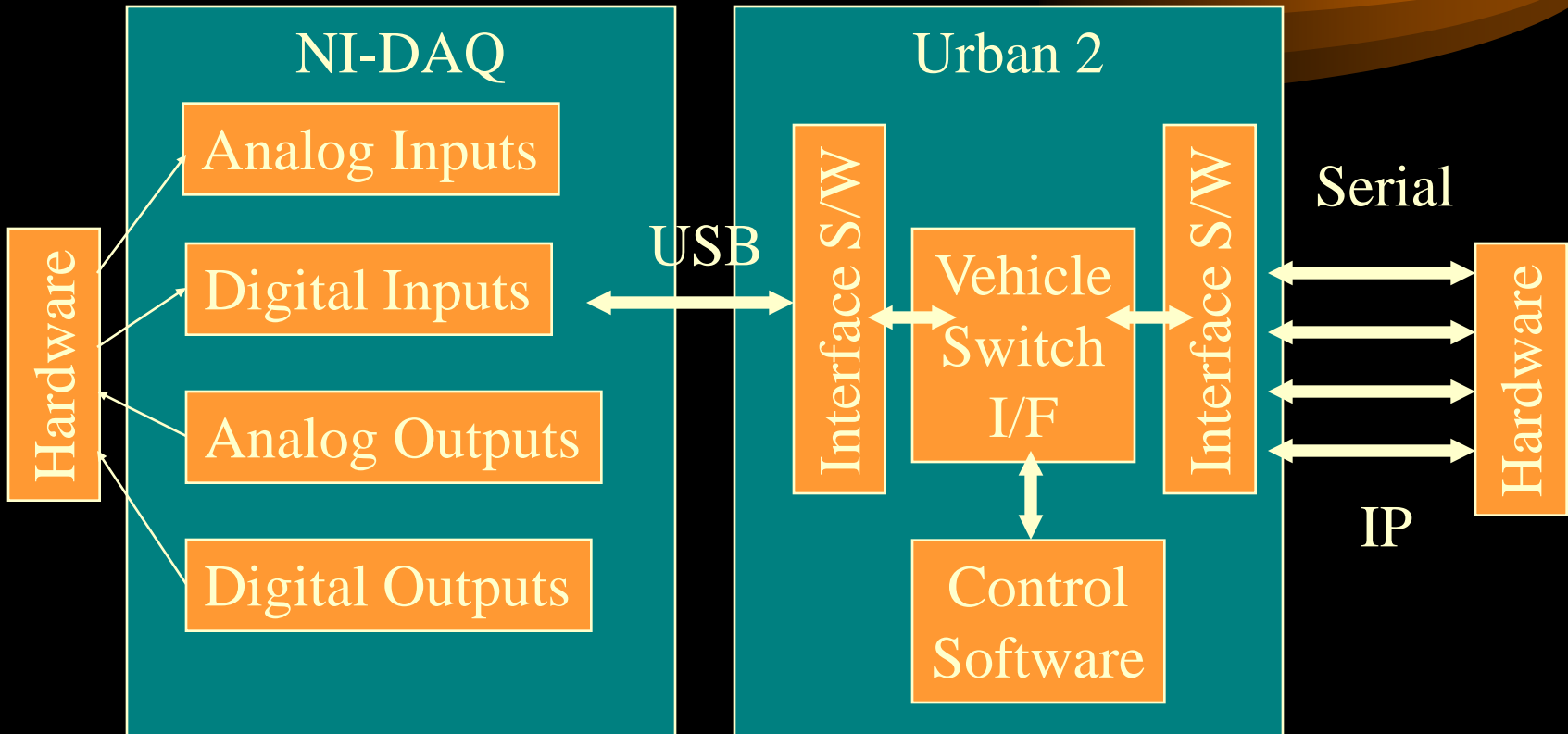
- Position
- Orientation
- Velocity
- Range to obstacles
- Actuator positions

Actuators



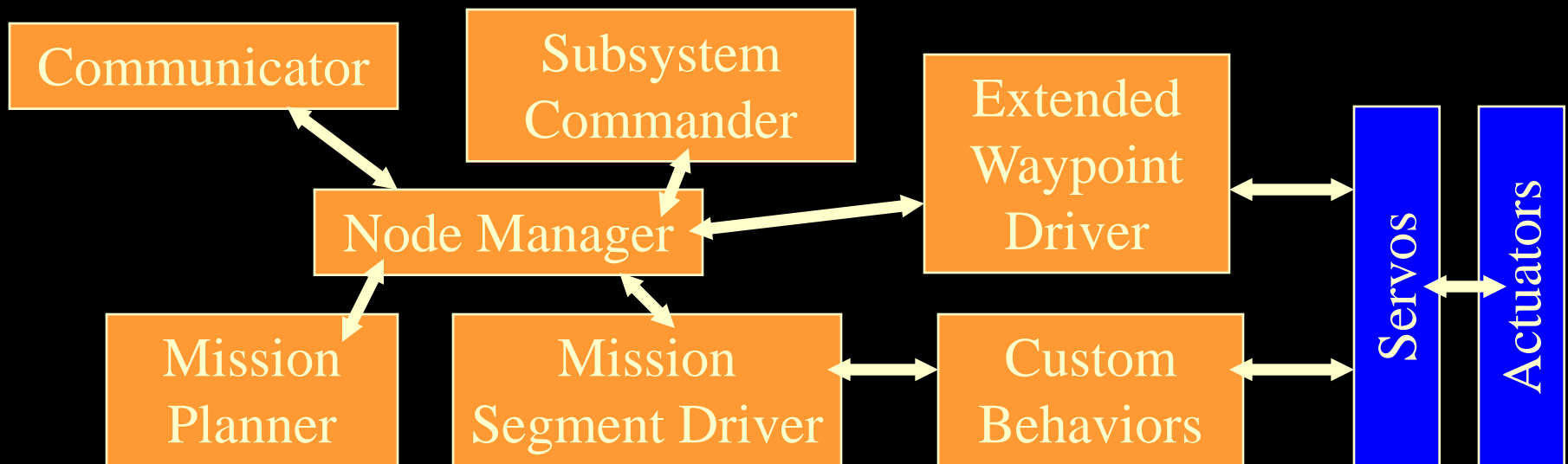
- Steering
- Brake
- Accelerator
- Shifter
- Lights, turn signals, horn, claxon

Interfaces



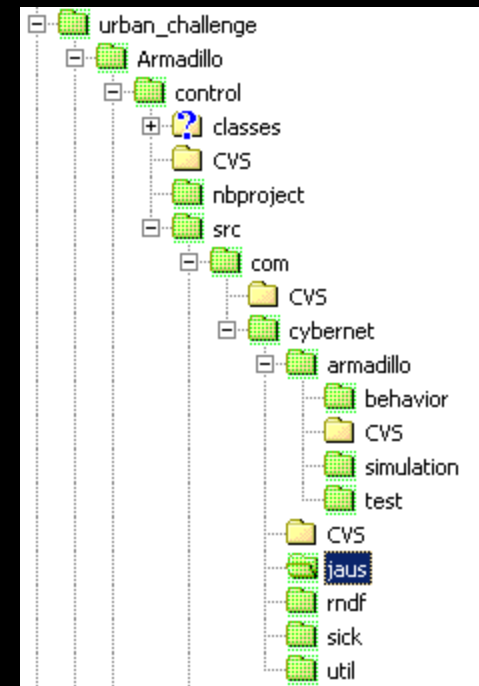
Control Software

- Component-Based (JAUS)
- Organized hierarchically from high-level behavior down to control systems.



Packages and Directories

- Java organizes classes into “packages” (think namespaces)
- Packages correspond to directories



Packages

- Jaus – Base classes for JAUS entities, as well as the main derived classes
- Rndf – Support for reading and writing DARPA map and mission files
- Sick – Classes for interfacing to the range sensor
- Util – Utility classes (math, algorithms)
- Armadillo – Everything else



CVS

- The code is all available in CVS
 - Use your favorite CVS application to check out `urban_challenge`

Code Reads

- There are about 30000 lines of java code written so far.
- We need to review a few key pieces:
 - Extended Waypoint Driver (3800)
 - Armadillo Subsystem Commander (300)
 - Mission Segment Driver (350)
 - NextWaypointBehavior (580)