Mobile Robot Navigation and ABBY

One of the major tasks for a mobile robot is navigation through its environment. WRITE ME

ABBY's differential drive system allows it to move forward and backward and rotate in place, but not move laterally. This makes navigation and control somewhat more difficult than for a holonomic drivebase such as the caster drive system on the Willow Garage PR2.

At the simplest and lowest level of the navigation task is speed control. Speed control on ABBY is implemented as a pair of PID controllers, one for each wheel, with setpoints specified in

Given a velocity command, the speed control system must generate signals to control the robot's actuators. On ABBY, speed control is implemented in hardware for robustness and fast loop closure.