UML Class Diagram

Robot

- maxWheelAngle: double
 maxAcceleration: double
 wheelbase: const double
 trackWidth: const double
 headingCurrent: double
 velocityCurrent: double
- + AckermannController: AckermannModel
- + initializeParams(double, double, double, double, double, double): void
- + moveRobot(double, double): std::vector<double>



AckermannModel

- curvatureRadius: doubleleftWheelAngle: doublerightWheelAngle: double
- + leftWheelController: PIDController + rightWheelController: PIDController
- + computeVelocity(double, double): double
- + computeSteerAngle(std::array<double,2>, std::array<double,2>): std::array<double,2>
- + initializeParams(double, double, double): void



PIDController

- kp: const double
- ki: const double
- kd: const double
- dt: const double
- error: double
- error previous: double
- + output: double
- + compute(double, double): double
- + getGains(): tuple
- + getError(): double
- initializeParams(): void
- initializeParams(double, double, double, double): void