## **UML Class Diagram**

## Robot - maxWheelAngle: const double - maxVelocity:const double - wheelbase: const double - trackWidth: const double - headingCurrent: double - velocityCurrent: double + Steering: std: shared ptr<AckermannModel> + VelocityController: std::shared ptr<PidController> + moveRobot(double, double): std::vector<std::array<double, 2>> AckermannModel - curvatureRadius: double - wheelbase: const double - trackWidth: const double + wheelAngles: std::array<double, 2> + wheelVelocity: std::array<double, 2> + leftWheelController: const PIDController + rightWheelController: const PIDController + computeVelocity(double): std::array<double, 2> + computeSteerAngle(double, double): std::array<double,2>

## PidController

- kp: const double
- kd: const double
- dt: const double
- error: double
- error\_previous: double
- + output: double
- + compute(double, double): double
- + getError(): double