Class Dependency Diagram

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Visualization

- velocities: vector<double>
- headings: vector<double>
- time: vector<double>

+ setvelocities(vector<double>): bool
+ setHeadings(vector<double>): bool
+ setTime(vector<double>): bool
+ plotVelocities(vector<double>): bool
+ plotHeadings(vector<double>): bool

TwoWDRobot

- targetHeading: double
- targetVelocity: double
- initialHeading: double
- initialVelocity: double
- innerWheelAngle: double
- outerWheelAngle: double
- dt: double
- timeInterval: double

+ computeHeading(double, double): bool
+ computeVelocity(double double): bool

PID

- kp: double
- kd: double
- ki: double
- dt: double
- prevError: double
- cumulativeError: double
- targetVelocity: double

+ setKp(double): bool
+ setKi(double): bool
+ setKd(double): bool
+ setDt(double): bool
+ setTargetVelocity(double): bool
+ computePID(double double) : double

Ackermann

- tread: double
- wheelBase: double
- radiusOfCurve: double
- maxSteerAngle: double
- timeInterval: double
- heading: double
- dt: double
- targetHeading: double

+ setRobotProps(double, double, double, double)
+ setDt(double): bool
+ setTargetHeading(double): double
+ computeModelOutputs(double, double): double