Class Dependencies

Visualization

- targetVelocity: double
- targetHeading: double

+ setTargetVelocity(double): bool
+ setTargetHeading(double): bool
+ printOutputs(,double, double): bool
+ plotVelocities(vector<double>, vector<double>): bool
+ plotHeadings(vector<double>, vector<bool>): bool

TwoWDRobot

- targetHeading: double
- targetVelocity: doubl
- innerWheelAngle: double
- outerWheelAngle: double

+ setTargetHeading(double): bool
+ setTargetVelocity(double): bool
+ computeOutput(double, double, bool): bool
+ visualize(): bool

PID

- kp: double
- kd: double
- ki: 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
- radiusOfCurvature: double
- arcLength: double
- maxSteerAngle: double
- targetHeading: double
- currentHeading: double

+ setRobotProps(double, double, double, double): bool
+ setTargetHeading(double): bool
+ computeROC(): bool
+ computeArc(): bool
+ calculateAngles(double, double): bool
+ computeModelOutputs(double, double, doule): double