com._604robotics.utils

Class LinearController

java.lang.Object
    com._604robotics.utils.LinearController

```
public class LinearController
extends Object
```

This class implements a controller with a horizontal segment, a linear segment, and finally a coasting segment. When a target point is set, the controller decides which direction to go to get there, and then focuses on getting to that point or past it in that direction. If that condition is met, the output drops to zero. Else, if we're within a certain "coasting range", the output will be floored at the "coasting output". Else, if we're outside a certain "horizontal range", the output will be ceilinged at a certain "horizontal output". Else, the output will be scaled linearly between the two outputs.

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Constructor Summary

Constructors

Constructor and Description
LinearController(**PIDSource** source, **PIDOutput** output, double horizontalRange, double horizontalOutput, double coastingRange, double coastingOutput) Initializes a new LinearController.

Method Summary

Methods

Modifier and Type	Method and Description
double	**calculate**() Function that performs the output calculation.
double	**getTarget**() Gets the current target.
boolean	**onTarget**() Are we there yet?
void	**setCoastingRange**(double coastingRange, double coastingOutput) Updates the coasting values.
void	**setHorizontalRange**(double horizontalRange, double horizontalOutput) Updates the horizontal values.
void	**setTarget**(double target) Sets the current target.
void	**update**() Updates the PIDOutput based on the latest data.

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

LinearController

```
public LinearController(PIDSource source,
                        PIDOutput output,
                        double horizontalRange,
                        double horizontalOutput,
                        double coastingRange,
                        double coastingOutput)
```

Initializes a new LinearController.

Parameters:

`source` - A PIDSource to read from.

`output` - A PIDOutput to write to.

`horizontalRange` - The horizontal range, as defined in the class description.

`horizontalOutput` - The horizontal output, as defined in the class description.

`coastingRange` - The coasting range, as defined in the class description.

`coastingOutput` - The coasting output, as defined in the class description.

Method Detail

setHorizontalRange

```
public void setHorizontalRange(double horizontalRange,
                               double horizontalOutput)
```

Updates the horizontal values.

Parameters:

`horizontalRange` - The horizontal range, as defined in the class description.

`horizontalOutput` - The horizontal output, as defined in the class description.

setCoastingRange

```
public void setCoastingRange(double coastingRange,
                             double coastingOutput)
```

Updates the coasting values.

Parameters:

`coastingRange` - The coasting range, as defined in the class description.

`coastingOutput` - The coasting output, as defined in the class description.

getTarget

```
public double getTarget()
```

Gets the current target.

Returns:

The current target.

setTarget

```
public void setTarget(double target)
```

Sets the current target.

Parameters:

`target` - The target to move toward.

onTarget

```
public boolean onTarget()
```

Are we there yet?

Returns:

Whether or not we're there yet.

calculate

```
public double calculate()
```

Function that performs the output calculation. Exposed for debug use, mainly.

Returns:

Returns:

An output value, to be passed to a PIDOutput.

update

```
public void update()
```

Updates the PIDOutput based on the latest data.