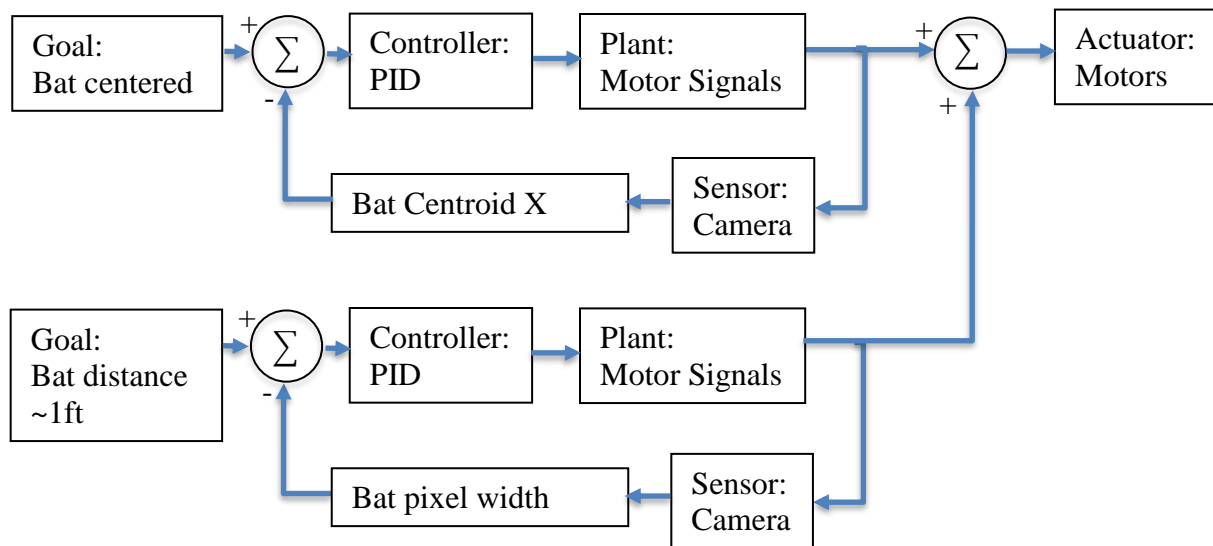


Tim Olson – Z1721379 – Proj 3

Answer these questions in no more than 100 words each

1. Draw a classical control loop to describe the robot operation. Clearly label the controller, plant, and sensor and how the desired output is compared with the current output.

The below control loop includes both turning to face the bat, and driving to within a specified distance from the bat. The distance control is disabled until the robot has had 5 seconds to find and face the bat.



- Using the format below to write the pseudocode for Task 1. Even though your team may have the same program, pseudocode is your interpretation of the general approach (or a first stab at it); so this should be your own version.

Task 1	Approach an object in the field of view
Input:	Image and time information
Output:	Remove background
	Filter by color
	Find centroid and width of object
	Run turning PID
	turnSpeed = PID value
	If elapsed time > 5 sec
	Run driving PID
	driveSpeed = PID value
	leftSpeed = distspeed – turnspeed
	rightSpeed = distspeed + turnspeed
	Output speeds to wheels
	If distance within ~1 ft
	Disable driving/distance PID

- Using the format below to write the pseudocode for Task 2. Even though your team may have the same program, pseudocode is your interpretation of the general approach (or a first stab at it); so this should be your own version.

Task 2	Follow an object in the field of view
Input:	Image and time information
Output:	Use same code as Task 1

- Within your team, who contributed the most to your project? What will you do next time to contribute more?

Myself and Matt contributed the most to this project. Gunnar created a filtering method that Matt developed into image processing to return x-centroid and width of the detected bat. Tom documented a Python tutorial that was presented to several class-mates. I wrote a PID library and the bat facing/following code.