Turret Tracking Example Code:

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Turret Tracking Example using a limelight and a bag motor on a 100:1 gearbox with a versa planetary encoder mounted on the output shaft.

This example uses the rate of change in the angle of the target as measured by the limelight and applies the same rate of change into the motor. Although using a PID would be another extremely valid method of tracking a target using a limelight or equivalent sensor, a velocity based system was chosen for its superior responsiveness.

Further testing will be required with the limelight, however using NavX’s Yaw Values in place of degree values measure by the limelight has proven this approach to have merit. When using a NavX in place of a limelight, small amounts of drift were noticed in extremely small or large movements. Further testing is required to determine the cause. Hypothesis: the 0.4 percent maximum power limited the motor to not be able to achieve the peak velocity. Secondary Hypothesis: Direct transfer of NavX values with no real world point of origin caused it to differ from the target during movements smaller than the capability of the motor.