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ACTIVITY DIAGRAM

## Navigation RAJ SHINDE PRASHEEL RENKUNTLA velocity Yes is more than If flag set and heading maxTurnVelocity converged No No Yes Calculate error value by subtracting Yes No Velocity and setPoint change velocity to maxTurnVelocity Return Return Calculate proportional output by newVelocity heading change wheel angle and direction, multiplying kp\_ with error value calculate arclength and turnTime using steerAlgorithm Calculate integral output by multiplying ki \_ with term, given by multiplication of error and time difference Calculate error value by subtracting Velocity and setPoint Calculate derivative output by multiplying kd with term, given by dividing error difference by time difference. Calculate proportional output by multiplying kp\_ with error value Add the proportional, integral and derivative output to velocity to get new velocity Yes Calculate integral output by multiplying ki \_ with term, given by multiplication of error and time difference Plot Velocity on Graph Calculate derivative output by multiplying kd with term, No given by dividing error difference by time difference. Add the proportional, integral and derivative If turn required output to velocity to get new velocity and velocity already converged Update heading with current time and arcLength No Plot Velocity and Heading on Graph Required turn time and heading achieved Yes Reset wheel angle and targed heading to zero