**GLOBAL VARIABLES:**

**ENCODER:**

sample\_count\_encoder\_holes: *number of encoder hole count after which velocity should be sampled*.

total\_count\_encoder\_holes: total number of encoder holes

counter: count of photointerrupter

ratio\_encoder:

**PID CONTROLLER:**

prop\_gain:

derivative\_gain:

integral\_gain:

error\_array[]:error recorded as array

error:

differential\_error:

integral\_error:

previous\_error: previous error values

proportional\_varied\_array: kp\*error

integral\_error\_array:

differential\_error\_array:

integral\_varied\_array: ki\*(sum error) of arrays

differential\_varied\_array: kp\*error of arrays

PID\_array:

**SPEED AND DISTANCE:**

threshold\_count: equivalent distance in number of counts

set\_point: speed setpoint , with which motor should rotate.

throttle: pwm value given to the motor

throttle\_array[]: array of throttles

throttle\_control\_array: if loop thresholding and controlling

min\_throttle: lowest speed throttle

speed: current rpm value

speed\_array[]: speed recorded as array

**TIME:**

**Time\_stamp:**

**Time\_axis:**