*DC motor control- Matlab integration*

**#include** <stdio.h>

**#include** <unistd.h>

**#pragma** no\_custom\_fadds /\* floating-point add \*/

**#pragma** no\_custom\_fsubs /\* floating-point subtract \*/

**#pragma** no\_custom\_fmuls /\* floating-point multiply \*/

**#pragma** no\_custom\_fdivs /\* floating-point divide \*/

**typedef** **float** real;

**int** **main** ( **void** )

{

**char** \*buffer;

real v=0,vi=0,vp=0,vd=0;

real y=0,yset=0;

real kp=20,ki=0.5,kd=10,ts=0.001;

real error\_old=0;

real error;

**while**(1){

**scanf**("%s",buffer);

yset = **atof**(buffer);

**scanf**("%s",buffer);

y = **atof**(buffer);

error = (yset-y);

vp = kp\*error;

vi = vi+ts\*ki\*error;

vd = (kd/ts)\*(error-error\_old);

v = vp + vi + vd;

error\_old = error;

**sprintf**(buffer,"%f",v);

**printf**("%s\r\n",buffer);

}

**return** 0;

}