#include "NS\_Task\_1\_Sandbox.h"

void Task\_1\_2(void)

{

unsigned char left\_sensor, centre\_sensor, right\_sensor;

float Kp = 106, Ki = 0.6, Kd = 15, error = 0;

float P = 0, I = 0, D = 0, PID\_value = 0;

float previous\_error = 0, previous\_I = 0;

int initial\_motor\_velocity = 100;

while (1)

{

left\_sensor = ADC\_Conversion(1);//Read values from left sensor

centre\_sensor = ADC\_Conversion(2);//Read values from centre sensor

right\_sensor = ADC\_Conversion(3);//Read values from right sensor

//printf("\n %d %d %d ", left\_sensor, centre\_sensor, right\_sensor);

if (left\_sensor <= 100 && centre\_sensor >= 100 && right\_sensor <= 100)//FORWARD

{

error = 0;

}

else if (left\_sensor <= 100 && centre\_sensor <= 100 && right\_sensor >= 100)//HARD RIGHT

{

error = 1;

}

else if (left\_sensor <= 100 && centre\_sensor >= 100 && right\_sensor >= 100)//RIGHT

{

error = 2;

}

else if (left\_sensor >= 100 && centre\_sensor <= 100 && right\_sensor <= 100)//HARD LEFT

{

error = -1;

}

else if (left\_sensor >= 100 && centre\_sensor >= 100 && right\_sensor <= 100)//LEFT

{

error = -2;

}

else if (left\_sensor <= 100 && centre\_sensor <= 100 && right\_sensor <= 100)//STOP

{

stop();

\_delay\_ms(500);

}

void calculate\_pid();

{

P = error;

I = I + previous\_I;

D = error - previous\_error;

PID\_value = (Kp\*P) + (Ki\*I) + (Kd\*D);

printf("\n %f %f ", PID\_value, error);

previous\_I = I;

previous\_error = error;

}

void motor\_control();

{

forward();

velocity(100 + PID\_value, 100 - PID\_value);

}

}

}