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Analog input, analog output, serial output

Reads an analog input pin, maps the result to a range from 0 to 255 and uses

the result to set the pulse width modulation (PWM) of an output pin.

Also prints the results to the Serial Monitor.

The circuit:

- potentiometer connected to analog pin 0.

Center pin of the potentiometer goes to the analog pin.

side pins of the potentiometer go to +5V and ground

- LED connected from digital pin 9 to ground

created 29 Dec. 2008

modified 9 Apr 2012

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This example code is in the public domain.

http://www.arduino.cc/en/Tutorial/AnalogInOutSerial

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int curr[5] = {0, 0, 0, 0, 0}; // value read from the pot

int temp[5] = {0, 0, 0, 0, 0};

int gyro[5] = {0, 0, 0, 0, 0};

int xpot[5] = {0, 0, 0, 0, 0};

int ypot[5] = {0, 0, 0, 0, 0};

int n = 0;

double xvolt, yvolt, xaccel, yaccel;

double xspeed, yspeed;

bool flag;

void setup() {

// initialize serial communications at 9600 bps:

pinMode (2, OUTPUT);

pinMode (4, OUTPUT);

pinMode (3, OUTPUT);

digitalWrite (2, LOW);

digitalWrite (4, LOW);

xspeed = 0;

n = 0;

}

void loop() {

// read the analog in value:

curr[n] = analogRead(A0);

temp[n] = analogRead(A1);

xpot[n] = analogRead(A2);

ypot[n] = analogRead(A3);

gyro[n] = analogRead(A4);

n++;

if (n >= 5) n = 0;

// update speed of e-rickshaw

xvolt = (double)(xpot[0] + xpot[1] + xpot[2] + xpot[3] + xpot[4]) / 255.0;

xaccel = (xvolt - 2.5) \* 7.84;

xspeed = xspeed + (xaccel \* 0.01);

flag = true;

// Check if temperature is greater than 70C

if((temp[0] + temp[1] + temp[2] + temp[3] + temp[4])/5 > 145)

{

//"turn off the H-bridge"

digitalWrite (2, LOW);

digitalWrite (4, LOW);

analogWrite (3, 0);

flag = false;

}

// Check if current draw is greater that 4.5A

if((curr[0] + curr[1] + curr[2] + curr[3] + curr[4])/5 > 115)

{

//"turn off the H-bridge"

digitalWrite (2, LOW);

digitalWrite (4, LOW);

analogWrite (3, 0);

flag = false;

}

if (flag == true)

{

// Implement the motor assist logic

digitalWrite (2, LOW);

digitalWrite (4, HIGH);

analogWrite(3, 128);

}

// wait 10 milliseconds before the next loop for the analog-to-digital

// converter to settle after the last reading:

delay(10);

}