**Data Acquisition  
2 Wheels Car**

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# Arduino code 1 Drive

#include<LiquidCrystal.h>

LiquidCrystal lcd(5,4,3,2,1,0);

#define front A5

#define back A4

#define right A3

#define left A2

#define inc A1

#define dec A0

#define in1 13

#define in2 12

#define en1 11

#define en2 10

#define in3 9

#define in4 8

int speed1=85,speed2=85,debounce1=1,debounce2=1,x=0,y=0;

void setup() {

lcd.begin(16,2);

lcd.setCursor(0,0);lcd.print("Speed m");

lcd.setCursor(0,1);lcd.print("Dir. ");

pinMode(in1,OUTPUT);

pinMode(in2,OUTPUT);

pinMode(en1,OUTPUT);

pinMode(en2,OUTPUT);

pinMode(in3,OUTPUT);

pinMode(in4,OUTPUT);

}

void loop() {

if (digitalRead(inc) && debounce1){

speed1=speed1+85 ;

if (speed1 > 255){speed1=255;}

speed2=speed1;

debounce1=0;}

else if (digitalRead(dec) && debounce2){

speed1 = speed1 - 85 ;

if (speed1 < 85){speed1=85;}

speed2=speed1;

debounce2=0;}

if (!digitalRead(inc)){debounce1=1;}

if (!digitalRead(dec)){debounce2=1;}

if (speed1 == 85){lcd.setCursor(7,0);lcd.print("in ");}

else if (speed1 == 170){lcd.setCursor(7,0);lcd.print("id ");}

else if (speed1 == 255){lcd.setCursor(7,0);lcd.print("ax ");}

else {lcd.setCursor(7,0);lcd.print("an error");}

analogWrite(en1,speed1-y);

analogWrite(en2,speed2-x);

if(!digitalRead(front) && !digitalRead(back) && !digitalRead(left) && !digitalRead(right))

{digitalWrite(in1,LOW);digitalWrite(in2,LOW);digitalWrite(in3,LOW);digitalWrite(in4,LOW);

x=0;y=0;

lcd.setCursor(6,1);lcd.print("stop ");}

else if (digitalRead(front) && !digitalRead(back) && digitalRead(left) && !digitalRead(right)){

y=speed2/2;

digitalWrite(in1,HIGH);digitalWrite(in2,LOW);

digitalWrite(in3,HIGH);digitalWrite(in4,LOW);

lcd.setCursor(6,1);lcd.print("F.L ");}

else if (!digitalRead(front) && digitalRead(back) && digitalRead(left) && !digitalRead(right)){

y=speed2/2;

digitalWrite(in2,HIGH);digitalWrite(in1,LOW);

digitalWrite(in4,HIGH);digitalWrite(in3,LOW);

lcd.setCursor(6,1);lcd.print("B.L ");}

else if (digitalRead(front) && !digitalRead(back) && !digitalRead(left) && digitalRead(right)){

x=speed1/2;

digitalWrite(in1,HIGH);digitalWrite(in2,LOW);

digitalWrite(in3,HIGH);digitalWrite(in4,LOW);

lcd.setCursor(6,1);lcd.print("F.R ");}

else if (!digitalRead(front) && digitalRead(back) && !digitalRead(left) && digitalRead(right)){

x=speed1/2;

digitalWrite(in2,HIGH);digitalWrite(in1,LOW);

digitalWrite(in4,HIGH);digitalWrite(in3,LOW);

lcd.setCursor(6,1);lcd.print("B.R ");}

else if (digitalRead(front) && !digitalRead(back) && !digitalRead(left) && !digitalRead(right)){

digitalWrite(in1,HIGH);digitalWrite(in2,LOW);

digitalWrite(in3,HIGH);digitalWrite(in4,LOW);

x=0;y=0;

lcd.setCursor(6,1);lcd.print("front");}

else if (!digitalRead(front) && digitalRead(back) && !digitalRead(left) && !digitalRead(right)){

digitalWrite(in2,HIGH);digitalWrite(in1,LOW);

digitalWrite(in4,HIGH);digitalWrite(in3,LOW);

x=0;y=0;

lcd.setCursor(6,1);lcd.print("back ");}

else if (!digitalRead(front) && !digitalRead(back) && digitalRead(left) && !digitalRead(right)){

digitalWrite(in2,HIGH);digitalWrite(in1,LOW);

digitalWrite(in3,HIGH);digitalWrite(in4,LOW);

x=40;y=40; //slower rotational speed for better control

lcd.setCursor(6,1);lcd.print("left ");}

else if (!digitalRead(front) && !digitalRead(back) && !digitalRead(left) && digitalRead(right)){

digitalWrite(in1,HIGH);digitalWrite(in2,LOW);

digitalWrite(in4,HIGH);digitalWrite(in3,LOW);

x=40;y=40; //slower rotational speed for better control

lcd.setCursor(6,1);lcd.print("right");}

else if ((digitalRead(front) && digitalRead(back)) || (digitalRead(right) && digitalRead(left)))

{digitalWrite(in1,LOW);digitalWrite(in2,LOW);digitalWrite(in3,LOW);digitalWrite(in4,LOW);

x=0;y=0;

lcd.setCursor(6,1);lcd.print("error");}

}

