Data Acquisition
2 Wheels Car

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Arduino code 1 Drive

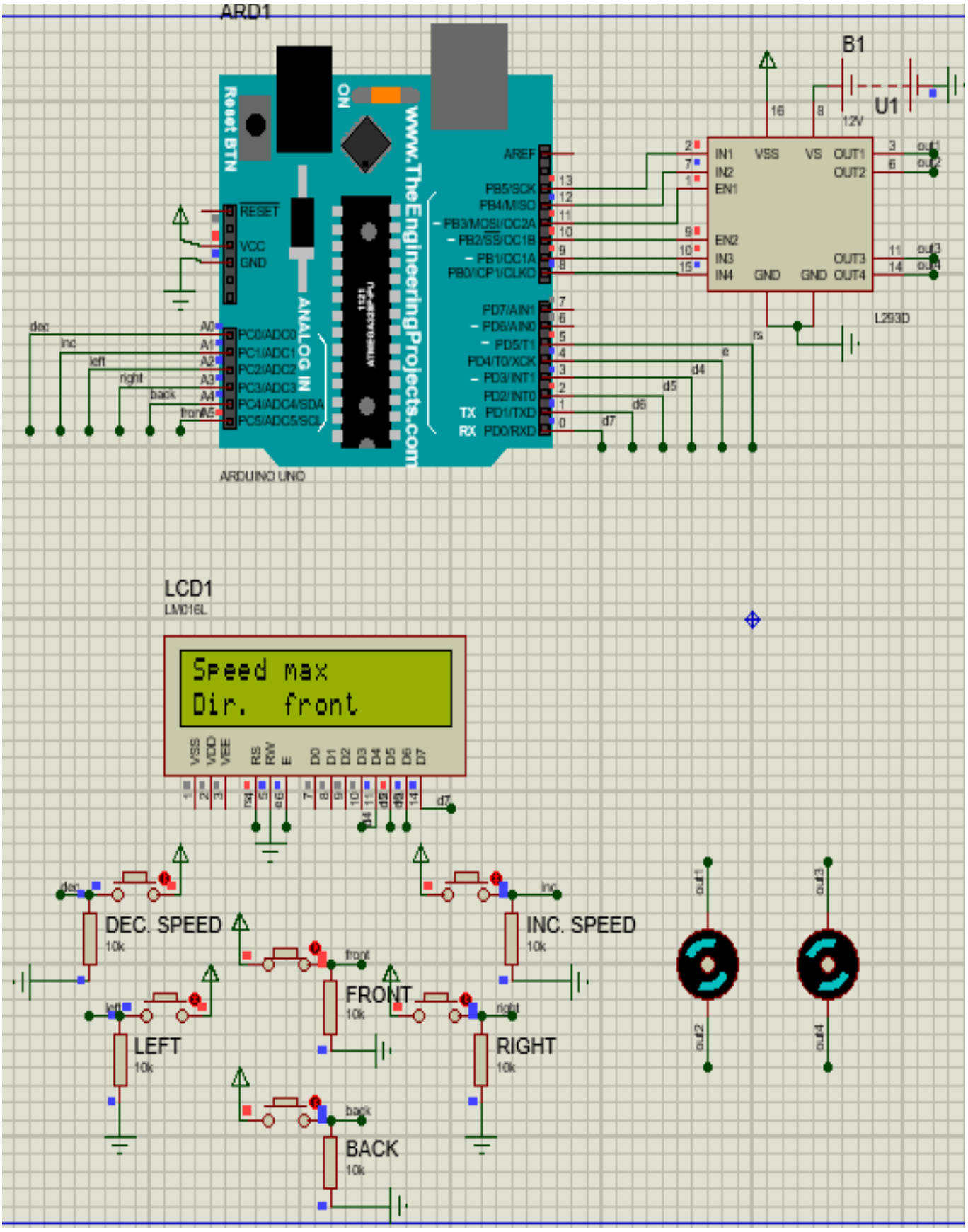
```
#include<LiquidCrystal.h>
LiquidCrystal lcd(5,4,3,2,1,0);

#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);digitalWri
te(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);digitalWri
te(in4,LOW);
  x=0;y=0;
  lcd.setCursor(6,1);lcd.print("error");}
}
```


ARD1
Reset BTN
ON
www.TheEngineeringProjects.com
RESET
VCC
GND
ANALOG IN
ATMEGA328P-PU
ARDUINO UNO
AREF
PB5/SCK
PB4/MISO
PB3/MOSI/OC2A
PB2/SS/OC1B
PB1/OC1A
PB0/ICP1/CLKO
PD7/AIN1
PD6/AIN0
PD5/T1
PD4/T0/XCK
PD3/INT1
PD2/INT0
TX PD1/TXD
RX PD0/RXD
PC0/ADC0
PC1/ADC1
PC2/ADC2
PC3/ADC3
PC4/ADC4/SDA
PC5/ADC5/SCL
dec
inc
left
right
back
front
B1
12V
U1
IN1
IN2
EN1
EN2
IN3
IN4
VSS
VS
OUT1
OUT2
OUT3
OUT4
GND
L293D
rs
e
d4
d5
d6
d7
LCD1
LM016L
Speed max
Dir. front
VSS
VDD
VEE
RS
RW
E
D0
D1
D2
D3
D4
D5
D6
D7
DEC. SPEED
10k
INC. SPEED
10k
FRONT
10k
LEFT
10k
RIGHT
10k
BACK
10k
out1
out2
out3
out4