Data Acquisition
2 Wheels Car

ID: 4715

Name: Ibrahim Mostafa Ibrahim Elshenhapy
Group: 3
Section: 1

Arduino code 1 Drive

```
#define front 0
#define back 1
#define right 2
#define left 3
#define inc 4
#define dec 5

#define in1 13
#define in2 12
#define en1 11
#define en2 10
#define in3 7
#define in4 6

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

void setup() {
pinMode(front,INPUT);
pinMode(back,INPUT);
pinMode(right,INPUT);
pinMode(left,INPUT);
pinMode(inc,INPUT);
pinMode(dec,INPUT);
```

```
pinMode(in1,OUTPUT);
pinMode(in2,OUTPUT);
pinMode(en1,OUTPUT);
pinMode(en2,OUTPUT);
pinMode(in3,OUTPUT);
pinMode(in4,OUTPUT);
}

void loop() {

if (digitalRead(inc) && debounce1){
  thespeed=thespeed+85 ;
  if (thespeed >= 255){thespeed=255;}
  speed1=thespeed;
  speed2=thespeed;
  debounce1=0;}
else if (digitalRead(dec) && debounce2){
  thespeed = thespeed - 85 ;
  if (thespeed <= 85){thespeed=85;}
  speed1=thespeed;
  speed2=thespeed;
  debounce2=0;}
```

```
if (!digitalRead(inc)){debounce1=1;}
if (!digitalRead(dec)){debounce2=1;}

analogWrite(en1,speed1-y);
analogWrite(en2,speed2-x);

if(!digitalRead(front) && !digitalRead(left) && !digitalRead(back) &&
!digitalRead(right))
{digitalWrite(in1,LOW);digitalWrite(in2,LOW);digitalWrite(in3,LOW);digitalWrite(i
n4,LOW);}

else if (digitalRead(front) && digitalRead(left) && !digitalRead(right) &&
!digitalRead(back)){
  y=speed2/2;
  digitalWrite(in1,HIGH);digitalWrite(in2,LOW);
  digitalWrite(in3,HIGH);digitalWrite(in4,LOW);}

else if (digitalRead(back) && digitalRead(left) && !digitalRead(right) &&
!digitalRead(front)){
  y=speed2/2;
  digitalWrite(in2,HIGH);digitalWrite(in1,LOW);
  digitalWrite(in4,HIGH);digitalWrite(in3,LOW);}

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

```
  x=speed1/2;
    digitalWrite(in1,HIGH);digitalWrite(in2,LOW);
    digitalWrite(in3,HIGH);digitalWrite(in4,LOW);}

else if (digitalRead(back) && digitalRead(right) && !digitalRead(left) &&
!digitalRead(front)){
  x=speed1/2;
    digitalWrite(in2,HIGH);digitalWrite(in1,LOW);
    digitalWrite(in4,HIGH);digitalWrite(in3,LOW);}

else if (digitalRead(front) && !digitalRead(left) && !digitalRead(right) &&
!digitalRead(back)){
  digitalWrite(in1,HIGH);digitalWrite(in2,LOW);
  digitalWrite(in3,HIGH);digitalWrite(in4,LOW);
  x=0;y=0;}

else if (digitalRead(back) && !digitalRead(left) && !digitalRead(right) &&
!digitalRead(front)){
  digitalWrite(in2,HIGH);digitalWrite(in1,LOW);
  digitalWrite(in4,HIGH);digitalWrite(in3,LOW);
  x=0;y=0;}

else if (digitalRead(right) && !digitalRead(front) && !digitalRead(back) &&
!digitalRead(left)){
  digitalWrite(in2,HIGH);digitalWrite(in1,LOW);
  digitalWrite(in3,HIGH);digitalWrite(in4,LOW);
```

```
  x=0;y=0;}


else if (digitalRead(left) && !digitalRead(front) && !digitalRead(back) &&
!digitalRead(right)){
  digitalWrite(in1,HIGH);digitalWrite(in2,LOW);
  digitalWrite(in4,HIGH);digitalWrite(in3,LOW);
  x=0;y=0;}


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;}
}
```

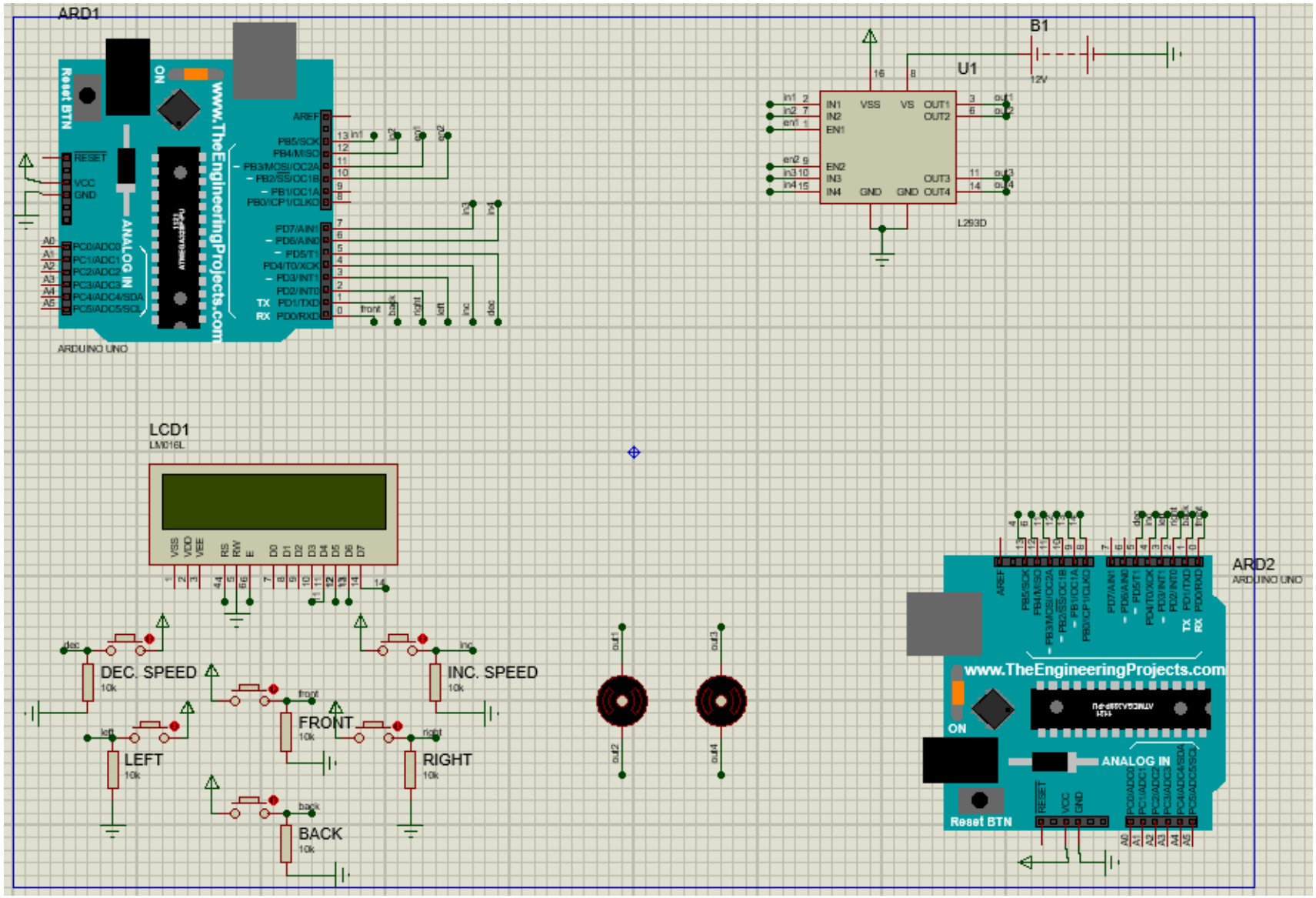
Arduino code 2 LCD

```
#include<LiquidCrystal.h>

#define front 0

#define back 1

#define right 2

#define left 3

#define inc 4

#define dec 5


int speed1=85,debounce1=1,debounce2=1;


LiquidCrystal lcd(13,12,11,10,9,8);


void setup() {

lcd.begin(16,2);

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

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


pinMode(front,INPUT);

pinMode(back,INPUT);

pinMode(right,INPUT);

pinMode(left,INPUT);

pinMode(inc,INPUT);

pinMode(dec,INPUT);

}
```

```
void loop() {

  if (digitalRead(inc) && debounce1){
  speed1=speed1+85 ;
  if (speed1 >= 255){speed1=255;}
  debounce1=0;}
else if (digitalRead(dec) && debounce2){
  speed1 = speed1 - 85 ;
  if (speed1 <= 85){speed1=85;}
  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("out ");}

if(!digitalRead(front) && !digitalRead(left) && !digitalRead(back) &&
!digitalRead(right))
{lcd.setCursor(6,1);lcd.print("stop ");}
```

```
else if (digitalRead(front) && digitalRead(left)){
lcd.setCursor(6,1);lcd.print("F.L  ");}

else if (digitalRead(back) && digitalRead(right)){
lcd.setCursor(6,1);lcd.print("B.R  ");}

else if (digitalRead(front) && digitalRead(right)){
lcd.setCursor(6,1);lcd.print("F.R  ");}

else if (digitalRead(back) && digitalRead(left)){
lcd.setCursor(6,1);lcd.print("B.L  ");}

else if (digitalRead(front) && !digitalRead(left) && !digitalRead(right)){
lcd.setCursor(6,1);lcd.print("front");}

else if (digitalRead(back) && !digitalRead(left) && !digitalRead(right)){
lcd.setCursor(6,1);lcd.print("back ");}

else if (digitalRead(right) && !digitalRead(front) && !digitalRead(back)){
lcd.setCursor(6,1);lcd.print("right");}

else if (digitalRead(left) && !digitalRead(front) && !digitalRead(back)){
lcd.setCursor(6,1);lcd.print("left ");}
```

```
else if ((digitalRead(right) && digitalRead(left)) || (digitalRead(front) &&
digitalRead(back))){
lcd.setCursor(6,1);lcd.print("error");}
}
```


ARD1
ARDUINO UNO
www.TheEngineeringProjects.com
Reset BTN
ON
RESET
VCC
GND
ANALOG IN
B1
12V
U1
L293D
LCD1
LM016L
DEC. SPEED
INC. SPEED
FRONT
LEFT
RIGHT
BACK
ARD2
ARDUINO UNO
www.TheEngineeringProjects.com
Reset BTN
ON
ANALOG IN