Automatic Car Wipers using Arduino UNO

Description :

The basic idea behind the automatic wiper system is that the wipers will automatically turn on when rain is detected by the sensor, and turn off when the rain stops. The system can also be programmed to adjust the wiper speed depending on the amount of rainfall detected.The rain sensor used to detect the presence of water droplets on its surface. The sensor is connected to the Arduino UNO, which uses the information received from the sensor to control the wiper system.

To build this system, you will need an Arduino UNO, a rain sensor module, a LCD Display, and a wiper motor(Servo Motor). You will also need to connect the various components using wires and soldering tools.

Block Diagram :

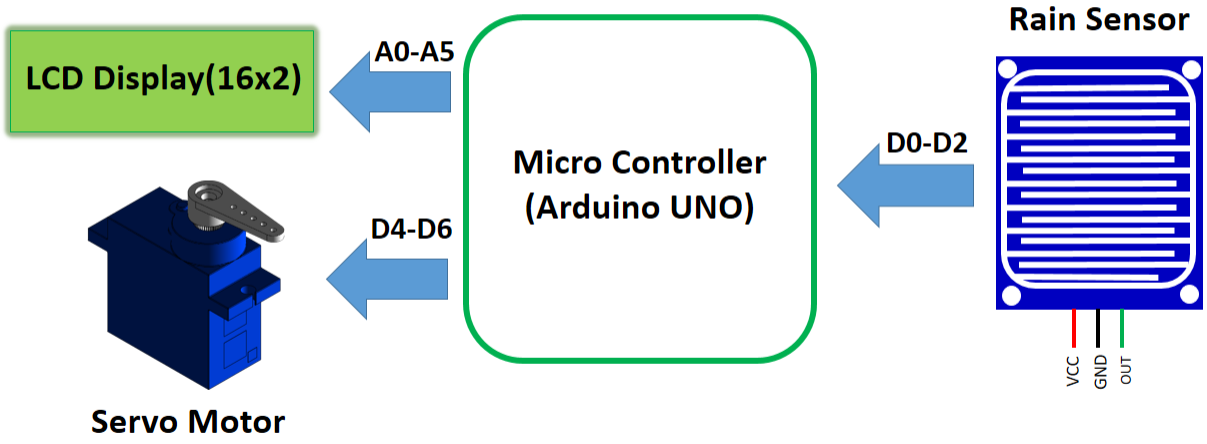

Figure 1: **Block Diagram**

Input and Output :

S.No	Description	Name	Type	Data Direction	Spec	Remarks
1	Rain Sensor OUT	RO	INP	DI	AC	Active High
2	Rain Sensor VCC	VCC	OUT	DO	5VDC	Active High
3	Rain Sensor GND	GND	OUT	DO	0VDC	Active High
4	Servo VCC	VCC	OUT	DO	5VDC	Active High
5	Servo Ground	GND	OUT	DO	0VDC	Active High
6	Servo In	SI	OUT	DO	AC	Active High
7	LCD Reset Pin	RS	OUT	DO	5VDC	Active High
8	LCD Enable Pin	E	OUT	DO	5VDC	Active High
9	LCD Data Pin 1	D4	OUT	DO	5VDC	Active High
10	LCD Data Pin 2	D5	OUT	DO	5VDC	Active High
11	LCD Data Pin 3	D6	OUT	DO	5VDC	Active High
12	LCD Data Pin 4	D7	OUT	DO	5VDC	Active High

Source Code :

```
 #include <Wire.h>
#include <LiquidCrystal_I2C.h>
#include <Servo.h>

Servo myservo;  // create servo object to control a servo

LiquidCrystal_I2C lcd(0x3F,16,2);  // set the LCD address to 0x27 for a

int rainPin = A0; // Change this to the digital input pin you used to co

void wipe();

void setup()
{
  pinMode(rainPin, INPUT); // Set the digital input pin for the rain sen
  myservo.attach(9);  // attaches the servo on pin 9 to the servo object
  lcd.init();                      // initialize the lcd
  // Print a message to the LCD.
  lcd.backlight();
  lcd.setCursor(0,0);
  lcd.print("Automatic Wipers");
  lcd.setCursor(0,1);
  lcd.print("By Group 7");
  delay(4000);
```

```
  lcd.clear();
  Serial.begin(9600);
}

void loop()
{

  int rainValue = analogRead(rainPin); // Read the analog output of the
  Serial.println(rainValue);

  if (rainValue < 500)
  {
    wipe();
    lcd.clear();
    lcd.print("It's Raining!"); // Print a message if it's raining
  }

  else
  {
    lcd.clear();
    lcd.print("No Raining!"); // Print a message if it's not raining
  }

  delay(500); // Delay for a short period before reading the sensor agai
}

void wipe()
{
  myservo.write(0);  // sets the servo position to 0 degrees
  delay(1000);       // waits for 1 second
  myservo.write(90); // sets the servo position to 90 degrees
  delay(1000);       // waits for 1 second
  myservo.write(180); // sets the servo position to 180 degrees
  delay(1000);       // waits for 1 second
}
```

Circuit or Schematic :

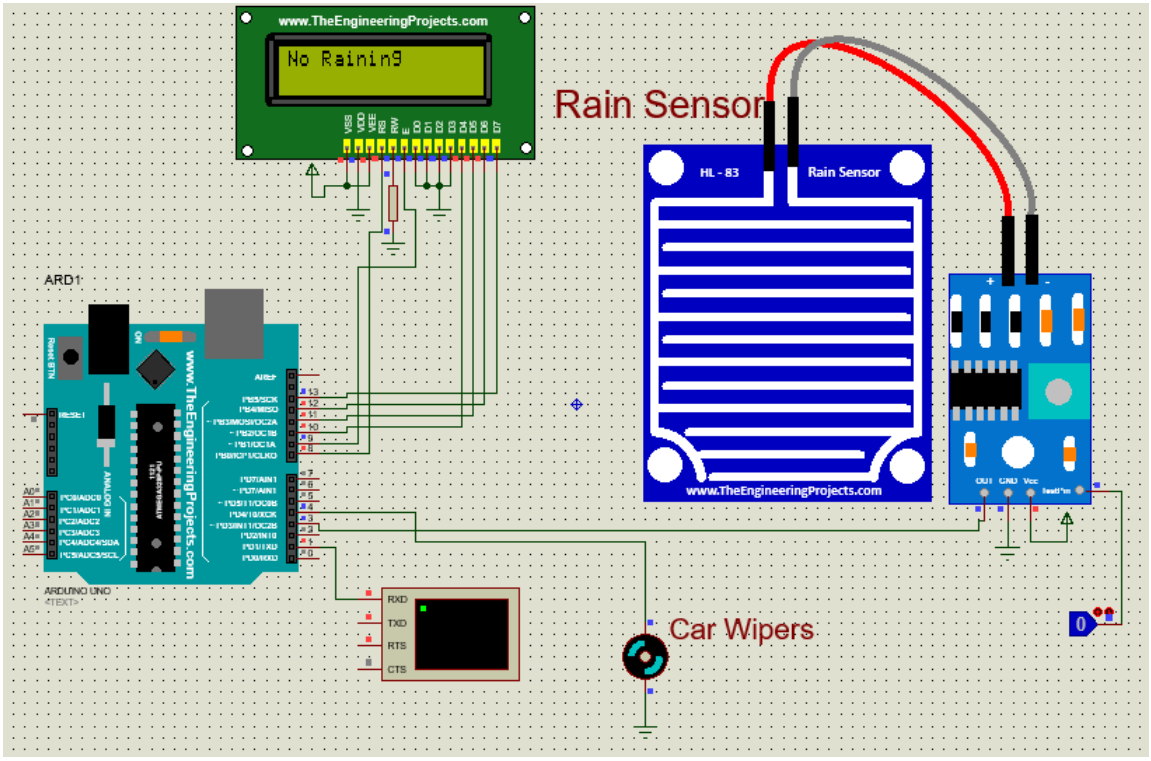

Figure 2: **Schematic**

THE END