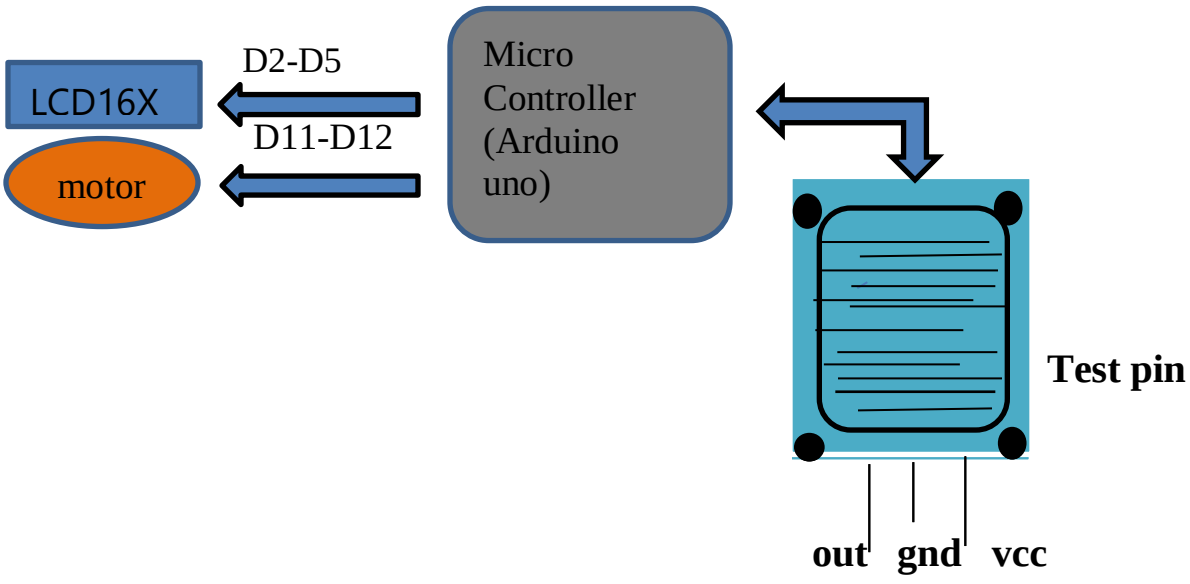
Rain Sensing Motor Control using Arduino UNO

DESCRIPTION:

In this setup, the Arduino UNO adjust the speed of the DC motor according to the signal given by the rain sensing module. Arduino Uno has the processing and controlling unit of this system which receive the signal from rain sensor module and processes the dataIn this project, a rain sensor is used to detect the presence of rain. The output of the rain sensor is connected to an Arduino Uno board, whichreads the logic state of the sensor. If the sensor detects rain, the logic state is set to "ON" and the Arduino sends a signal to a DC motor as an analog output to turn it on. The status of the motor is displayed on an LCD display connected to the Arduino board. When the motor is turned on, the LCD display shows "Motor Status: ON". When the rainstops and the sensor detects no more rain, the logic state is set to "OFF" and the Arduino sends a signal to turn off the motor. The LCD display then shows "Motor Status: OFF".

BLOCK DIAGRAM:



INPUT OUTPUT :

S.No	Description	Name	Type	Data Direction	Spectification	Remarks
1	Rain Sensor OUT	A5	INP	DI	Digital	Active High
2	Rain Sensor VCC	VCC	OUT	DO	Digital	Active High
3	Rain Sensor GND	GND	OUT	DO	Digital	Active High
4	LCD RST	RS	OUT	DO	Digital	Active High
5	LCD EN	EN	OUT	DO	Digital	Active High
6	LCD DATA PIN	D4	OUT	D0	Digital	Active High
7	LCD DATA PIN	D5	OUT	DO	Digital	Active High
8	LCD DATA PIN	D6	OUT	DO	Digital	Active High
9	LCD DATA PIN	D7	OUT	DO	Digital	Active High
10	MOTOR	PD1	OUT	D0	Digital	Active High

SORUCE CODE:

```
#include <LiquidCrystal.h>

 const int rs = 12, en = 11, d4 = 5, d5 = 4, d6 = 3, d7 = 2;
LiquidCrystal lcd(rs, en, d4, d5, d6, d7);// LCD pins: RS, E, D4, D5, D6, D7
int rainSensorPin = A5;
int motorPin = 1;
int motorStatus = LOW;

void setup() {
  lcd.begin(16, 2); // Initialize the LCD
  pinMode(rainSensorPin, INPUT);
  pinMode(motorPin, OUTPUT);
}

void loop() {
  int rainStatus = digitalRead(rainSensorPin);

  if (rainStatus == HIGH) {
    motorStatus = HIGH;
    digitalWrite(motorPin, motorStatus);
    lcd.clear();
    lcd.print("Rain=on");
  } else {
    motorStatus = LOW;
    digitalWrite(motorPin, motorStatus);
    lcd.clear();
    lcd.print("No rain=off");
  }
     delay(1000); // Delay for stability
}
```

SCHEMATIC: