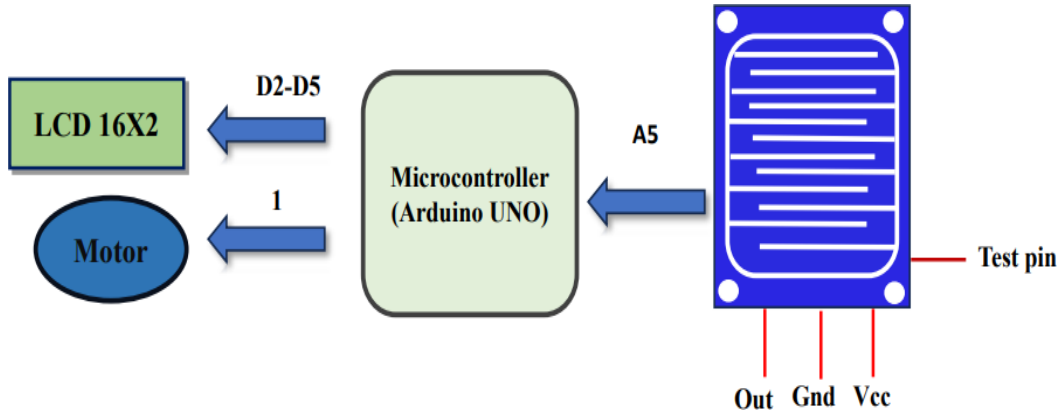
Rain Sensing Motor Control usingArduino UNO

Description:

The Rain-Sensing Motor Control project uses a rain sensor to detect water and activate a DC motor. The Arduino Uno board receives the signal from the rain sensor and turns the motor on or off accordingly. The LCD display shows the status of the motor as either "ON" or "OFF" in real-time. The logic state used is that the motor is on when it detects rain, and off when there is no rain.

Block Diagram:



Input and Output:

S.No	Description	Name	Type	Data Direction	Specification	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

Source 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
}
```