**Rain Sensing Motor Control Using Arduino UNO**

**Description:**

In this project we will be using a Rain sensor to control the motor with help of Arduino UNO and the status of the motor is displayed on the LCD. The Rain sensor is connected to Arduino through the analog pin (A5), motor is connected to digital pin (D1), LCD is connected to digital pins (D2-D5, D11, D12). The rain sensor detects the rain and turn ON the motor and displays the status of the motor as ON in the LCD. If the rain sensor does not detect the rain, the motor is turned OFF and the status of the motor is displayed is OFF in the LCD. As we are representing this project on a firmware, we will be using a logic state to indicate the rain (logic state=1 indicate rain, logic state=0 indicate no rain).

**Block Diagram:**

A diagram of a computer

Description automatically generated

**Input and Output:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sl.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 |

**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);

int rainSensorPin = A5;

int motorPin = 1;

int motorStatus = LOW;

void setup() {

lcd.begin(16, 2);

pinMode(rainSensorPin, INPUT);

pinMode(motorPin, OUTPUT);

}

void loop() {

int rainStatus = digitalRead(rainSensorPin);

if (rainStatus == HIGH) {

motorStatus = HIGH;

digitalWrite(motorPin, motorStatus);

lcd.clear();

lcd.print("Motor=on");

lcd.setCursor(0,1);

lcd.print("Rain");

}

else {

motorStatus = LOW;

digitalWrite(motorPin, motorStatus);

lcd.clear();

lcd.print("Motor=off");

lcd.setCursor(0,1);

lcd.print("No rain");

}

delay(500);

}

**Schematic:**

A computer circuit board with wires

Description automatically generated with medium confidence