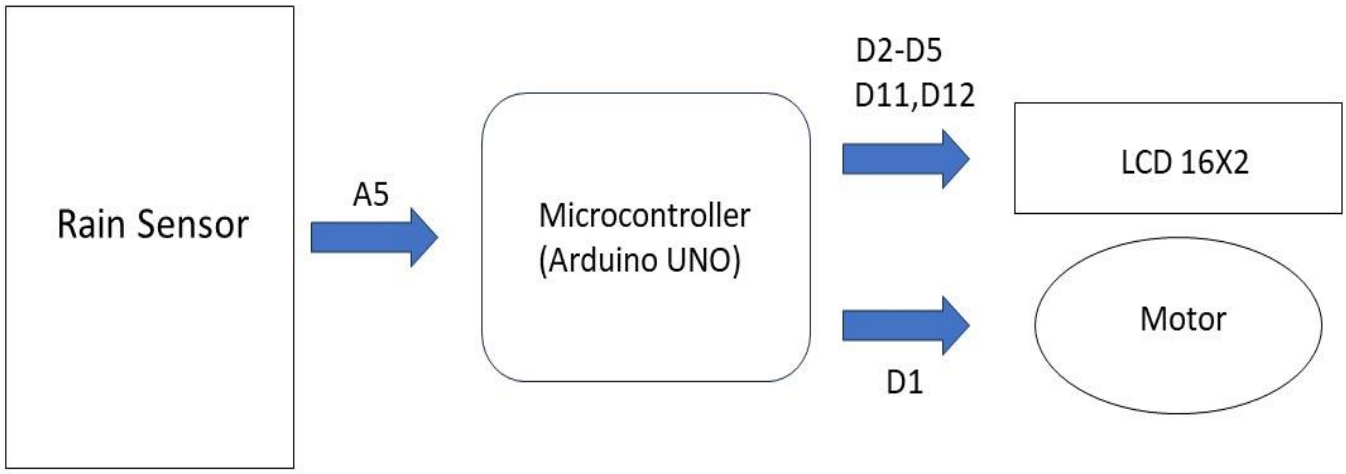
Rain Sensing Motor Control Using Arduino UNO

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:



Input and Output:

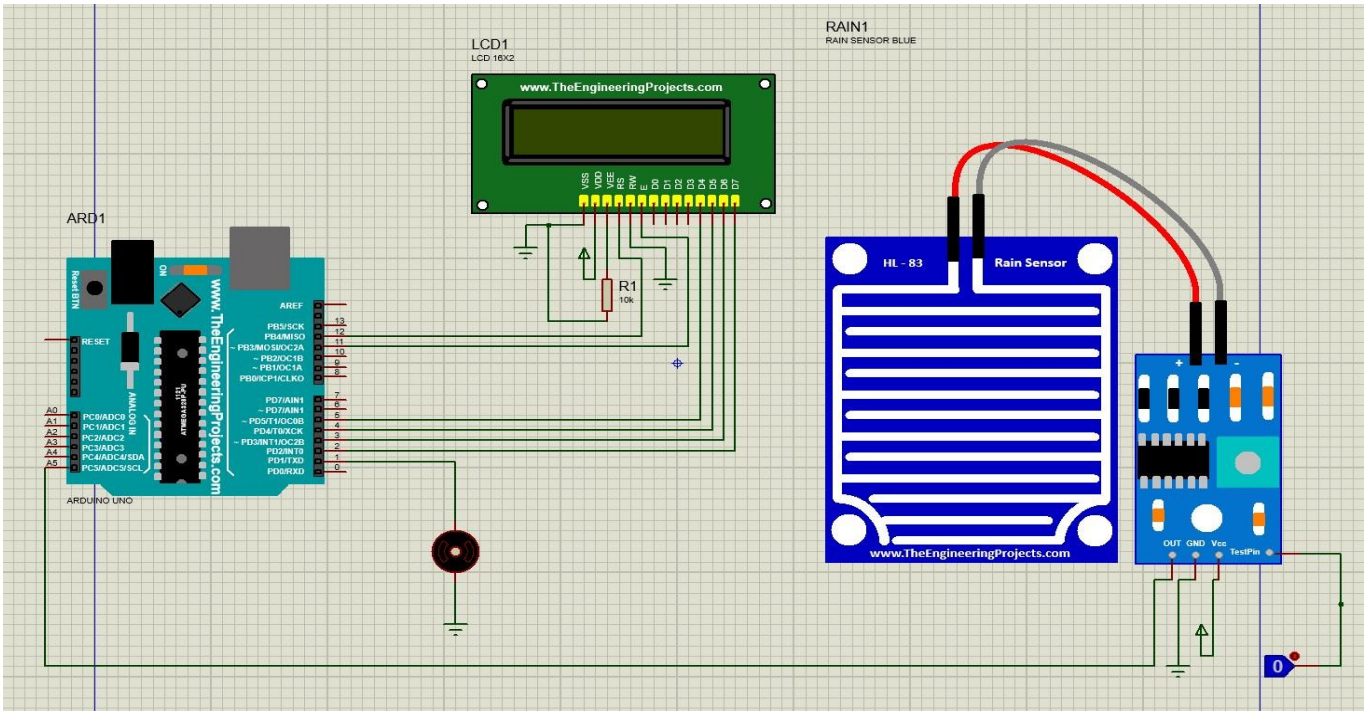
Sl.no	Description	Name	Type	Data Direction	Specification	Remarks
1	Rain Sensor OUT	A5	INP	DI	Digital	Active High
2	Rain Sensor VCC	VCC	OUT	DO	Digital	Active High
3	Rain Sensor GND	GND	OUT	DO	Digital	Active High
4	LCD RST	RS	OUT	DO	Digital	Active High
5	LCD EN	EN	OUT	DO	Digital	Active High
6	LCD DATA 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);
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:


LCD1
LCD 16X2
www.TheEngineeringProjects.com
VSS VDD VEE RS RW E D0 D1 D2 D3 D4 D5 D6 D7
R1
10k
RAIN1
RAIN SENSOR BLUE
HL - 83
Rain Sensor
www.TheEngineeringProjects.com
OUT GND Vcc TestPin
ARD1
ARDUINO UNO
www.TheEngineeringProjects.com
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