

Condition of Motor using Arduino UNO

Description:

In this project scenario, we're utilizing an Arduino UNO board to perform the function of a motor. By using the push button, we can activate or deactivate the motor function. The condition of the motor is presented on an LCD display. To operate this, the push button is linked to an digital pin on the Arduino board. Similarly, the motor is connected to one of the analog pin.

The motor can be turned on or off using a push button. Upon reading a Arduino code for which the motor condition is ON or OFF. When we start the simulation process, the motor starts rotating and the LCD display that the motor is in ON condition. When we press the push button, the Arduino send a signal to motor and it stops automatically and the LCD displays, the motor is OFF. Through these interactions, the project effectively demonstrates control over the motor function.

Block diagram:



Input and Output:

Sl.no	Description	Name	Type	Data Direction	Specification	Remarks
1.	Button Pin	PB1	INP	D1	Digital	Active high
2.	LCD RST	RS	OUT	D0	Digital	Active high
3.	LCD EN	EN	OUT	D0	Digital	Active high
4.	LCD DATA PIN	D4	OUT	D0	Digital	Active high
5.	LCD DATA PIN	D5	OUT	D0	Digital	Active high
6.	LCD DATA PIN	D6	OUT	D0	Digital	Active high
7.	LCD DATA PIN	D7	OUT	D0	Digital	Active high
8.	Motor	PD1	OUT	D0	Analog	Active high

Source Code:

```
#include <LiquidCrystal.h>

// LCD Display setup
const int rs = 12, en = 11, d4 = 5, d5 = 4, d6 = 3, d7 = 2;
LiquidCrystal lcd(rs, en, d4, d5, d6, d7);

// Pin for the push button
const int buttonPin = A5;

// Pin for analog motor control
const int motorPin = 1;

// Variables
int motorState = 0;
int lastButtonState = HIGH;
int buttonState;

void setup() {
    lcd.begin(16, 2);
    pinMode(buttonPin, INPUT);
    analogWrite(motorPin, motorState); // Set initial motor state
    updateLCD();
}

void loop() {
    buttonState = digitalRead(buttonPin);

    if (buttonState != lastButtonState) {
        if (buttonState == LOW) {
            motorState = 255 - motorState; // Toggle motor state (0 to 255 and vice versa)
            analogWrite(motorPin, motorState);
            updateLCD();
        }
    }

    lastButtonState = buttonState;
}

void updateLCD() {
```

```
lcd.clear();  
lcd.setCursor(0, 0);  
lcd.print("Motor: ");  
if (motorState == 0) {  
    lcd.print("OFF");  
}  
else {  
    lcd.print("ON ");  
}  
}
```