



**PROJECT HUB**

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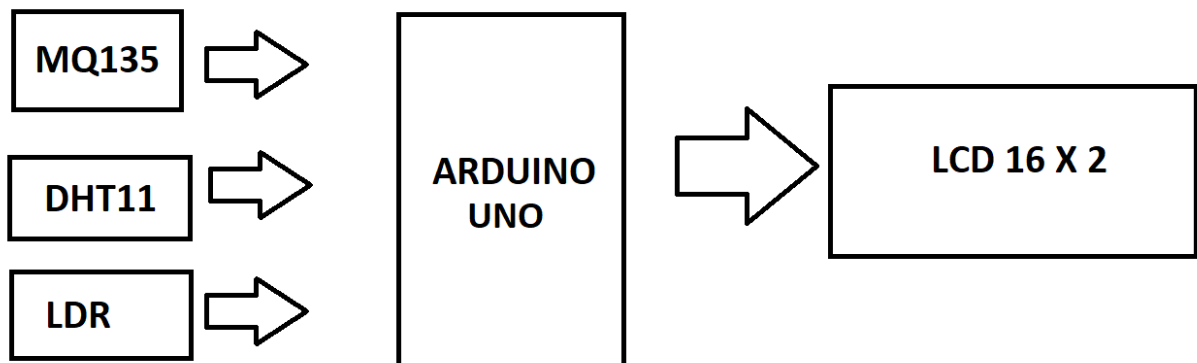
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**SYNOPSIS FOR  
Arduino UNO based Weather Station using 16x2 LCD, DHT11 , LDR and  
MQ135**

## INTRODUCTION :

The Arduino UNO based Weather Station is a project aimed at monitoring and displaying weather-related data using various sensors. The system utilizes an Arduino UNO microcontroller board along with a 16x2 LCD display, a DHT11 temperature and humidity sensor, an LDR (Light Dependent Resistor), and an MQ135 gas sensor. The weather station provides real-time data on temperature, humidity, light intensity, and air quality, making it useful for both personal and professional applications.

## BLOCK DIAGRAM:



## COMPONENT LIST:

- ARDUINO UNO
- MQ135
- LDR
- DHT11
- LCD 16X2
- PRESET 10K
- RESISTOR 10K-1
- RESISTOR 470 OHM -2
- PCB
- 12V ADAPTOR
- DC SOCKET
- 7809
- LED
- MALE HEADER 8 PIN – 2
- MALE HEADER 6 PIN - 2
- FEMALE HEADER 6PIN -2
- FEMALE HEADER 4PIN -1
- FEMALE HEADER 3PIN -1
- SWITCH

## ADVANTAGES:

The Arduino UNO based Weather Station offers several advantages:

- Real-time weather monitoring: The system provides instant temperature, humidity, light intensity, and air quality readings, allowing users to stay informed about the current weather conditions.
- Compact and portable: The Arduino UNO board and sensors can be easily assembled into a small form factor, making the weather station portable and convenient for use in different locations.
- User-friendly display: The 16x2 LCD provides a clear and readable interface for displaying weather data, making it accessible to users of all levels of technical expertise.
- Customizability: The system can be extended to include additional sensors or functionalities according to specific requirements, such as rainfall measurement, wind speed, etc.

## APPLICATIONS:

The Arduino UNO based Weather Station has various applications, including:



- Home weather monitoring: Users can set up the weather station at their homes to track local weather conditions, enabling them to plan outdoor activities accordingly.
- Agricultural monitoring: The system can be used in farming applications to monitor environmental conditions such as temperature and humidity, aiding in crop management and irrigation decisions.
- Environmental research: Researchers can utilize the weather station to collect data on temperature, humidity, light intensity, and air quality for studying local microclimates and environmental trends.
- Educational purposes: The project serves as a practical learning tool for students interested in electronics, programming, and weather science.

### CONCLUSION:

The Arduino UNO based Weather Station provides a cost-effective and efficient solution for real-time weather monitoring. By utilizing sensors such as the DHT11, LDR, and MQ135, the system can collect and display valuable data related to temperature, humidity, light intensity, and air quality. The project offers advantages such as portability, customizability, and user-friendly display, making it suitable for various applications ranging from personal use to scientific research. The Weather Station project serves as an excellent platform for exploring the intersection of electronics, programming, and weather science.