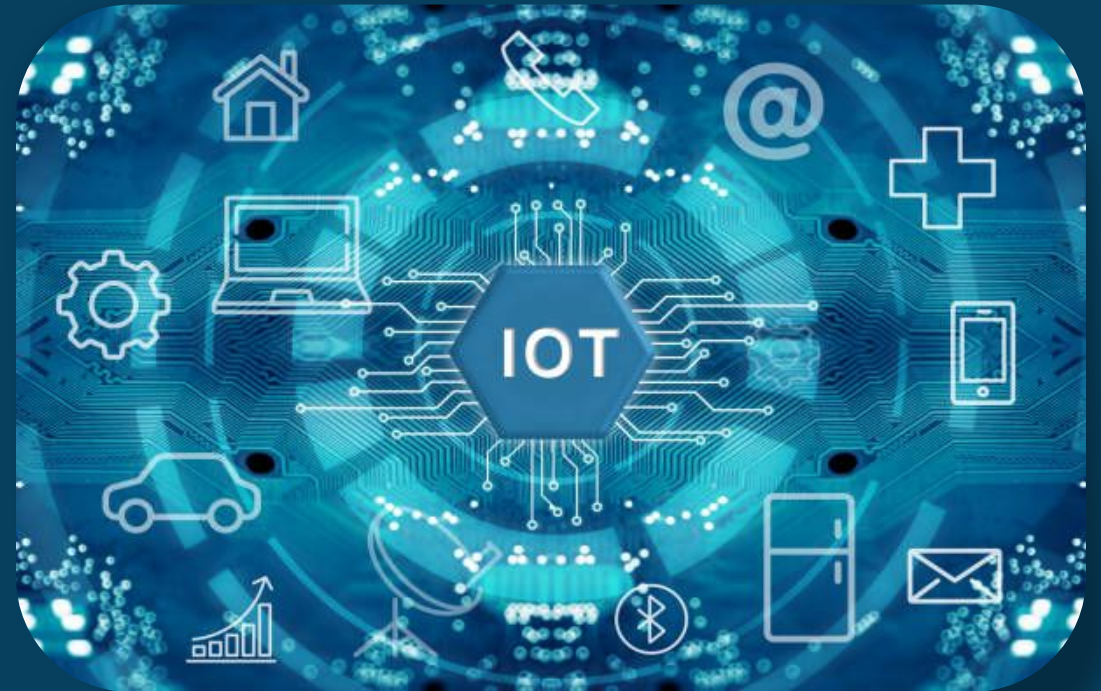A
Mini Project - II
on

AIR MONITORING SYSTEM

Guided By : -
Mrs. D . B . Aghor

Presentation By :-

Yash katkamwar(235)

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COMPONENTS

NODEMCU – ESP8266

o Node MCU is an open-source LUA bas Firmware are developed for the ESP8266 WIFI chip.

o It is a WIFI development board based on CP2|02|C.

o The Node MCU contains a WIFI connection and can connect to the internet through WIFI. It is best suited for IoT applications.
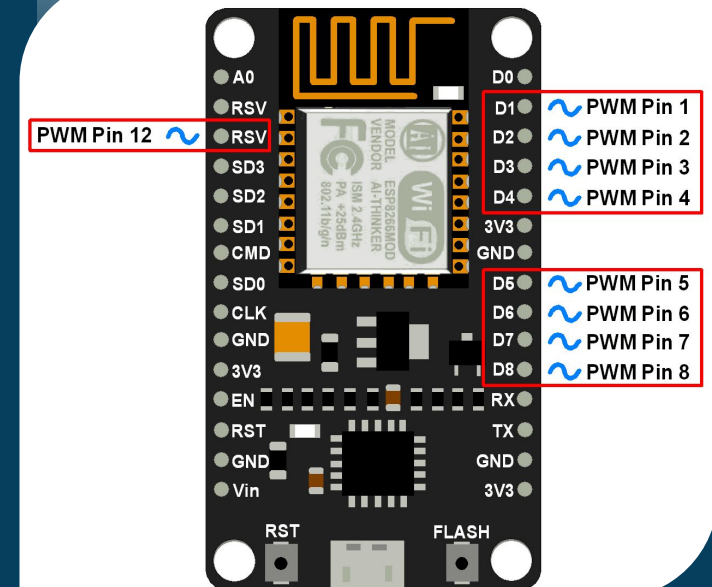
DHT11 - TEMPERATURE & HUMIDITY SENSOR

o It uses a capacitive humidity sensor and a thermistor to measure the surrounding air.

o The sensor can measure temperature from 0°C to 50°C and humidity from 20% to 90% with an accuracy of ±1°C and ±1%.

o The DHT11 is a basic, ultra low-cost digital temperature and humidity sensor.


Ground (3)
Data (2)
Vcc (1)

Vcc (1) Data (2) Gnd (4)
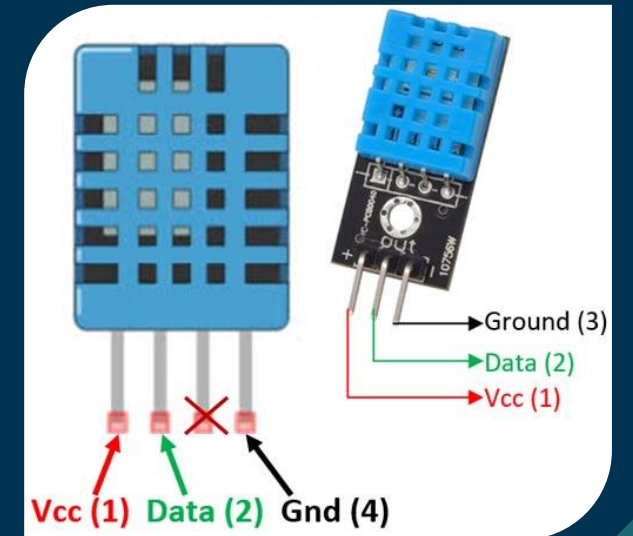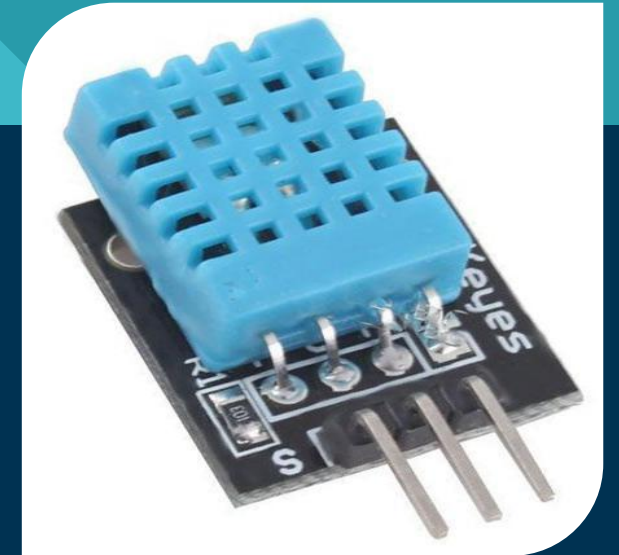
MQ135 – AIR QUALITY GAS SENSOR

o The MQ-135 Gas sensor can detect gases like Ammonia (NH3), sulfur (S), Benzene (C6H6), CO2, and other harmful gases and smoke. Similar to other MQ series gas sensor, this sensor also has a digital and analog output pin.

o The MQ135 air quality sensor module operates at 5V and consumes around 150mA.

o It requires some pre-heating before it could actually give accurate results.

LCD DISPLAY

o An LCD screen is an electronic display module that uses liquid crystal to produce a visible image.

o The 16×2 LCD display is a very basic module commonly used in DIYs and circuits.

o Here, we will accept the serial input from the computer and upload the sketch to the arduino,The characters will be displayed on the LCD.

o The library is based on a compatible chipset called **Hitachi HD44780**.
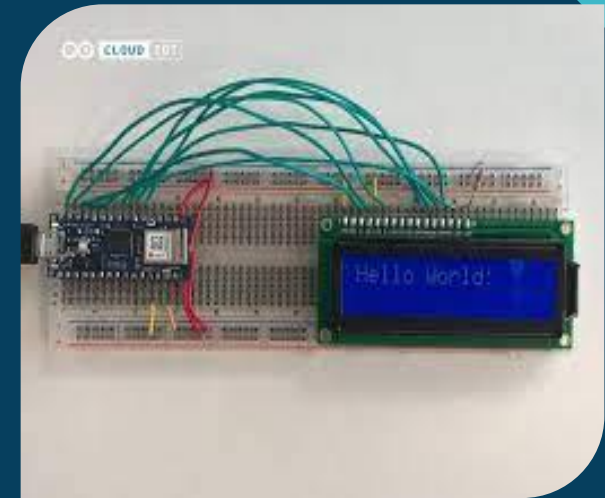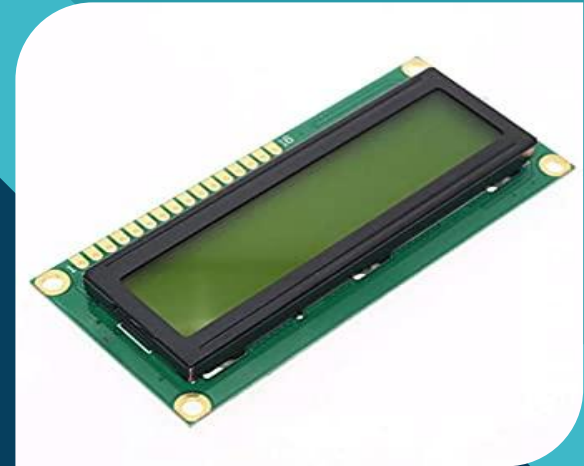
I2C CONVERTER

- o I2C is an acronym that stands for an integrated controller and is a type of bus.

- o An i2c adapter is a synchronous multi-target or multi-controller.

- o t was in intra-board communication, connecting lower-speed ICs to processors and microcontrollers.
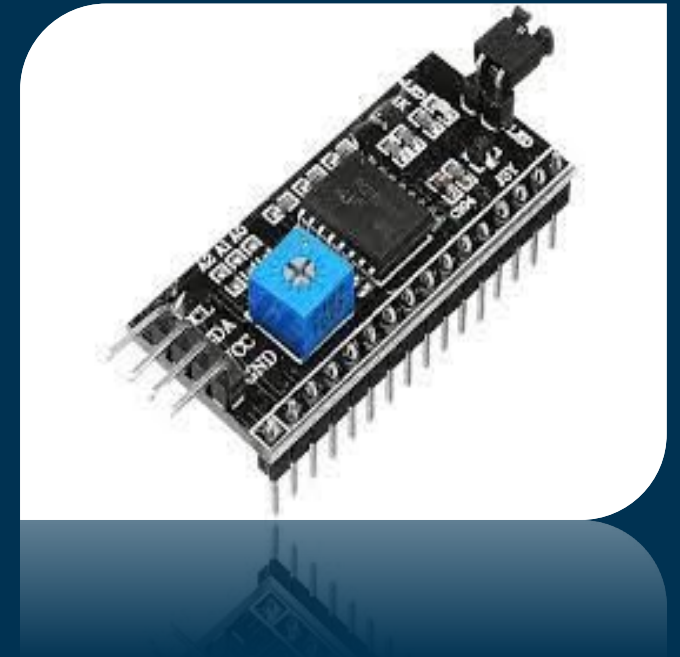
Bread Board

o A breadboard is used to make up **temporary circuits** for testing or to try out an idea. No soldering is required so it is easy to change connections and replace components.

o Unlike a perfboard or stripboard, breadboards do not require soldering or destruction of tracks and are hence reusable.

o Compared to more permanent circuit connection methods, modern breadboards have high parasitic capacitance, relatively high resistance, and less reliable connections.
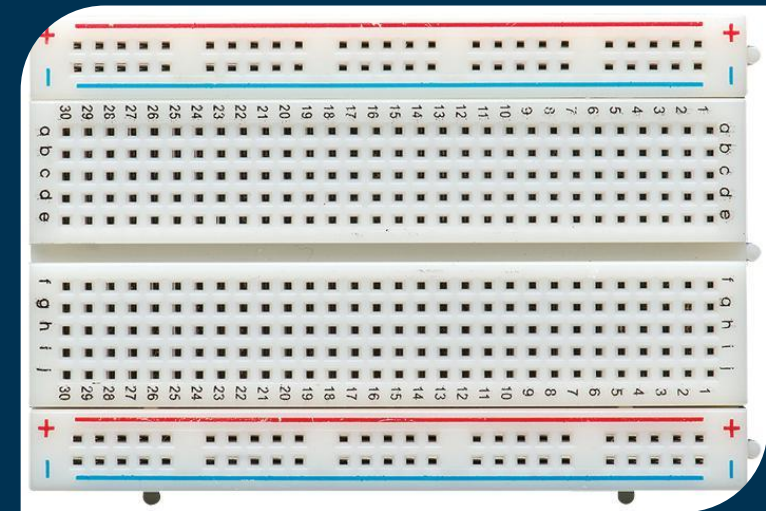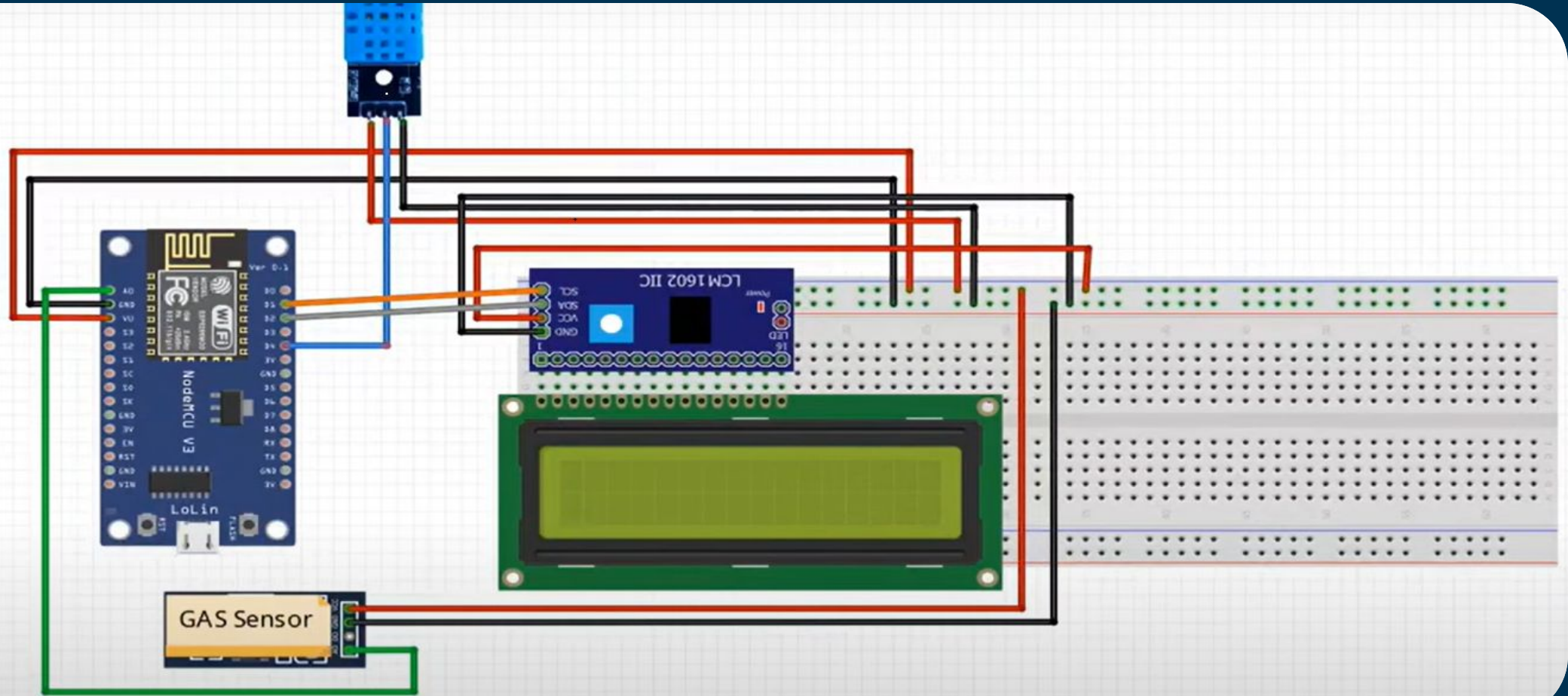
Jumping Wires And Connecting Cables

BLOCK DIAGRAM
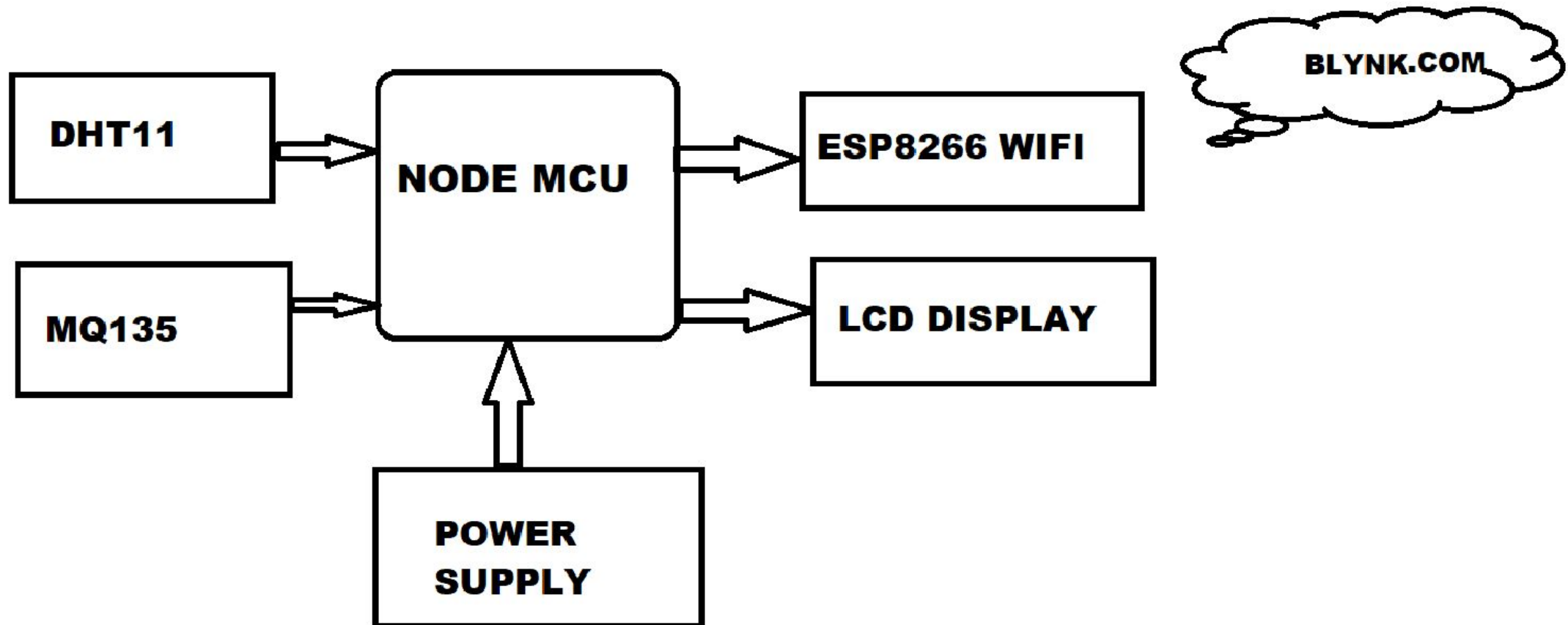
CIRCUIT DIAGRAM

APPLICATION

o It will display data on temperature, humidity and gases on LCD display. The data read from the sensors is also sent to the Blynk via the Wi-Fi module so that data can be monitored remotely.

o It monitors the Air Quality over a environment using NODEMCU and will display gauge in blynk,when the air quality goes down beyond a certain level, means when there are amount of harmful gases present in the air like CO_2, smoke, alcohol, benzene, NH3, NOx and LPG.

o The system can be used for both real-time measurements as well as hourly and daily averaging, in low power modes, and interfaces with a custom Blynk smartphone app, developed for easy user engagement.

CONCLUSION

- Internet of Things Framework is essentially a well-running technology because it provides a common platform to the ordinary man who can afford it at reasonable cost in many of the refinery areas.The system to monitor the air of the environment using NODEMCU microcontroller,The use of IoT technology enhances the process of monitoring various aspects of the environment such as the air quality monitoring issue proposed in this proposed system. Here, using the MQ135 gives a sense of the different types of dangerous gas, and Nodemcu is the heart of this project. Which controls the entire process, Nodemcu module connects the whole process to the serial monitor is used for the visual Output.

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Thank You .