Gases Detected by MQ-3 Sensor

The **MQ-3 gas sensor** is primarily designed to detect **alcohol vapors**, but it can also sense other gases to some extent. Below is a list of gases that the MQ-3 sensor can detect:

Gas Type	Sensitivity Level
Ethanol (Alcohol Vapor)	High
Methanol	Moderate
Benzene	Moderate
Gasoline Vapors	Moderate
Acetone	Low
Carbon Monoxide (CO)	Low

Among these, **ethanol (alcohol vapor) is the primary target** for MQ-3, while it has limited sensitivity to other substances.

Limitations of MQ-3 Sensor

- **Not suitable for detecting non-alcoholic gases** like methane (CH_4) or hydrogen (H_2).
- **Requires calibration** for accurate alcohol readings.
- **Can be affected by humidity and temperature**, which may lead to false readings.

Primary Uses of MQ-3 Sensor

The MQ-3 sensor is **mostly used for alcohol detection** in various applications, including:

1. **Breathalyzers**
    - Used in personal and law enforcement **breathalyzer devices** to measure **blood alcohol concentration (BAC)**.
    - Helps determine if a person is legally intoxicated before driving.
2. **Vehicle Ignition Interlock Systems**
    - Some cars require the driver to **blow into an MQ-3-based sensor** before starting the vehicle.
    - If alcohol is detected, the car will **not start**, preventing drunk driving.
3. **Industrial Safety & Workplace Monitoring**
    - Used in workplaces where **alcohol fumes** may be present, such as **factories, laboratories, or breweries**.
    - Helps prevent accidents caused by exposure to **volatile alcohol-based substances**.
4. **Gas Detection in Laboratories**
    - Detects alcohol and solvent vapors in **chemical research** and **medical laboratories**.
5. **Home Safety & DIY Projects**
    - Hobbyists and engineers use MQ-3 sensors in **custom alcohol detection systems**, such as automated **BAC testers** or **smart vehicle safety systems**.

Conclusion

The **MQ-3 sensor is primarily used for alcohol detection**, making it ideal for **breathalyzers, automotive interlock systems, and safety monitoring**. While it can detect other volatile gases like **benzene or gasoline fumes**, its primary function remains focused on ethanol detection.