



# **SNS COLLEGE OF TECHNOLOGY**

**Coimbatore-35**

**An Autonomous Institution**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



## ***DEPARTMENT OF MECHATRONICS ENGINEERING***

### **19MCE402 – AUTOTRONICS**

**Topic: Antilock braking system & Electronic Suspension System**



# ANTILOCK BRAKING SYSTEM



The Anti-Lock Braking System (ABS) and Electronic Suspension are two distinct but related automotive technologies that enhance vehicle safety, stability, and ride comfort. Here's an overview of each:

## **Anti-Lock Braking System (ABS):**

1. Purpose: ABS is a safety feature designed to prevent wheel lock-up during hard braking, maintaining steering control and reducing the risk of skidding.
2. Wheel Sensors: ABS uses sensors at each wheel to monitor wheel speed. If a wheel begins to lock up, the system intervenes.
3. Pulse Braking: When wheel lock-up is detected, ABS pulses the brakes, momentarily releasing and reapplying brake pressure to prevent the wheel from skidding.



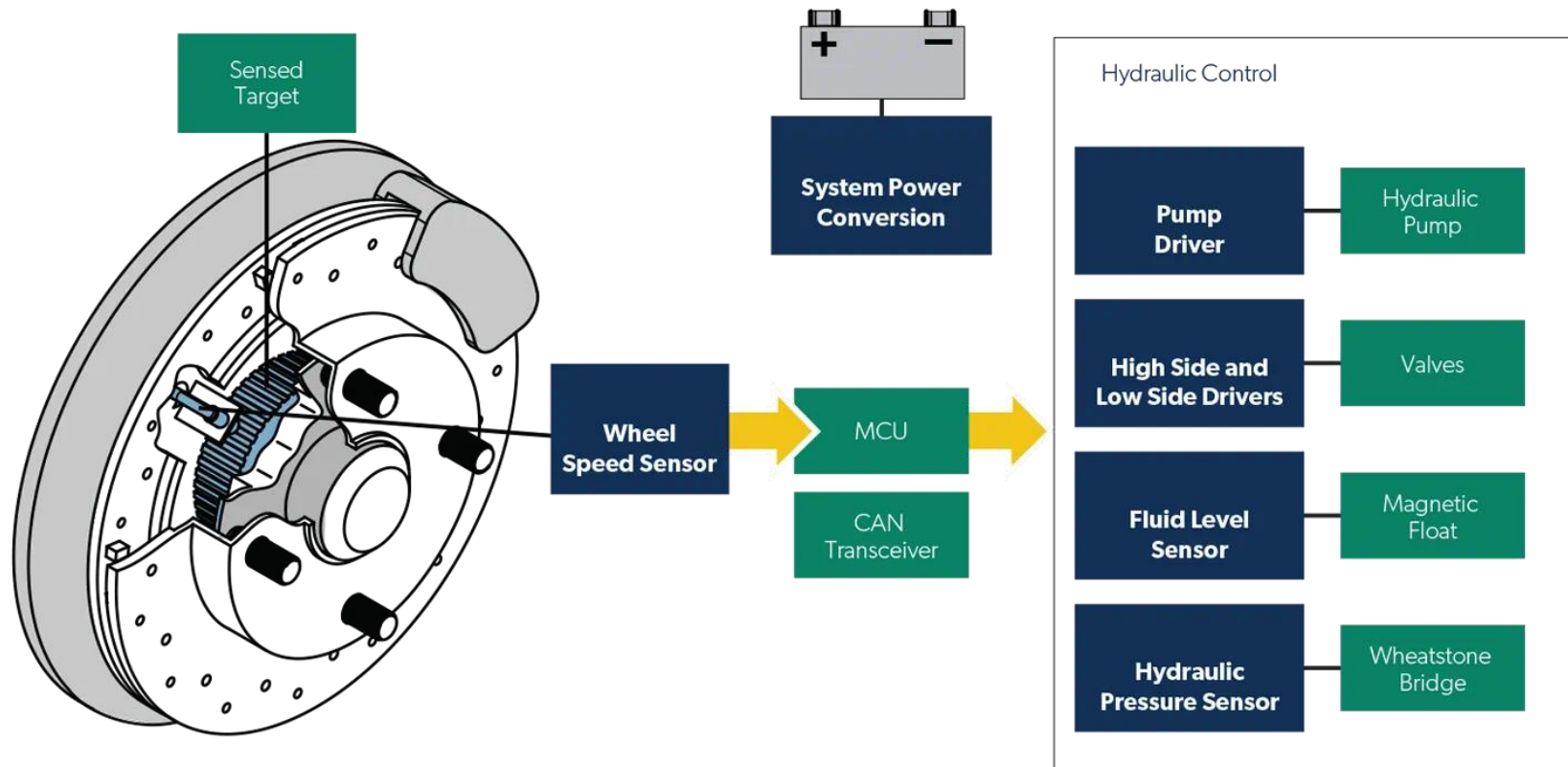
# ANTILOCK BRAKING SYSTEM



4. Steering Control: ABS helps the driver maintain steering control, allowing them to steer around obstacles while braking.
5. Enhanced Safety: ABS significantly improves braking performance in slippery conditions, such as wet or icy roads, reducing the risk of accidents.
6. Standard Feature: ABS is a standard safety feature in most modern vehicles.



# ANTILOCK BRAKING SYSTEM





# ELETRONIC SUSPENSION



## Electronic Suspension:

- 1. Purpose:** Electronic suspension, often referred to as electronically controlled suspension or adaptive suspension, aims to improve ride comfort, handling, and vehicle stability.
- 2. Sensors and Control Unit:** The system uses various sensors (such as accelerometers) to monitor road conditions, vehicle speed, and driving dynamics. A control unit processes this data in real-time.
- 3. Adjustable Dampers:** Electronic suspension typically features adjustable dampers at each wheel. These dampers can be softened or stiffened electronically, providing flexibility in ride comfort and handling.
- 4. Driving Modes:** Many vehicles equipped with electronic suspension offer multiple driving modes that allow drivers to select their preferred suspension settings. For example, "comfort" mode provides a softer ride, while "sport" mode offers a firmer setup for improved handling.
- 5. Road Sensing:** The system can sense changes in road conditions, such as potholes or rough terrain, and adapt the suspension to absorb bumps and maintain vehicle stability.



# ELETRONIC SUSPENSION

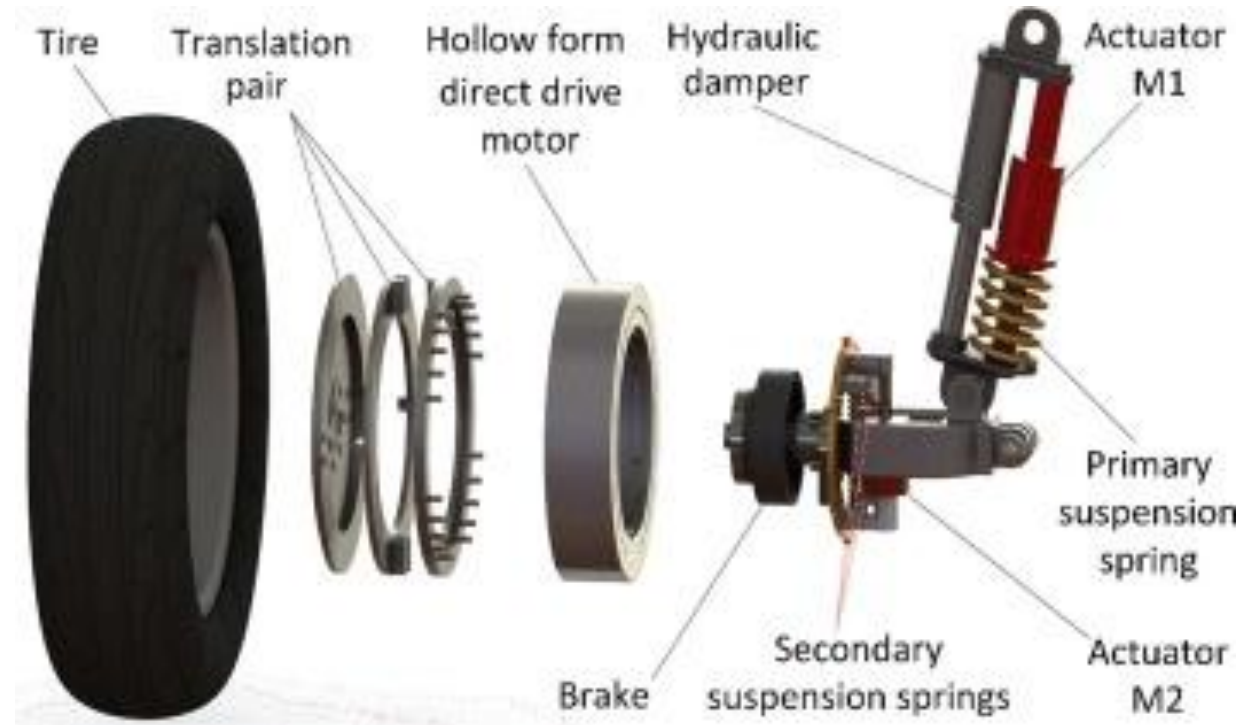


- 6. Enhanced Handling:** Electronic suspension systems contribute to better handling and vehicle stability, particularly in high-performance or luxury vehicles.
- 7. Dynamic Response:** Some advanced systems can counteract body roll during cornering, providing a more level and controlled ride.
- 8. User Customization:** Drivers often have the option to customize suspension settings based on personal preferences, balancing ride comfort and sporty handling.
- 9. Integrated with Other Systems:** Electronic suspension can work in conjunction with other vehicle systems, such as adaptive cruise control and stability control, to optimize performance and safety.

The Anti-Lock Braking System (ABS) is primarily focused on braking safety by preventing wheel lock-up, while Electronic Suspension is geared toward improving ride comfort, handling, and vehicle stability by adjusting the suspension settings. Both technologies contribute to overall vehicle safety and comfort, but they serve different purposes and operate in distinct areas of a vehicle's performance.



# ELETRONIC SUSPENSION





*Thank You*