



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 AUTOMOBILE ENGINEERING

AUTOMOTIVE SAFETY & INFOTRONICS

UNIT V – INFOTRONICS FOR AUTOMOBILES

TOPIC 7: ADAPTIVE NOISE CONTROL





PRESENTATION OUTLINE



- Introduction
- Need of Adaptive Noise Control
- Sound
- Sound Management System
- IC Engine
- Remedial Measures





INTRODUCTION



- Noise control is becoming increasingly important for a wide variety of OEM designers
- Example of products that takes noise control considerations into account during their design cycles including computer hard drives, home appliances, transportation equipment's



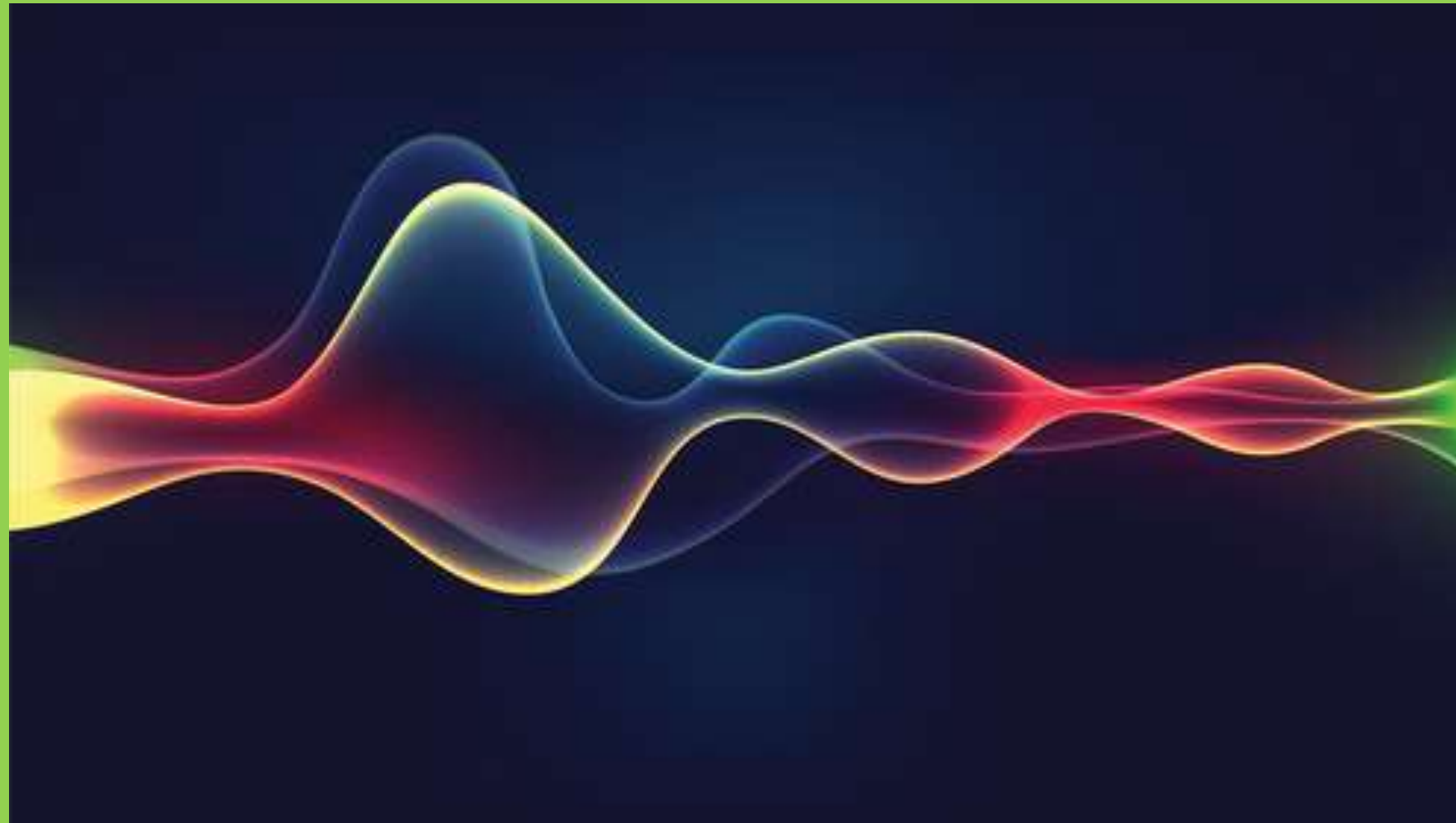
NEED OF ADAPTIVE NOISE CONTROL



- Driver Fatigue / Comfort
- Reduced background noise for communications
- In car entertainment
- Perception in quality



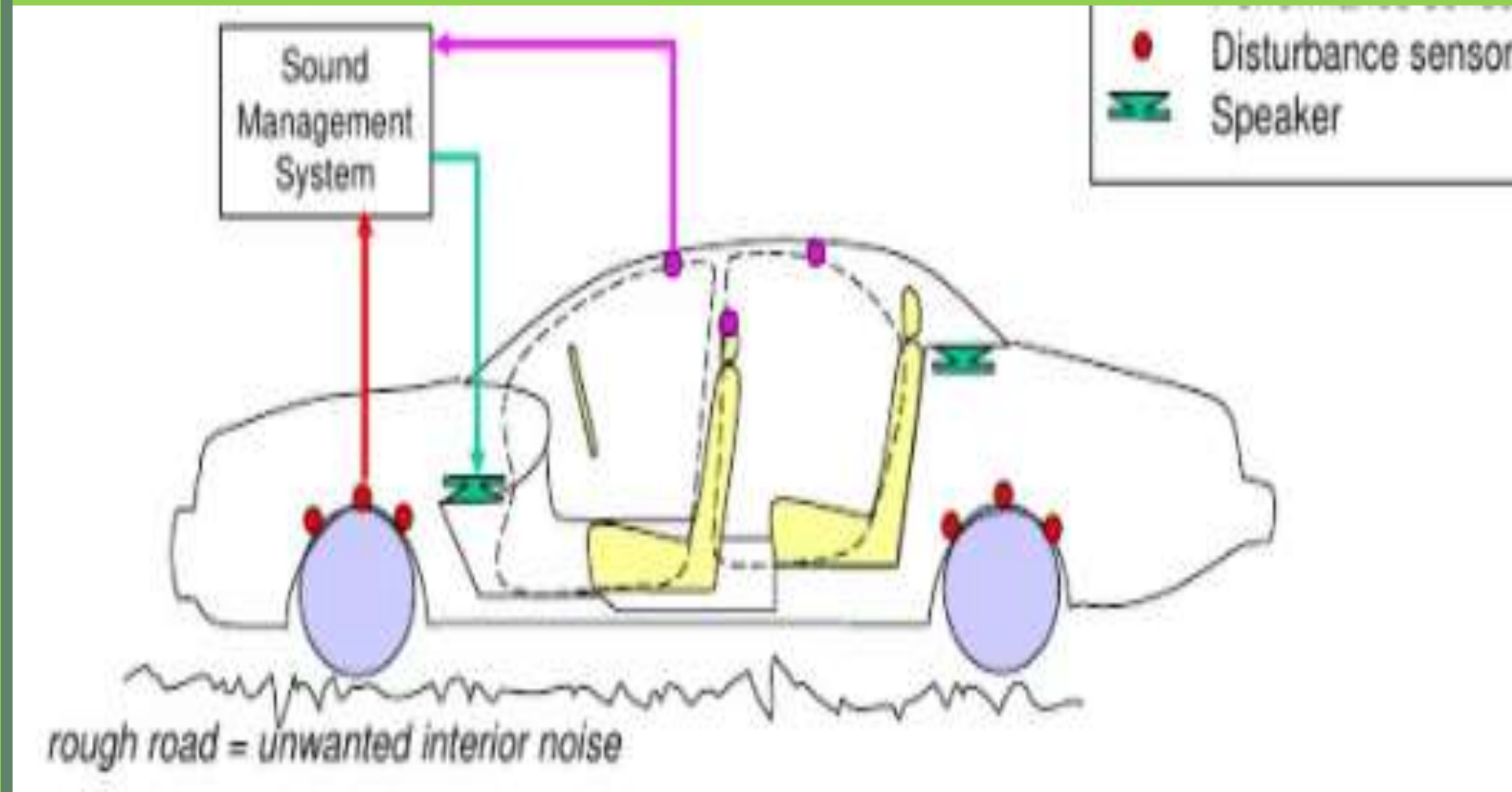
SOUND



- Sound can be defined as the perception of vibrations simulating the ear
- Longitudinal Waves
- Transverse Waves



SOUND MANAGEMENT SYSTEM



- The Sound Management System Supplements the passive sound package to enable improved tailoring of the interior acoustic response



IC ENGINE NOISE



- Classification by Noise Characteristics
- Aerodynamic Noise
- Combustion Noise
- Engine Noise



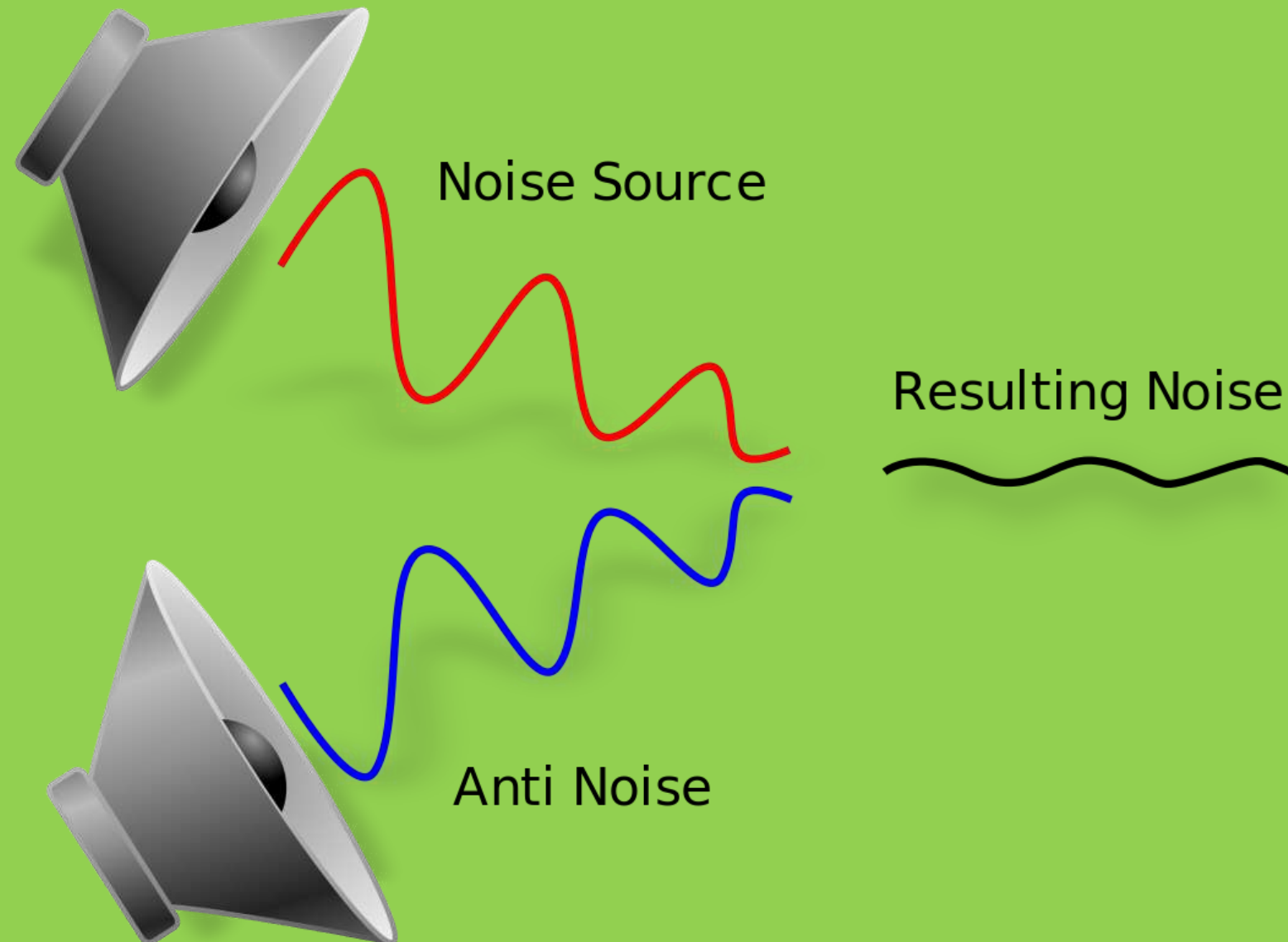
IC ENGINE NOISE



- Classification by Engine Noise Sources
- Exhaust System Noise
- Intake System Noise
- Cooling System Noise
- Engine Surface Radiated Noise



REMEDIAL MEASURES



- Stopping at the source
- Improving the Engineering Noise in many noisy objects has cut noise nearly by 30 decibels
- Government has set up manufacturers a regulation
- Reducing the Sound at the sources by an average of 10 decibels



IC ENGINE NOISE



Sound Insulation: Prevent the transmission of noise by the introduction of a mass barrier

Sound Absorption: A porous material which acts as a 'noise sponge' by converting the sound energy into heat within the material

Vibration Damping: Applicable for large vibrating surfaces
The damping mechanism works by extracting the vibration energy from the thin sheet and dissipating it as heat

Vibration Isolation: Prevents transmission of vibration energy from a source to a receiver by introducing a flexible element or a physical break



REFERENCES



- <https://www.hyundai.news/eu/stories/the-evolution-of-cruise-control/>

Thank you