Reverse Parking Assist

About project: this project is to create a Smart Reverse Parking assist system that helps drivers gauge the distance between the vehicle and obstacles behind it. Using an ultrasonic sensor, the system detects objects in the vehicle's path during reverse parking and displays real-time distance data on an OLED display. This system provides visual feedback to the driver, making parking safer and easier.

Prerequisite

- Distance measurement

- Time

- Speed

- Electric circuit

Learning Outcomes

We Will Learn About-

- Learn about distance and displacement.

- Learn about Wave, Wavelength, Frequency, Amplitude.

- Briefly learn about ultrasonic waves.

- How ultrasonic sensor work in reverse parking

- Applications of ultrasonic sensor

Ask About….

- How is intensity different from brightness?

STEAM

SCIENCE: Energy, Light, Resister, resistivity of light, Intensity, Light, Electric circuit.

ARTs: use different LEDs as our preference.

Technology/**E**ngineering: Introduction to microcontrollers and coding, Sequential programming for smart street light using LDR sensor and 2C LED**.**

Mathematics: The speed of sound is used in calculations, and formulas are applied to determine the distance based on the time it takes for the sound to reflect off the target and echo back to it.
The basic formula for distance calculation is Distance = (Time x Speed Of Sound) / 2
Since the sound wave travels to the object and back, the time is divided by two.