Voltage Measurement Protocol for
Autonomous Vehicle Critical Components

Toos: Multimeter for accurate voltage measurements.

Measurement Specifications

1. L298N H-Bridge Motor Driver

Measured Voltage: 10.98V
Operating Voltage Range: 5V to 35V
Note: The L298N motor driver operates reliably within this voltage range.

2. HC-SR04 Ultrasonic Sensor

Measured Voltage: 4.98V
Operating Voltage: 5V
Note: The sensor can operate reliably within 4.5V to 5.5V voltage range.

3. KY-003 IR Sensor

Measured Voltage: 4.63V
Operating Voltage Range: 3.3V to 5V
Note: The sensor operates correctly within this voltage range.

Measurement Procedure

1. Preparation:

Ensure the robot is powered off.
Inspect all connections for any visible damage or loose wires and switch.
Turn on the robot's power supply.

2. Voltage Measurement:

L298N H-Bridge:

Set the multimeter to DC voltage mode.
Place the black probe on the ground (GND) terminal.
Place the red probe on the motor supply voltage input terminal.
Record the voltage reading.

HC-SR04 Ultrasonic Sensor:

Place the black probe on the GND pin.
Place the red probe on the VCC pin.
Record the voltage reading.

KY-003 IR Sensor:

Place the black probe on the GND pin.
Place the red probe on the VCC pin.
Record the voltage reading.

Documentation And Analysis

Date	Component	Measured Voltage	Operating Range	Status	Notes
28/05/2025	L298N H-Bridge Driver	10.98V	5V – 35V	OK	Within safe operating range
28/05/2025	HC-SR04 Ultrasonic Sensor	4.98V	4.5V – 5.5V	OK	Within proper range
28/05/2025	KY-003 IR Sensor	4.63V	3.3V – 24V	OK	Stable voltage supply