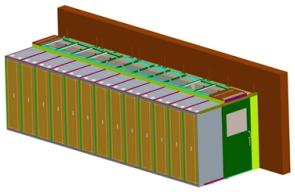
Light Finding and Obstacle Avoidance Module



Overview

Video 19: Detecting Obstacles Learn how to use an ESP32 module and an infrared obstacle avoidance sensor to detect obstacles, with practical demonstrations.

Key Takeaways

A Light Finding and Obstacle Avoidance Module combines infrared sensors for obstacle detection with a photoresistor for light detection, enabling robots to avoid obstacles and seek light sources.

Module Components and Functionality

The module typically includes: Infrared (IR) Transmitter and Receiver: The IR LED emits infrared light, which reflects off obstacles. The receiver detects the reflected IR light to determine the presence of an object in front of the sensor. The detection range is usually adjustable from 2 cm to 30 cm using a built-in potentiometer.

Photoresistor (Light Sensor): Detects ambient light intensity, allowing the module to guide a robot toward brighter areas or follow a light source. Output Pin (OUT): Provides a digital signal—LOW when an obstacle is detected and HIGH when the path is clear. Power Pins (VCC and GND): Typically compatible with 3.

3V–5V microcontrollers like Arduino or ESP32.

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Wiring and Setup

Connect VC

C and GND to the microcontroller's power supply.

Connect the OU

T pin to a digital input pin on the microcontroller. Adjust the potentiometer to set the desired detection distance for obstacles. For light-following functionality, connect the photoresistor to an analog input pin to read light intensity values.

Programming and Applications

Obstacle Avoidance: Continuously read the OUT pin.

If LO

W, stop or change direction to avoid collision. Many tutorials provide Arduino code examples for buzzer feedback or motor control when obstacles are detected. Light Seeking: Read the photoresistor's analog value.

Move the robot toward higher light intensity readings to follow a light source. Combined Behavior: Integrate both sensors to allow a robot to navigate toward light while avoiding obstacles, useful in smart car or autonomous robot projects.

Practical Tips

Ensure the IR transmitter and receiver are aligned properly to avoid false readings. Test the module under different lighting conditions, as strong ambient light may affect IR detection. Use libraries or example sketches provided by the manufacturer for faster implementation and troubleshooting.

This module is widely used in educational robotics, line-following cars, and autonomous obstacle-avoiding robots, providing a simple yet effective way to combine environmental sensing with light-guided navigation.

Article Content

Video 19: Detecting Obstacles

Learn how to use an ESP32 module and an infrared obstacle avoidance sensor to detect obstacles, with practical demonstrations including buzzer feedback. Starter Kit Components: Detailed look at the

YahboomTechnology/Infrared-seeking-light-module

The module is equipped with a pair of infrared pair tube and a photoresistor. The infrared sensor can measure the distance of the obstacle in front, and the

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Arduino IR Obstacle Avoidance Sensor Module KY-032 (HW-488) —

A device that detects emitted light in the invisible infrared range. When it receives a reflected IR light, it means there is an obstacle in front of the IR module.

Obstacle Avoidance Module — SunFounder 3in1 Kit

The IR obstacle avoidance module has strong adaptability to environmental light, it has a pair of infrared transmitting and receiving tubes.

IR Infrared Obstacle Avoidance Sensor Module

This module includes both an Infrared (IR) light out and an IR sensor to pick up the reflection of the light in a specific direction. This makes it easy to build robot that

Buy DJI Matrice 4 Obstacle Sensing Module

The Obstacle Sensing Module combines rotating LiDAR and millimeter-wave radar technologies for enhanced positioning in low-light conditions.

Gikfun Obstacle Avoidance IR Infrared Sensor Module Reflective ...

IR Infrared Obstacle Avoidance Sensor Module can be widely used in robot obstacle avoidance, obstacle avoidance car, line count, and black and white line tracking and so on

KY-032 Infrared Obstacle Avoidance Sensor Module

It emits infrared light, which, when reflected by an obstacle, is detected by a photodiode. The module outputs a digital signal indicating the presence or

Obstacle Avoidance Sensor Module with Arduino – Step by Step Guide

Step 5: Experiment and Navigate Now that the Obstacle Avoidance Sensor Module is set up and detecting obstacles, you can experiment by moving objects in front of the sensor to observe

Obstacle Detector using IR module

IR emitter: a led that emits invisible infrared light. IR receiver: A device that detects emitted light in the invisible infrared range. When it receives a reflected IR light, it means there is an obstacle

Lesson 31 IR Obstacle Avoidance Sensor

Lesson 31 IR Obstacle Avoidance Sensor ¶ Introduction An IR Obstacle Sensor works in accordance with the infrared reflection principle to detect obstacles.

IR Obstacle Avoidance Sensor Module

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IR Obstacle Avoidance Sensor Module Introduction An IR Obstacle Sensor works in accordance with the infrared reflection principle to detect obstacles. When there is no object, the infrared receiver

Arduino IR Obstacle Avoidance Sensor Module KY-032 (HW-488) —

Wire the KY-032 IR obstacle avoidance sensor module with Arduino — 2–40 cm adjustable range, EN pin, wiring diagram, code & Fritzing part included.

How to Use Obstacle Avoidance and IR Tracking Sensors on the Arduino

In this article, we will show you how to use obstacle avoidance and tracking sensors on an Arduino. Obstacle avoidance sensors use infrared light to detect when an object is close to the sensor.

IR Infrared Obstacle Avoidance Sensor – Arduino Tutorial

The module consists of an IR transmitter and an IR receiver, and it can detect objects at a distance of up to 30cm. Hardware Components You will require the following hardware for Interfacing

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Building new systems for obstacle detection and avoidance can highly improve the life quality and then safety level for BVI persons. BVI persons still face various challenges during their

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The obstacle avoidance problem of unmanned aerial vehicle (UAV) mainly refers to the design of a method that can safely reach the target point from the starting point in an unknown flight

LiDAR-Based Obstacle Avoidance: The Ultimate Guide

Modern LiDAR-based obstacle avoidance systems rely on sophisticated sensor arrays that continuously scan the environment. Firstly, we

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This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

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