Serial Communication Implementation via Optical Module



Overview

Goal of this project is to implement a simple serial communication system using optical link and UART. Transmitted data are organized in packets of fixed but arbitrary length. For both communication nodes the two Arduino Minis and for transport. In order to effectively extend the data transmission distance and solve the problems of electromagnetic radiation, electromagnetic interference prevention, non-common ground between point-to-point devices, lightning strike resistance and channel resource sharing when transmitting data through. Used for communication between the Arduino board and a computer or other devices. All Arduino boards have at least one serial port (also known as a UART or USART), and some have several. The Nano ESP32 board is an exception due to being based on the ESP32 core.

Article Content

Optical Serial Communication between Arduino Microcontrollers Using ...

This project demonstrates a low-cost optical serial communication system that uses light as a medium for wireless data transmission between two Arduino microcontrollers.

Arduino-Optical/README.md at master

Goal of this project is to implement a simple serial communication system using optical link and UART. Transmitted data are organized in packets of fixed but arbitrary length. For both communication

© 2026 BAGYOU FIBRE NETWORKS · All rights reserved

Design and implementation of RS232 multi-serial channel

This article gives a design example of a multi-serial channel single-fiber optical terminal with five serial channels based on three Intel82530 serial communication controllers and a single

Serial | Arduino Documentation

Browse through hundreds of tutorials, datasheets, guides and other technical documentation to get started with Arduino products.

Implementation of serial data communication using light

Communication takes place by modulating the intensity of light. The Received information is displayed on Liquid Crystal Display (LCD) is connected to receiver side of the ARM7 processor. The practical

Consulting project: Serial communication over optical (SPDIF

I''m looking for someone to prototype fast, reliable serial communication over fiber optical cable using standard SPDIF transmitter/receiver. This project would include both hardware (can be

White Paper: Management of Smart Optical Modules

In this white paper we explore how the DWDM functions, parameters, and operational aspects of “smart” optical pluggable modules can be handled more efficiently in order to deal with the

Data Communication Among Multiple FPGA Boards with GTP

This research work is to design a optical digital communication system with multiple FPGA boards, which can transmitted serially. In order to enable high-speed and reliable transmission

Arduino Encoded and Modulated Laser and Infrared Serial

Do you want to learn how to communicate wirelessly between two computers using lasers / LED''s and photo-receivers? Need to send a signal that is robust to noise? Here is the solution for you.

Serial Communication

If serial I/O hardware is not provided, it is easy to develop software to implement the serial data communication using any I/O pin of a microcontroller. The PIC18F series of microcontrollers have

Optical Module: A Comprehensive Analysis from Source

© 2026 BAGYOU FIBRE NETWORKS - All rights reserved

Optical modules are key transmission components in communication networks, and their applications, technologies, types, and terminology are

What Is An Optical Link Module? Use Case & Function

Discover what an Optical Link Module is, how it functions, and its key use cases in modern communication systems. Learn more to enhance your network''s

8051 to 8051 Serial Communication using Fiber optics

Aim To Study the 8051 Serial Communication using Fiber optics Apparatus Required Fiber Optics Digital Transmitter Module – 01 Fiber Optics Digital Receiver Module – 01 Plastic Fiber

The Most Comprehensive Guide Of Optical Modules

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics & how to choose the right module for your fiber network.

Two-way serial communication over a single optical fiber

However, a drawback of fiber optics is that usual transmitters and receivers are unidirectional. Two-way communication usually requires two fibers running in parallel, and also two pairs of optical

A Miniaturized Optical Communication Module: Design, Development,

And the optical communication module is a key component to achieve high-speed and large-capacity optical communication. This paper aims to design and manufacture a miniaturized optical

(PDF) Design and Implementation of UART Serial Communication Module ...

Design and Implementation of UART Serial Communication Module Based on FPGA Biswajit Roy Dakua, Md. Ismail Hossain and F oisal Ahmed Department of Electronics &

Understanding Optical Modules: Types and Troubleshooting Guide

What is an Optical Module? The Ultimate Guide to Principles, Types, and Troubleshooting Working Principle of Optical Modules Optical Modules (also known as Optical Transceivers) are critical

© 2026 BAGYOU FIBRE NETWORKS - All rights reserved

Contact Us

Continue your research online:

Website: https://bagyou.es
Technical inquiry: https://bagyou.es/project-enquiry.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.



© 2026 BAGYOU FIBRE NETWORKS - All rights reserved