Composition and Function Diagram of an Eye-Controlled Device



Overview

EYE CONTROLLED MOUSE CURSOR The project's purpose is to create a simple, free, and configurable eye-gesture monitoring system using webcam-computer technol.

Key Takeaways

An eye-controlled device typically consists of a sensor unit (camera or LDR), a processing unit, and an output interface, translating eye movements into commands for computers or security systems. Components of an Eye-Controlled DeviceSensor UnitWebcam or Eye Tracker: Captures real-time images of the user's eyes and face for cursor control or communication purposes. Light Dependent Resistor (LDR): Used in simpler electronic eye systems to detect shadows or light changes for security applications.

Processing Unit

Image Processing Software: Detects eye position, tracks movements, and converts them into actionable commands using algorithms like decision trees. Microcontroller or Logic Circuit: In LDR-based systems, it interprets signals from the sensor and triggers outputs such as buzzers or LEDs.

Power Supply

Provides stable voltage to the device. For LDR-based systems, a 9V battery is commonly regulated to 5V using a voltage regulator like 7805.

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Output Interface

Computer Cursor or Communication Software: Moves the cursor or executes commands based on eye gestures. Alarm or Indicator: In security systems, a buzzer or LED is activated when a shadow is detected.

Function Diagram

Block Diagram Overview: Eye Movement / Light Detection → Sensor Unit → Processing Unit → Output InterfaceStep 1: Detection – The sensor captures eye movement or light changes. Step 2: Signal Processing – The processing unit analyzes the input and determines the corresponding command. Step 3: Command Execution – The output interface performs the action, such as moving a cursor, sending a message, or triggering an alarm.

Example for Eye-

Controlled Cursor: Webcam captures eye position → Image processing software detects gaze direction → Cursor moves on screen → Blinking can trigger clicks or app commands. Example for LDR-Based Security System: LDR detects shadow → Microcontroller interprets signal → Buzzer sounds and LED lights up → Alerts homeowner of presence.

Applications

Assistive Technology: Enables physically disabled users to control computers hands-free. Security Systems: Detects unauthorized entry using shadow detection. Automation: Doorbells, garage doors, or other devices triggered by presence detection.

This composition and function diagram illustrate how eye-controlled devices integrate sensors, processing, and output mechanisms to translate visual input into actionable commands efficiently.

Article Content

EYE CONTROLLED MOUSE CURSOR

The project''s purpose is to create a simple, free, and configurable eye-gesture monitoring system using webcam-computer technology that accurately tracks eye movements and set controls for eye-based

How to Build a 3D Printed Animatronic Eye with Arduino

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3D Printed Animatronic Eye Circuit DiagramArduino Code For Controlling The Animatronic EyeTesting and Debugging The 3D Printed Animatronic EyeThe schematic diagram of the DIY 3D printed animatronic eye is shown below, and as you can see it''s very simple and easy to understand. Although the PCA9685 IC, a 16 Channel 12-Bit PWM Servo Motor Driver, is used in the schematic diagram provided by the project''s designer and author, we will not be using it for this project because the Servo See more on circuitdigest Scribd

Electronic Eye Security System Circuit

This document describes an electronic eye controlled security system circuit that uses a light dependent resistor (LDR) to detect changes in light and trigger an alarm.

Electronic Eye Controlled Security System Circuit using LDR

In this project, we will see a simple Home Security application called Electronic Eye Controlled Security System using LDR as the main sensor and a few other components.

Presentation on Electronic Eye controlled Security System

The document describes an electronic eye-controlled security system, also known as a magic eye, which automatically alerts homeowners when someone approaches, enhancing security.

EYE CONTROLLED WHEEL CHAIR SYSTEM FOR PHYSICALLY

Eye blink sensor senses whether eye is open or closed. The eye-blink sensor works by illuminating the eye and/or eyelid area with infrared light and then monitoring the changes in the reflected light using

Microcontroller based Electronic Eye Controlled security System

The document outlines the design of an electronic eye-controlled security system intended for use in cash boxes, lockers, and various public locations. This system utilizes a light-dependent resistor

Light Dependent Resistor based Electronic Eye Controlled Security

Light Dependent Resistor – based Electronic Eye Controlled Security System. Yisau I. Bolanle Department of Science Laboratory Technology, Federal Polytechnic, Ilaro, Ogun State, 111101, Nigeria.

Eye-controlled wheelchair

Abstract- This document outlines a method for implementing an eye tracking device as a method of electrical wheelchair control. Through the use of measured gaze points, it is possible to translate a

Eye Controlled AI Assistive Device : Empowering Paralyzed

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Eye Controlled AI Assistive Device : Empowering Paralyzed Individuals Abstract: This innovative system presents an eye-controlled wheelchair for people with mobility impairments and uses real-time eye

Structure and Function of the Human Eye

Learn how the human eye works, including the parts of the eye''s structure, the functions of each part of the eye, and common vision problems.

Eye Diagram

Diagram of the Eye Study the diagram below or click here for an interactive study guide and game! Cornea: curved to bend light into your eye, its tough and clear like a windshield to protect your eye

Electronic Eye Circuit – Using LDR and IC 4049 For Security Control

Electronic eye circuit uses a photodetector for detecting the presence of a light. Then according to the intensity of light this device turns ON the light when it becomes dark and vice versa.

Eye Tracking Based Control System for Natural Human-Computer ...

However, user should choose the desired function first and then do the real interaction with computer, which goes against user intuition and it is not natural to use. In order to provide more

A device controlled using eye movement

A device controlled using eye movement Abstract: Research carried out in this technical paper suggests an application of the widely implemented eye tracking techniques. Traditionally, HCI uses mouse,

(PDF) IMouse: Eyes Gesture Control System

For this purpose, we propose an imouse gesture control system which is completely operated by human eyes only.

Eye Tracking Devices: Technologies and Applications

Discover the main types of eye tracking devices, how they work, and their applications in research, user experience, healthcare, marketing, and

Parts of the eye and their function

Explore the roles of the eye''s key structures—cornea, iris, retina, optic nerve—and understand how they work together for perfect vision.

Structure and Function of the Eyes

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The structures and functions of the eyes are complex. Each eye constantly adjusts the amount of light it lets in, focuses on objects near and far, and produces continuous images that are instantly

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

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