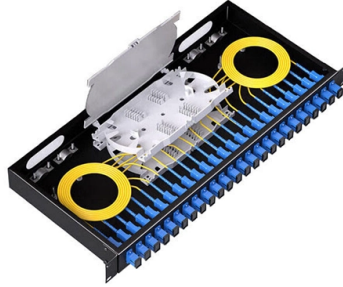


AP Optical Flow Module



AI Overview

The AP Optical Flow Module is a software and hardware interface in ArduPilot that enables drones to estimate velocity and position using optical flow sensors, particularly in GPS-denied environments.

Overview

The AP Optical Flow Module is part of the ArduPilot libraries and supports multiple optical flow sensors, including PX4Flow, PixArt, CXOF, MAVLink-based sensors, and others . It allows drones to measure motion relative to the ground by analyzing sequential images from a downward-facing camera, often combined with a distance sensor like LiDAR or sonar for altitude reference . This module is essential for position hold, loiter, and navigation in indoor or GPS-denied areas.

Supported Sensors and Hardware

Common sensors compatible with the module include:

- PX4Flow: A popular optical flow sensor with integrated distance measurement.
- PixArt PAA3905: Used in modules like Holybro H-Flow.
- Holybro H-Flow: Combines a PixArt optical flow sensor, Broadcom distance sensor, and a 6-axis IMU in a compact module .
- Other modules: CXOF, UPFLOW, MSP, and MAVLink-based optical flow sensors . These sensors can connect via MAVLink, I2C, or DroneCAN, depending on the hardware and flight controller.

Functionality

Article Content

[ardupilot/libraries/AP_OpticalFlow/AP_OpticalFlow_PX4Flow.cpp](#)

ArduPlane, ArduCopter, ArduRover, ArduSub source. Contribute to ArduPilot/ardupilot development by creating an account on GitHub.

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[ardupilot/libraries/AP_Scripting/applets/ahrs-source-extnav ...](#)

-- this script is intended to help vehicles automatically switch between ExternalNav and optical flow

[DroneCAN Optical Flow | Vimdrones Can Flow | Ardupilot | PX4 | AP ...](#)

Sold out Open Source Dronecan Optical Flow and Distance Sensor Module Specification ... Download: [dronecan.github.io/](#)

Estimating optical flow: A comprehensive review of the state of the art

Notably, the state-of-the-art performance achieved by VideoFlows (Shi et al., 2023) is attributed to its utilization of a

ARCHIVED:Mouse-based Optical Flow Sensor (ADNS3080)

ARCHIVED:Mouse-based Optical Flow Sensor (ADNS3080) Note This page is archived and the device is no longer supported in

LiteWing PMW3901MB Optical Flow Sensor Guide

Master PMW3901MB optical flow sensor on LiteWing drone. Learn velocity calculation from pixel deltas, position

Optical Flow: Revolutionizing Motion Detection

Explore optical flow, a key computer vision field for motion detection and scene dynamics. Learn about classic and

[AP_OpticalFlow: Add initialization support for UPixels UPFLOW optical ...](#)

The difference is identified by checking the silk screen on the PCB. After the optical flow module is powered on, it

Optical flow options-2020

Hello! I am trying to figure out which optical flow options are best to start with. When new hardware experimenting

[ardupilot/libraries/AP_OpticalFlow/AP_OpticalFlow.h at master](#)

Vector2f flowRate; // optical flow angular rate in rad/sec measured about the X and Y body axis. A RH rotation about a sensor axis

Optical Flow Sensor Testing and Setup — Copter

The full parameter list is below assuming the pilot will engage the calibration using RC input 8 (a 2-position

Optical Flow | PX4 Guide (main)

The Holybro H-Flow is a compact DroneCAN optical flow and distance sensor module. It combines a PixArt

ardupilot/libraries/AP_OpticalFlow at master

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AP_OpticalFlow_SITL.cpp

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ardupilot/libraries/AP_OpticalFlow/AP_OpticalFlow.cpp at master ...

// @Description: This sets the parts per thousand scale factor correction applied to the flow sensor X axis optical rate. It can be used

(EOL) Optical Flow 3901-L0X - MATEKSYS

Communication between 3901-L0X module and Flight controller via UART MSP V2 protocol supported by INAV and ArduPilot. There

Ardupilot optical flow code analysis

The PX4Flow (optical flow) sensor is a dedicated high-resolution downward pointing camera module and a three-axis gyroscope that

Optical Flow Sensors (landingpage) — Copter documentation

Copter, Plane and Rover support Optical Flow Sensors. These are camera modules that use ground texture and visible features to

Optical Flow | PX4 Guide (main)

Optical Flow uses a downward facing camera and a downward facing distance sensor for velocity estimation. It can be used to

Contact Us

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