SkyView

Autopilot Developers Kit

Contents

We offer a product package which contains all the components to get your unmanned vehicle flying. The solution consists of an EasyPilot 3.0 autopilot to steer the vehicle in-air, data modem, RC-switch board, pitot tube and a software development package for customization of the autopilot. You get partial source code access to main processor in the autopilot and also part source code access to the NATO STANAG 4586 ground software component i.e. the SkyView EasyPilot VSM (Vehicle Specific Module).

The solution is a very cost-effective solution, and is aimed for miniature unmanned vehicles. This is achieved through agile and responsive development to give the customer the most value for the money.

Package Includes

- Autopilot Software Developers Kit
  - Develop your own control algorithms
  - Extend the communication protocol
  - Add additional analog inputs
  - Add additional I/O ports
  - Support for 3rd party Cameras/Payloads
- STANAG 4586 compliant EasyPilot VSM with partial source code. This allows you to modify part of the GCS including the vehicle specific display visible in SkyView GCS
- SkyView EasyPilot 3.0 (autopilot)
- Programming cable
- Air modem
- Ground modem
- RC-switch board

Technical Overview

Why an ADK?

The Autopilot Developers Kit (ADK) provides your organization with the ability to integrate existing unmanned vehicles into a STANAG 4586 compliant network. With the ADK you have full control over the control algorithms, communication protocol and payload control onboard the autopilot. You are not limited to the source code on the autopilot but you may also modify the EasyPilot VSM on the ground. This means that you can and add new functionality to the communication with the GCS. The EasyPilot VSM comes with a vehicle specific display, which is visible through the operator interface in the STANAG 4586 compliant GCS software such as SkyView GCS.

This ADK will dramatically speed up your STANAG 4586 integration process and also make it easier to keep up to date with the latest edition of STANAG 4586.

What hardware is included?

The ADK installation package includes the following hardware components.

SkyView EasyPilot 3.0 - Miniature Autopilot

This is our easy to use autopilot that allow you to control your unmanned vehicle. The autopilot has two (2) processors, one for sensor data acquisition and fusion and one main processor for control algorithms, data communication and payload control. The autopilot has multiple interfaces such as PWM servo ports, serial ports, IO ports, AD ports, I2C etc.

Air and Ground Data Modem

The ADK comes with a data modem which allow communication up to 50 km LOS. We provide either a 869 MHz, 900 MHz or 2.4 GHz version at your request. The ground modem is included as well.

Pitot Tube

The ADK comes with a pitot tube which allow you to get static (altitude) and dynamic pressure (airspeed) from the autopilot.

RC-Switch Board

The ADK comes with a RC-switch board which allow you to connect your PWM compliant RC receiver to the autopilot. With the RC-switch board in place you can safely switch control between R/C-pilot and autopilot via a 5th channel on the R/C-transmitter. This will safe your vehicle in case your experimental control logic does not work out as intended.

What software is included?

The ADK installation package includes the following software components.

Partial Autopilot Main Processor Code

The API on the main processor autopilot consists of C source files and precompiled libraries that implement the default functionality. Parts of the public interface of the API can be replaced with your specific code. This allows you to easily integrate your own control algorithms, communication protocol and payload control.

Partial EasyPilot VSM Source Code

The partial source code contained in the ADK demonstrate how to extend the EasyPilot VSM applications using the DLI API. It also shows you how to extend the vehicle specific display which is available in the STANAG 4586 compliant GCS such as SkyView GCS. The source code are written in platform independent C++. Ready to compile projects for Visual Studio 2008 are included.

EasyPilot Developers Guide

The developers guide, in the form of a pdf file named SkyView EasyPilot Developer Guide.pdf, provides information how to setup the programming environment as well as give you examples how you can modify the main processor on the EasyPilot.

SDK Programmer's Reference

This reference provides a complete listing of the classes provided by the API as well as their attributes and methods.