Lehrstuhl für
Flugsystemdynamik

Technische Universität München

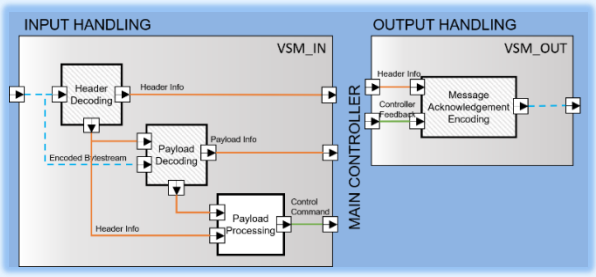
Term Paper (Semester Thesis)

Implementation of Data-Link Communication Functions for a UAV Control System

SW Development / Flight Guidance

Task Description:

STANAG 4586 (AEP-84) is a communication standard for Unmanned Air Vehicle Control Systems. The objective of this term paper is to enhance the functionality of a so-called Vehicle Specific Module (VSM), which decodes received STANAG 4586 datalink messages and translates them into a format that is readable by other functional modules of the onboard flight guidance and control system. The VSM has been developed utilizing a hybrid approach, which combines the advantages of manual C code programming and model-based software development. Your task is to apply this hybrid approach and implement functions for processing datalink messages related to geofencing and mission management.



Work Packages:

- Set up development environment (preferably Eclipse) for process compliant C programming
- Capture Low-Level Requirements for manually written C Code functions
- Write C code for encoding and decoding of STANAG 4586 (AEP-84) messages for geofencing and mission management
- Verification of manually written C code in development environment
- Integration of manually programmed C code into Simulink model for a STANAG 4586 (AEP-84) Vehicle Specific Module (VSM) software
- Implement interface to existing functional modules for geofencing and mission management in MATLAB Simulink
- Verification of VSM functions in model-in-the-loop simulation

Requirements:

- Knowledge of C programming is required
- Experience in MATLAB programming language and Simulink is desired

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