RUHR-UNIVERSITÄT BOCHUM

RUB

FrontSeat

Fostering Opportunities Towards Slovak Excellence in Advanced Control for Smart Industries

FrontSeat Summer School on Optimization-Based Embedded Control Systems

Aero Shield Identification

IV – Project Work

File Overview

C++/Arduino:

- main.ino: Executes predefined input sequences on the AeroShield and prints the input and measured output via serial monitor
- aprbsU.h: Defines input sequence for identification
- aprbsU_val.h: Defines input sequence for validation of identified model

Matlab:

- AeroShield_Identification.m: Executes the identification, using the (previously) collected data for identification and validation and saves the obtained model in a .mat-file
- SerialReader.m: Defines the serial reader class. Does not need to be touched!
- CollectData.m: Starts and stops the serial reader and saves collected data to a .mat-file

How to run the identification

1. Flash & run main.ino with the identification input sequence.
2. Start the serial reader in CollectData.m at the 3 beeps to collect identification data and rename your collected data accordingly.
3. Flash & run main.ino with the validation input sequence.
4. Start the serial reader in CollectData.m at the 3 beeps to collect validation data and rename your collected data accordingly.
5. Run AeroShield_Identification.m to obtain the identified model.