Weekly Reports

This is the weekly report throughout the period of the Bachelor Thesis project at ASL. The weekly meeting notes are here.

The reports will be done & sent out on every Sunday, 3pm CET until the end of the project (Mar 8, 2023).

Week 2 - Nov 28, 2022 ~ Dec 4, 2022

Week 1 - Nov 21, 2022 ~ Nov 27, 2022

I spent Monday ~ Friday totalling around 10+ hours (other times were spent on german studies/student association contacts, etc: Too ambitious start!) on the topic regarding understanding different papers (summarized in Literature Review document), and trying to make sense of different nomenclatures and concepts.

However, although I went over diverse set of papers (majorly L1, L2, etc), I didn't take enough time to actually understand them to a level where I actually thought about how this would manifest differently on different vehicle types.

Literature Review

1. Found out that **Quadrotors** already utilize L1 control
    a. *Geometric L1 Adaptive Attitude Control for a Quadrotor Unmanned Aerial Vehicle*
2. A Survey (via simulation) found out: **Vector Field (VF)** based path following is superior, and **Non-Linear Guidance Law** assimilates the VF method
    a. *Unmanned Aerial Vehicle Path Following: A Survey and Analysis of Algorithms for Fixed-Wing Unmanned Aerial Vehicless*
3. New concepts
    a. Back-stepping
    b. Adaptive control
    c. Pure pursuit
    d. Line-Of-Sight

Thesis Problem Formulation

Mostly did literature review in Fixed-Wing UAVs (L1, L2+, NPFG, etc), still unclear how the path following itself will manifest / come into play differently for multicopter vs fixed-wing.