Flight Control Lab Carousel

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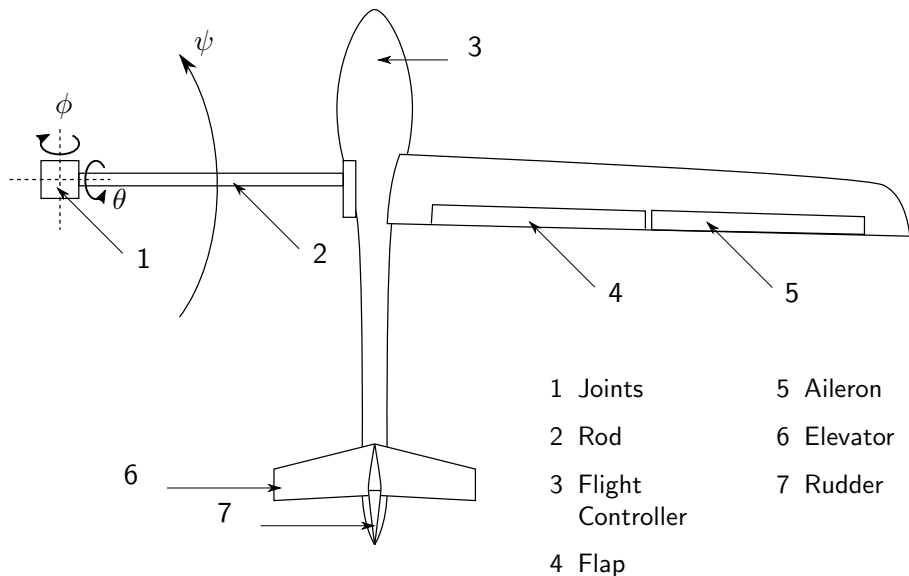2018-04-25

Overview

The Flight Carousel

1 Joints   5 Aileron

2 Rod   6 Elevator

3 Flight Controller   7 Rudder

4 Flap

Fullwing

Complete Plane with both Wings mounted.

Hold by a fixed length rod.

Angle Encoder for pitch and roll of the rod.

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Hold by a fixed length rod.

Angle Encoder for pitch and roll of the rod.

But not assembled until now.

Input/Outputs

Inputs:

    Carousel acceleration

    Carousel reference speed

    Rudder

    Elevator

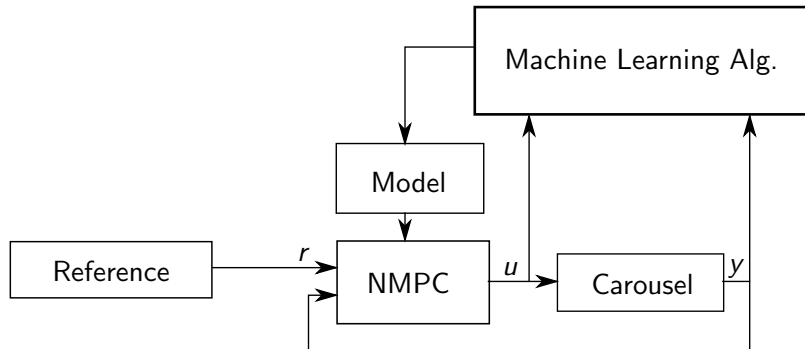   Flap

    Aileron

Outputs:

    Carousel Speed

    Angle Encoder (Roll and Pitch)

    Inertial Measurement Unit (IMU) located in the plane

My Master Thesis

NMPC with self learning Neural Network model

Example Experiments

Pitch and roll estimation with IMU

Step response of single control surface w.r.t. pitch/roll

Plane/Process noise estimation

Feasible nonlinear reference trajectory generation

NMPC implementation with physical model

Multi-stage identification of physical model parameters

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Only Examples for further Information Contact us.