Title (en)

METHOD FOR CONTROLLING A MULTI-ROTOR ROTARY-WING DRONE, WITH CROSS WIND AND ACCELEROMETER BIAS ESTIMATION AND COMPENSATION

Title (de)

VERFAHREN ZUR STEUERUNG EINER MULTIROTORDREHFLÜGELDROHNE MIT SCHÄTZUNG UND KOMPENSATION VON SEITENWIND UND BESCHLEUNIGUNGSMESSERBIAS

Title (fr)

PROCEDE DE PILOTAGE D'UN DRONE A VOILURE TOURNANTE A ROTORS MULTIPLES AVEC ESTIMATION ET COMPENSATION DU VENT LATERAL ET DU BIAIS DES ACCELEROMETRES.

Publication

EP 2831685 A1 20150204 (FR)

Application

EP 13715385 A 20130327

Priority

- FR 1252895 A 20120330
- FR 2013050663 W 20130327

Abstract (en)

[origin: WO2013144508A1] The attitude and speed of the drone are controlled by angular commands applied to a control loop (120) for controlling the engines of the drone according to the pitch and roll axes. A dynamic model of the drone, including, in particular, a Kalman predictive filter, represents the horizontal speed components of the drone on the basis of the drone mass and drag coefficients, the Euler angles of the drone relative to an absolute terrestrial reference, and the rotation of same about a vertical axis. The acceleration of the drone along the three axes and the relative speed of same in relation to the ground are measured and applied to the model as to estimate (128) the horizontal speed components of the cross wind. This estimation can be used to generate corrective commands (126) that are combined with the angular commands applied to the control loop of the drone in terms of pitch and roll.

IPC 8 full level

G05D 1/02 (2006.01); **G01P 5/00** (2006.01)

CPC (source: EP US)

B64C 27/08 (2013.01 - US); **B64C 39/024** (2013.01 - US); **B64U 10/14** (2023.01 - EP); **G05D 1/0011** (2024.01 - US); **G05D 1/0204** (2024.01 - EP US); B64U 10/10 (2023.01 - US); B64U 2201/00 (2023.01 - US); B64U 2201/10 (2023.01 - US); B64U 2201/20 (2023.01 - US)

Citation (search report)

See references of WO 2013144508A1

Citation (examination)

US 2011077898 A1 20110331 - LOOMIS PETER VAN WYCK [US]

Cited by

JP2017529549A; JP2017535086A

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

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DOCDB simple family (application)

FR 1252895 A 20120330; CN 201380028830 A 20130327; EP 13715385 A 20130327; FR 2013050663 W 20130327; JP 2015502407 A 20130327; US 201314388761 A 20130327