



(51) International Patent Classification:

B64D 1/18 (2006.01) *B64D 47/08* (2006.01)
G05D 1/10 (2006.01) *B64C 39/02* (2006.01)
B05B 12/08 (2006.01)

(21) International Application Number:

PCT/SG2021/050472

(22) International Filing Date:

12 August 2021 (12.08.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10202007706S 12 August 2020 (12.08.2020) SG

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(54) Title: METHOD AND CONTROLLER FOR CONTROLLING FLUID EJECTION BY AN AERIAL ROBOT

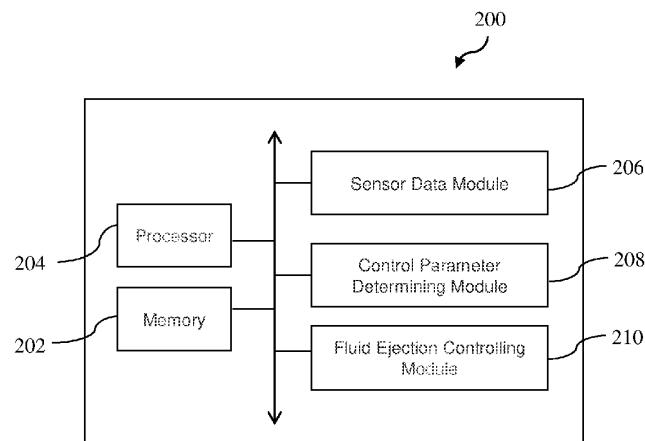


FIG. 2

(57) Abstract: There is provided a method of controlling fluid ejection by an aerial robot. The aerial robot includes: a body on which an actuator and a nozzle are mounted, the actuator being configured to control an orientation of the nozzle to perform controlled fluid ejection; and a sensor system configured to detect a surface below the aerial robot during flight and a target area on the surface desired to be impinged by the fluid when ejected from the nozzle. The method includes: obtaining sensor data from the sensor system, the sensor data comprising distance information between the target area and the aerial robot; determining a control parameter for controlling the fluid ejection by the aerial robot using the distance information based on a multi-component objective function relating to kinematic parameters of a kinematics model associated with the body, the actuator, the nozzle and a fluid motion of the fluid when ejected from the nozzle to a point of contact; controlling the actuator to control the orientation of the nozzle to perform controlled fluid ejection based on the control parameter; obtaining ejected fluid data from the sensor system, the ejected fluid data comprising a position of the point of contact of the fluid with respect to the surface when ejected from the nozzle; determining an adjustment parameter based on the position

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(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE

of the point of contact of the fluid when ejected from the nozzle; and controlling the actuator to control the orientation of the nozzle to perform controlled fluid ejection based on the adjustment parameter. There is also provided a corresponding controller for controlling fluid ejection by an aerial robot, and a corresponding aerial robot configured to perform fluid ejection including the controller.