Title (en)

METHOD, DEVICE AND COMPUTER PROGRAM PRODUCT FOR DETERMINING THE POSITION OF A SPACECRAFT IN SPACE

Title (de)

VERFAHREN, VORRICHTUNG UND COMPUTERPROGRAMMPRODUKT ZUR LAGEBESTIMMUNG EINES RAUMFLUGKÖRPERS IM WELTRAUM

Title (fr)

PROCÉDÉ, DISPOSITIF ET PRODUIT-PROGRAMME D'ORDINATEUR POUR DÉTERMINER LA POSITION D'UN ASTRONEF DANS L'ESPACE

Publication

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Application

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Priority

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Abstract (en)

[origin: WO2022043247A1] The invention relates to a method for determining the position of a spacecraft in space, wherein the following steps are cyclically repeated: capturing distorted star images (4); processing the distorted star images (4) to form distorted star group data (6); storing the distorted star group data (6); determining a current rotation rate (8) by comparing the distorted star group data (6) of two consecutive cycles; transmitting the current rotation rate (8) to a position control system (9); and/or the following steps are carried out: processing the distorted star images (4) of a current cycle to form rectified star group data (11); determining position information (13) by matching the rectified star group data (11) with star group catalog data (14) which is carried along; transmitting the position information (13) to the position control system (9). The invention also relates to a method for determining the position of a spacecraft in space, wherein, on the basis of known system parameters of an optical system, the following steps are carried out: coding star group catalog data with $n = 3...4$ stars $[x_n, y_n, z_n]$, which are visible in a field of view, into representative focal-plane coordinates; forming a scaling-, translation- and rotation-invariant star group code on the basis of $[xPiX, yPiX]n$; or the following step is carried out: coding star group catalog data with $n = 3...4$ stars $[x_n, y_n, z_n]$, which are visible in a field of view, into representative tangent and/or angular coordinates $[\tan(\alpha), \tan(\beta)]n$. The invention further relates to a device for carrying out such methods and to a computer program product for carrying out such methods.

IPC 8 full level

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CPC (source: EP US)

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Citation (search report)

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