



IN-FLIGHT AUTO-CALIBRATION OF A STAR TRACKER

Method for estimating the attitude of a star tracker

Potential applications

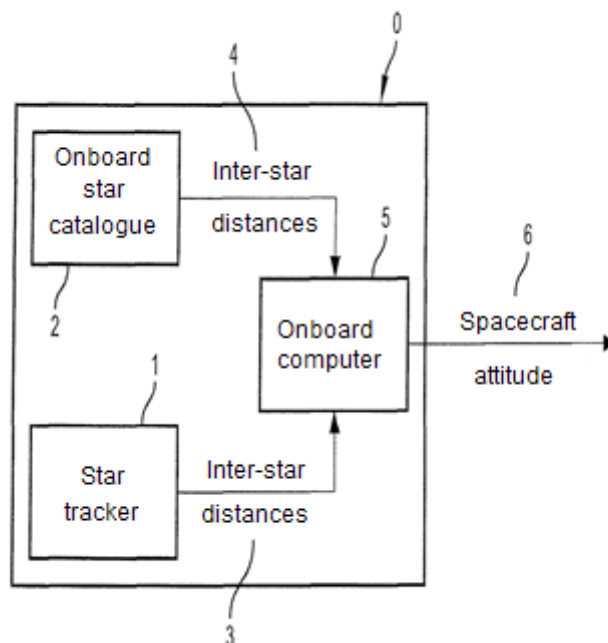
Star trackers, navigation cameras, any navigation system based on vision which may be oriented against a background of stars.

Summary of the invention

Algorithm function enabling a star tracker to correct, during flight, its geometric imperfections of the "optical distortion" type. Enables the start tracker to learn about its defects and then correct them. This apprenticeship is done without any intervention from the user, and requires no specific operation, which means there is no impact on the mission.

The principal involves using a Kalman filter exploiting the inter-star distances measured by comparing them with the inter-star distances in the data base.

The stars are used as a natural in situ calibration target pattern.



Technological advantages

Performance and autonomy

Improved performance thanks to in-orbit calibration done under mission environment conditions.

Automatic calibration with no impact on the mission.

Reduction of constraints

Less emphasis on ground calibration precision: savings in time and costs.

Commercial benefits

Improved performance

Reduced cost

Fewer ground resources

TRL : ?

Patented invention available under licence