



航空学报 » 2006, Vol. 27 » Issue (5) :913-916 DOI:

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一种快速的星敏感器星跟踪方法研究

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A Fast Star Tracking Algorithm for Star Sensor

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摘要

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摘要 阐述了星敏感器中星跟踪方法的重要性,指出了目前国内外星跟踪方法的不足。针对这些不足,提出了一种全新的、快速的星跟踪方法。新的跟踪方法采用现场可编程门阵列(FPGA)实现了实时的星点定位;正是由于这种技术的采用,加快了星点位置信息的获取,摒弃了跟踪窗的跟踪方法,采用简单的匹配识别的跟踪方法;对于新星的识别,由于有初始姿态而采用匹配组的识别方法。最后给出了星跟踪过程的实验结果。

关键词: 星敏感器 星跟踪 实时星点定位 匹配识别

Abstract: The importance of star tracking for star sensor and the deficiency of existing star tracking algorithm are presented. To resolve these problems, a novel and fast star tracking algorithm is put forward. Real-time star position locating is implemented with Field Programmable Gate Array (FPGA) in the star tracking algorithm. Because of the technology, the star position is obtained quickly, the simple match identification for tracking is adopted and the tracking window method is abandoned. For new star identification, match group method is used. Finally the experiment results are presented.

Keywords: star sensor star tracking real-time star position locating match identification

Received 2005-05-01; published 2006-10-25

引用本文:

江洁;张广军;李霄;魏新国. 一种快速的星敏感器星跟踪方法研究[J]. 航空学报, 2006, 27(5): 913-916.

JIANG Jie; ZHANG Guang-jun; LI Xiao; WEI Xin-guo. A Fast Star Tracking Algorithm for Star Sensor[J]. Acta Aeronautica et Astronautica Sinica, 2006, 27(5): 913-916.

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