A Novel star acquisition based on Scale Invariant Feature Transform (SIFT) method for star-sensor

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Abstract

Star navigation is one of the oldest methods used for navigation as star provide a reliable independent source of valuable information that translates to position and heading information. Although manual star navigation is slowly being replaced by modern navigation systems such as Global Positioning System (GPS) stars still provide the same reliable navigation information as they did centuries ago. Since the 1960's, the aviation and aerospace industries has been researching and developing autonomous star trackers capable of imaging the night-sky with a camera or imaging device, and the process the images to extract star location. This paper focuses on star locating by implementing the Scale Invariant Feature Transform (SIFT) method.

Keyword: star tracker, SIFT, star centroiding, attitude, aerospace