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Altitude Tracking Using Colour Marker Based Navigation System for Image Guided Surgery (Conference Paper)

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Abstract

Optical **tracking** method has been largely used for medical **navigation system** in Robotic **Image Guided Surgery** (IGS). One of the methods proposed by recent researcher is to use **colour** feature as the **marker** for medical instruments detection and **tracking**. Since IGS **system** is using preoperative imaging data set for reference, unintended patient movement can result in major errors. In this work, the position for the medical instrument's markers being investigated to prove that the method can be used for **tracking in navigation system**. Moving target **marker** will represent the unintended patient movement. The tool marker will be navigated autonomously using robotics arm to adjust the changes. Multithreading programming approach is being implemented in the **system** to increase the position update rate for real-time application. The **system** is able to track the markers and navigate the tool **marker** to the target **marker** with certain error tolerance. The accuracy and performance of the **system** are still in the need of some improvements. © 2016 IEEE.

Author keywords

Colour Object Detection and Tracking; Image Processing; Multithreading; Robotics

Indexed keywords

Engineering controlled terms: Color; Image processing; Navigation; Navigation systems; Optical data processing; Robotic surgery; Robotics; Robots; Tracking (position)

Detection and tracking; Image guided surgery; Medical instruments; Medical navigations; Multi-threading; Object detection and tracking; Optical tracking method; Real-time application

Engineering main heading: Medical imaging

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