Abstract

Parallel connection is an exceptional case, where the links and joints are formed in a sequential manner these chains join the base of the manipulator with the end effectors. Stewart Platform is a form of Parallel Manipulator which has a six-degree-of freedom, in parallel linkage. It is utilized in diverse applications requiring linkages with high structural stiffness. Stewart Platform consists of a rigid platform supported by six variable length struts. Every set of six strut lengths defines a unique, fully constrained position of the platform. Using the strut lengths as controlling input, the position and orientation of the end effectors can be controlled as output. Each leg includes a prismatic joint with ball-joint connection to the base and coupler, respectively. There are almost 64 different configurations; the Stewart Platform can be modified. Here, we try to redefine and redesign the traditional Stewart Platform and use it for very specific application in tracking the sun's radiations. The process is done by using Arduino Controller to control the platform with respect to Azimuth angles.
References

Design of Modified Stewart Platform for Solar Tracing Applications

CA, USA, April 11-14, pp. 1542-1547.


34. Simaan And Shoham: Singularity Analysis Of A Class Of Composite Serial In-Parallel Robots, Ieee Transactions On Robotics And Automation, VOL. 17, NO. 3, JUNE 2001

35. Jean-Pierre Merlet, Micro parallel robot MIPS for medical applications DOI: 10.1109/ETFA.2001.997742 ·


37. Denis Garagić and Krishnaswamy Srinivasan,

38. Contouring Control Of Stewart Platform Based Machine Tools Proceeding of the 2004 American Control Conference Boston, Massachusetts June 30 - July 2, 2004


40. Haiying Wen, Weiliang Xu, and Ming Cong Kinematic Model and Analysis of an Actuation


42. Katsumi Watanabe, Tsutomu Kawakatsu

43. Shouichi Nakao Kinematic and Static Analyses of Tripod Constant Velocity Joints of the Spherical End Spider Type NOVEMBER 2005, Vol. 127 / 1137

Index Terms

Computer Science

Information Systems

Keywords

Parallel Manipulators, Stewart Platforms, Prismatic Joint, Azimuth Angles, Arduino Controller