Dedication

To:

School of Electronics Engineering Sudan University of Science and Technology.

Acknowledgement

It is a great pleasure for me to express my thanks and heartiest gratitude to all those who have helpme during the development of the project.
My most sincere thanks to Dr. Ala'adeenAwouda for his co-operation and who has always been guiding, encoring and motivating me through- out the research with his experience and knowledge.

Abstract

This research presents a control application of a sun tracker that is able to follow the sun with high accuracy without the necessity of either a precise procedure of installation or recalibration. The designed tracking system consists of sensors, microcontroller, drivers for stepper motors and gear-bearing arrangements with supports and mountings. Two stepper motors are used to move the system panel so that sun's beam is able to remain aligned with the solar panel.

Simulation and experimental results are obtained to a low cost two axes solar tracker are exposed.Energy savingfactors are taken into account, which implies that, among other factors, the sun is not constantly tracked with the same accuracy, toprevent energy overconsumption by the motors.

تجريد

هذا البحث يقدم تطبيقا للتحكم الآلى لمتابعة حركة الشمس بدقة عالية. يحتوى النظام على حساسات ومتحكم دقيق ومحركات الخطوة وتروس وملحقات للتثبيت. يتم ضبط وحدة الطاقة الشمسية نحو الشمس بمحركى خطوةللاستفادة من طاقة الشمس القصوى. لايحتاج الدقة فى التوجه نحو الشمس عند التركيب، كما لايحتاج لاعادة ضبط ويتكون من حساسات ومتحكم دقيق ومحركات الخطوة.

هناك نتائج نمذجة ونتائج تجريبية لنظام قليل التكلفة مع مراعاة تقليل الكلفة قدر الامكان وذلك باستخدام محورين لمتابعة الشمس.وكذلك وضع فى الاعتبار عدم متابعة الشمس مستمر حفاظا على الطاقة.

.