

Dedication

*To my father from whom I learned the meaning of life,
work and knowledge*

*To my beloved mother whose patience and love is my
stock of life*

To my wife the meaning of life

To my daughter

To My sister & brothers

To My friends

And all of you

I present my humble gift

This research

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Abstract

Power factor is considered as a basic factor in the AC power systems. Due to that most of recent studies concentrate on power factor control by designing circuits of control systems so as to conserve the level of it.

This research is a study of power factor control circuit card in generation systems by using the software simulation program (Orcad p-spice) to realize the actual result of the controller of power factor by the computer program, for the following reasons:

First, the faults which occur in the power factor control cards, due to the dust and heat in Sudan atmosphere. If one component of the card is damaged, the card should be replaced by a new one which is not available locally. These cards cost much money and time. Second, to encourage the local industries to design and reprint the electronic Circuits in the printed circuit boards (PCB).

المستخلص

يعتبر معامل القدرة عامل أساسى في أنظمة القدرة، ونسبة لأهميته اتجهت معظم الدراسات في الآونة الأخيرة بالاهتمام به وذلك عن طريق تصميم دوائر تحكم تعنى بالتحكم بمعامل القدرة.

ولقد تم اختيار هذا البحث المتعلق بدراسة التحكم في معامل القدرة لعدة أسباب:

أولاً: الأعطال المتعلقة بـ (كرت التحكم في معامل القدرة) بسبب الغبار وارتفاع درجات الحرارة، فإذا تعطلت أحدي مكونات الكرت يتم استبدال الكرت كاملاً بكرت جديد وهو غير متاح محلياً واستجلابة من الخارج يكلف الكثير من الوقت والمال.

ثانياً: تشجيع الصناعة المحلية بتصميم وطباعة الدوائر الالكترونية.

وفي هذا البحث تم تصميم دائرة تحكم في نظام التوليد للتحكم في معامل القدرة وجعله في مستوى مناسب وفعال، ولكن تعذر طباعة الكرت في لوحة التحكم وذلك لأن بعض مكونات الكرت غير متوفرة محلياً.

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