



Sudan University of Science & Technology



Collage of Engineering

School of Electrical Engineering

**Speed Control Of Induction Motor Using
Variable Speed Drive**

**التحكم في سرعة الماكينة الحثية بواسطة متحكم السرعة
المتغيره**

**A Project Submitted In Partial Fulfillment for the Requirement of
the Degree of B.Sc. (Honor) In Electrical Engineering**

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الآية:

قال تعالى :

(إِنَّا عَرَضْنَا الْأَمَانَةَ عَلَى السَّمَاوَاتِ وَالْأَرْضِ وَالْجِبَالِ فَأَبَيْنَ أَنْ يَحْمِلْنَهَا وَأَشْفَقْنَ مِنْهَا وَحَمَلَهَا الْإِنْسَانُ ۗ إِنَّهُ كَانَ ظَلُومًا جَهُولًا)

سورة الأحزاب الآية (72)

DEDICATION

To our families , friends and everyone who support us

ACKNOWLEDGMENT

We would like to express our special thanks to our supervisor Dr.Nagmaldeen Abdo Mustafa as well as school of electrical engineering which gave us a golden opportunity to do this wonderful project , and helped us doing a lot of researches and we came to know about so many new things ,we really thankful of them.

Abstract

Industrial applications require variable speed motors , Squirrel cage induction motors are simpler in structure than DC motors. They are robust and reliable. They require little maintenance and are available at very competitive prices. They can be designed with totally enclosed motors to operate in dirty and explosive environments. Their initial cost is substantially less than that of commutator motors and their efficiency is comparable. All these features make them attractive for use in industrial drives. To control the speed of induction motor variable speed drive is the best choice. because of it's great advantages.

Variable speed drive simulated and analyzed with matlab -simulink .and from the simulation results it showed that variable frequency drive is the best solution for fixing inherent motor issues and energy saving can be best tackled by this drive.

مستخلص

التطبيقات الصناعية تتطلب تحكم متغير في سرعة المحركات ، المحرك الحثي ذو القفص السنجابي ايسط في التركيب من محركات التيار المستمر. ويمتاز بالمتانة والموثوقية العالية .
تكلفة الصيانة اقل وبأسعار مناسبة وتنافسية، ويمكن تصميم هذه المحركات بحيث تكون مصممة وتعمل في ظروف قاسية ومليئة بالأتربة. وايضا تمتاز بتكلفة ابتدائية اقل من نظيراتها من المحركات بالاضافة الى كفاءة جيدة. و للتحكم في سرعة المحرك الحثي يفضل استخدام متحكم السرعة المتغيرة ، وذلك لمميزاته المتعددة .

تمت محاكاة متحكم السرعة المتغيرة باستخدام أداة الماتلاب – سيمولينك ، ووضحت النتائج أن متحكم السرعة المتغيرة هو افضل حل لمعالجة المشاكل الملازمة للمحرك. و حفظ الطاقة يكون افضل ما يمكن بواسطة هذا المتحكم .

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