

بسم الله الرحمن الرحيم

فَلَّا تَعْدُ

{وَلَقَدْ كَرَمْنَا بَنِي آدَمَ وَحَمَلْنَاهُمْ فِي الْبَرِّ وَالْبَحْرِ  
وَرَزَقْنَاهُمْ مِنَ الطَّيَّابَاتِ وَفَضَّلْنَاهُمْ عَلَىٰ كَثِيرٍ  
مِمْنَ خَلْقِنَا تَفْضِيلًا} (70)

• صدق الله العظيم

سورة الانساء

# DEDICATION

TO my parents

For their unstinting support;

TO my brothers & sisters,

who always shared my failures and happiness;

and TO my colleagues

## **ACKNOWLEDGMENT**

In the name of Allah, Most Gracious, and Most Merciful

Praise be to Almighty Allah (Subhanahu Wa Ta'ala) who gave me the courage and patience to carry out this work. Peace and blessing of Allah be upon his last prophet Mohammed (Sallulaho-Alaihe Wassalam) and all his companions (Sahaba), (Razi-Allaho-Anhum) who devoted their lives towards the prosperity and spread of Islam.

My deep appreciation and heartfull gratitude goes to my supervisor Dr. MARTINO OJWOK AJANG AJANGNAY for his kindness, constant endeavor, guidance and the numerous moments of attention he devoted throughout this work.

I sincerely appreciate the efforts that have been put by all the people above which truly cannot be describe by words. I would like to thank all the staff of Electrical Engineer Department of Sudan University of since and technology for their help. As well as people who are using this project, I would sincerely appreciate your comments, criticisms, corrections and suggestions for improving the project.

Finally, my sincere thankfulness goes to my family for their prayers and encouragement that always helped me to take the right step in life.

## **Abstract**

The aim of this project is to design a controller to control power to the compressor such that it stops the compressor from sapping engine power when going up hills or during overtaking by using PIC microcontroller 16F877. The Mikro C software will be used to write C code for PIC 16F877 microcontroller. The hexadecimal code generate from Mikro C compiler will be downloaded in microcontroller memory by programmer (PICH FLASH). Proteus software have been used to simulate the controller performance before implementing the controller practically on test board and Printed Circuit Board (PCB).

## الملاخص

الهدف الاساسي من هذا المشروع هو تصميم وحدة تحكم للسيطرة على نظام التهيف في السيارة حيث يتم إيقاف النظام في حالة صعود السيارة الى منطقة مرتفعة أو زيادة الضغط على خانق الوقود في حالة التخطي ويتم التحكم بـ PIC16F877 وتمت برمجتها باستخدام لغة Protues C بواسطة برنامج Mikro C وتحميله على ذاكرة المتحكم ثم محاكاته في برنامج بعد ذلك تم إختبار الدائرة على لوحة الاختبار وتوصيلها على لوحة الدوائر المطبوعة.

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## LIST OF ABBREVIATIONS

ADC	- analog to digital converter
ANSI	- American National Standard Institute
CMOS	- Complementary Metal Oxide Semiconductor
DAC	- Digital to analog converter
DIL	- Dual In Line package
IDE	- Integrated Drive Electronics
I <sup>2</sup> C	- Inter Integrated Circuit
LED	- Light emitting diode
MCU	- Multipoint Control Unit
PIC	- Programmable Integrated Circuit
PCB	- printed circuit board
PCL	- Proteus configuration language
SOIC	- Small Outline Integrated Circuit
SPI	- Serial Peripheral Interface Bus
UV	- Ultra Violet light
USART	- Universal Synchronous A Synchronous Receiver/ Transmitter
WOT	- Wide open throttle

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