UNDERTAKING

We hereby certify that the work which is being presented in the BS Project Report entitled " **VFD TO CONTROL THE SPEED OF 3-PHASE AC INDUCTION MOTOR AT VARIABLE LOAD "** , in partial fulfillment of the requirements for the award of the **Bachelors of Technology in Electrical Engineering** and submitted to the Department of School of Engineering of University of Management and Technology Lahore is an authentic record of our own work carried out during a period of **October 2014 to August 2015 (7th& 8th semester)** under the supervision of **Muhammad Fahad Usman Khan, SEN Department.**

The matter presented in this project report has not been submitted by us for the award of any other degree elsewhere.

Signature of Students

SARMAD WAHEED	111619-137
KHUSHBAKHT MUNIR BHATTI	111619-066
AHMAD GUL HUNDAL	111619-198

This is to certify that the above statement made by the students is correct to the best of my knowledge.

Approved

Project Advisor__________________

Director Project__________________

FINAL YEAR PROJECT REPORT

VARIABLE FREQUENCY DRIVE TO CONTROL THE SPEED OF 3-PHASE AC INDUCTION MOTOR AT VARIABLE LOAD

SUPERVISED BY

MUHAMMAD FAHAD USMAN KHAN

SUBMITTED BY

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DEPARTMENT OF ELECTRICAL ENGINEERING

SCHOOL OF ENGINEERIN UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

2015

DEDICATION

Dedicated to ALLAH AL-MIGHTY who blessed us with the ability to understand his knowledge to serve this world and then to our parents, teachers, friends and all those whose support is included in our project completion

ACKNOWLEDGEMENT

This project is golden opportunity for learning and self-development. We consider ourselves very lucky and honored to have so many wonderful peoples lead us through in completion of this project.

We are grateful and would like to express our sincere gratitude to our supervisor Mr. Fahad Usman Khan for his invaluable guidance, continuous encouragement and constant support in making this project possible. we really appreciate his guidance from the initial to the final level that enabled us to develop an understanding of this project thoroughly. Without his advice and assistance it would be a lot tougher to completion. we also sincerely thanks for the time spent proofreading and correcting our mistakes.

we also would like to express very special thanks to Sir Tabraiz who guide us very well in selecting my project .This idea could never come to us if he was not there in time of guidance.

Our sincere thanks go to all lecturers and members of the staff of the Electrical Engineering Department, who helped us in many ways and made our education journey at UMT pleasant and unforgettable. This four year experience with all you guys will be remembered as important memory for us to face the new chapter of life as an engineer.

We acknowledge our sincere indebtedness and gratitude to our parents for their love, dream and sacrifice throughout our life. We are really thankful for their sacrifice, patience, and understanding that were inevitable to make this work possible. Their sacrifice had inspired us from the day. We learned how to read and write until what we have become now. We cannot find the appropriate words that could properly describe our appreciation for their devotion, support and faith in our ability to achieve our dreams.

We are extremely thankful to Sir Sajjad Shami, Chairman of Electrical Engineering Department in University of Management and Technology for providing us infrastructural facilities to work in, without which this work would not have been possible

Lastly we would like to thanks any person which contributes to our final year project directly on indirectly. We would like to acknowledge their comments and suggestions, which was crucial for the successful completion of this study.

Abstract

Three phase induction motors are the engines more frequently found in the industry. They are simple, durable, inexpensive and easy to maintain. They are at essentially constant speed from zero to full load. Speed is frequency dependent so that these motors cannot be easily adapted to speed control. However VFD (variable frequency electronic units) are being used increasingly to control the motor speed AC induction. Controls the frequency and voltage supplied to the engine and thus controls the engine speed and the driving system. This project is basically about designing of variable frequency drive to control the speed of 3 phase ac induction motor at variable load (motor generator set).Major task is to make the speed constant whenever load is added on motor generator set. In practical life where energy and time saving is very much important VFD is the best solution to every problem related to loading machines with different loads at a time. The mechanical load of generator having different load values is connected to our motor. Whenever the load on machine changes the speed of machine changes accordingly vfd with the help of its controller section maintains the changed speed to its previous value. It increases or decreases the speed of motor with changing load. Its main purpose is to drive the motor at constant speed no matter what is the value of load.

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