HALF-BRIDGE POWER SUPPLY TO CONTROL 180 V DC MOTOR

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by

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Wassalam.

APPROVAL AND DECLARATION SHEET

This project report titled Half-Bridge Power Supply To Control 180V DC Motor was prepared and submitted by Mersharif Bin Sagaran (Matric Number: 071090370) and has been found satisfactory in terms of scope, quality and presentation as partial fulfillment of the requirement for the Bachelor of Engineering (Electrical System Engineering) in Universiti Malaysia Perlis (UniMAP).

Checked and Approved by

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BEKALAN KUASA TETIMBANG SEPARUH UNTUK MENGAWAL MOTOR ARUS TERUS 180V.

ABSTRAK

Projek ini adalah mereka bentuk satu bekalan kuasa tetimbang separuh untuk mengawal motor arus terus 180V. Pada asasnya, kegunaan bekalan kuasa tetimbang separuh ini adalah untuk mengubah arus terus kepada arus ulang-alik, voltan akan di naikkan dengan pengubah injak naik dari 12 V u.a kepada 180V u.a dan di ubah semula kepada arus terus, ini akan di gunakan untuk mengawal kelajuan motor arus terus dengan mengubah dan mengawal frekuensi Gate Mosfet. Umumnya, untuk projek ini menggunakan komponen IC pengayun pelbagai HEF4047 untuk Memacu Tetimbang Separuh serta menghasilkan ayunan. Akan ada dua masukan voltan untuk litar. Satu adalah masukan untuk pengayun pelbagai HEF4047 dan lagi satu adalah masukan untuk motor DC. Voltan masukan adalah 12V a.t. Voltan dan arus untuk motor adalah dikawal oleh MOSFET. MOSFET akan dikawal oleh sebuah litar pengawal yang mana mampu mengawal kelajuan sebuah motor 180V dengan mengawal frekuensinya.

HALF-BRIDGE POWER SUPPLY TO CONTROL 180V DC MOTOR

ABSTRACT

This project is to design a Half-Bridge power supply to control 180 V DC motor. Basically, the usage of this Half-Bridge power supply is to convert DC to AC then step up from 12 V AC to 180 V AC by using step up transformer than convert back to DC, this waveform will be control to adjust the DC motor speed by adjusting or varying the frequency of the Mosfet Gate. Generally, for this project a Monostable/Astable multivibrator HEF4047 use as a Half-bridge driver and to generate oscillation. There will be two inputs for the circuit. One will be the input for the Half-Bridge driver with oscillator and the other one will be the input for the DC motor. The input voltage is 12 V. The voltage and current to the motor is controlled by a MOSFET. The MOSFET is controlled by a circuit controller that is capable of controlling the speed of a 180V motor by controlling the frequency.

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LIST OF SYMBOLS, ABBREVIATIONS OR NOMENCLATURE

Hz	Hertz
V	Voltage
A	Ampere
rpm	Revolution Per Minute
AC	Alternating Current
DC	Direct Current
a.u	Arus Ulang-alik
a.t	Arus Terus