BLDC MOTOR CONTROLLER USING MICROCHIP

BINUS UNIVERSITY
People. Innovation. Excellence.

Instructor : Jimmy linggarjati S.kom. M.Sc
Student : Yohan Loe <1301067962>

INTRODUCTION

- As the development of advances in technology, like in the field of information, business and transportation electric motor can not be separated from the advancement of these technologies.
- Motor BLDC (Brushless DC) is a DC motor (electric unidirectional) without Brush which serves to komutasinya, and komutasinya replaced by an electronic circuit.
- In order BLDC motors can work necessary to turn the stator magnetic field. To get the stator magnetic field is needed Suber voltage 3-phase star connection topology.

PROBLEMS

- Rotation speed of the motor can not reach the maximum limit of the motor ability.
- Programming the IC using code sensorless control motors produce less good round when compared to using a sensored dika code.

METHODS

- Library Studies

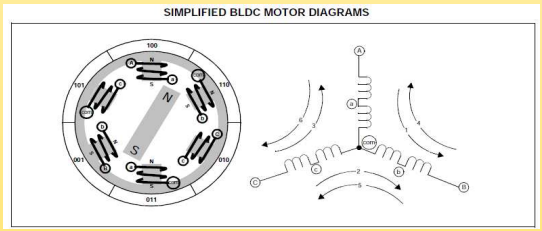
Writers gather information and knowledge from literature sources-existing literature and seek information via the internet as well as the datasheet of module components, international journals and books related to the study.

- Data Collection Method

To get the data in this study, the authors use observations. In this observational study will be done by directly observing and adjust the speed and direction of rotation of the motor and then the rotation speed is measured using osiloscope.

MECHANISM

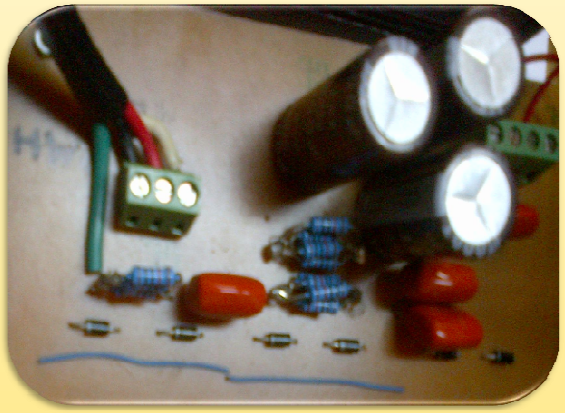
- Motor BLDC (Brushless DC) is a DC motor (electric unidirectional) Brushless where and komutasinya replaced by an electronic circuit. In order BLDC motors can work necessary to turn the stator magnetic field. To get the stator magnetic field is needed Suber voltage 3-phase star connection topology.



MODULE PHOTO

MOSFET DRVER AND CONTROLLER

HIGH VOLTAGE CIRCUIT



Thaks to Bina Nusantara University

EMBEDDED SYSTEM

CONCLUSION

- Rotational speed of the motor will be directly proportional to the frequency. If the frequency used is 60 Hz then the motor with two poles will rotate as much as 60 x 60 = 3600 rpm
- From this research we know that it can be used to adjust the PWM pulse width that goes into the motor so we can also use PWM untu set the speed of the motor.
- By using a 3 phase motor can spin finer than using a 1 phase due to different phase in 3 phase electricity amounted to 120 degrees or 2π / 3.

REFERENCES

- *Jurnal PID control system Analisis, design and tecnology (* http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=1453566&url=http%3A%2F%2Fieeexplore.ieee.org%2Fiel5%2F87%2F31218%2F01453566
- *Motor Servo BLDC outside and Inside rotor (Sumber :* http://www.mro-supply.net/servlet/the-6112/PANASONIC-MFA010LA2NS-AC-dsh-SERVO-MOTOR/Detail*)*
- *BMF Trapesoidal dan Sinusoidal (Sumber : AN855 " Brushless DC (BLDC) Motor Fundamentals)*
- *Komutasi Six-Step <Sumber : AN855 " Brushless DC (BLDC) Motor Fundamentals > Referensi sourcode brushless DC motor control – (* http://ww1.microchip.com/downloads/en/AppNotes/an857 *)*