

Automatic Speed Control of Motor with Over Current and Thermal Protection

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Abstract: *This paper aims to design a controller to minimize the accidents of mechanical failure of industrial generators and motors under heavy load or malfunction. The controlling parameters such as the speed of motor is done via controlling the voltage and current fed to the motor. The speed control can be possible by using PWM technique. The factors which affect the motor can be sense using temperature and current sensor. The system also utilizes Over current & Thermal based backup protection scheme for failure protection.*

Keywords: Current sensor, Temperature, Speed, PWM, Fault Detection

REFERENCES

- [1]. Shi, X. Yang, X.Mu, Y. Wang, Y .and Wang, W. (2019). Thermal error compensation model for a motorized spindle with shaft core cooling based on exponential function, The International Journal of Advanced Manufacturing Technology
- [2]. Valery D. Yurkevich, Nikita A. Stepanov, "PWM Speed Control of DC Motor based on Singular Perturbation Technique" , 2014 6th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT), IEEE 2014.
- [3]. Sahana M, Sachin Angadi, A. B. Raju, "Speed Control of Separately Excited DC Motor Using Class A Chopper", Electrical and Electronics Department, B.V.B. College of Engineering and Technology, International Conference on Circuits, Controls, Communications and Computing (I4C) - Bangalore, India, IEEE 2017
- [4]. Oshin Prem, Bhavnes Kumar, S K Jha, "Intelligent Speed Control of DC Servo Motor Drive", International Conference on Recent Innovations in Electrical, Electronics & Communication Engineering - (ICRIEECE), IEEE Access 2018.
- [5]. John A. Kay, Lorraine K. Padden, "Review Of The New Ieee Std. 3004.8 Recommended Practice For Motor Protection In Industrial And Commercial Power Systems" With Focus On Forest Products Industries Products Industries. IEEE Transactions on Industry Applications, IEEE Trans 2020.
- [6]. Marius D. Marcu, Rzvan I. Slusariuc, Florin G. Popescu, and Liliana B. Samoil, "Universal DC Motor Protection System Based on Microcontroller Embedded Algorithm", 2018 International Symposium on Fundamentals of Electrical Engineering (ISFEE), IEEE 2018
- [7]. K. Singh, M. Dhar, P. Roy, Automatic fan speed control system using Arduino, ISSN: 2456-4184 International Journal of Novel Research and Development(IJNRD)4 April 2017