Fault Diagnosis in Rotating Machinery Using Pattern Recognition Technique

Nor Azlan Othman
Nor Salwa Damanhuri
Faculty of Electrical Engineering
Universiti Teknologi MARA (UiTM), Malaysia
Email: azlan253@ppinang.uitm.edu.my

Visakan Kadirkamanathan
The University of Sheffield, Sheffield S1 3JD United Kingdom
Email: visakan@sheffield.ac.uk

ABSTRACT
This paper presents a detail review of fault diagnosis in rotating machinery. Pattern recognition technique which needs three main steps of fault diagnosis – feature extraction, dimensionality reduction and fault classification – was used. This paper focuses on the faulty bearing which is mainly caused by mass imbalance and axis misalignment. By analyzing the vibration signal obtained from the test rigs (rigs that are built to demonstrate the effect of faults in rotating machinery), it gives solid information concerning any faults within the rotating machinery.

Keywords: Bearing fault, mass imbalance, misalignment, fault diagnosis, pattern recognition technique

Introduction

Rotating machinery is widely used in many industries and power plant. Due to the progress made in the engineering and material science field, this rotating machinery has become faster and lighter than before as