Abstract

To maintain optimum performance throughout the service life of an engine and to exercise a tight control over emissions, misfire detection is a vital activity. The engine block vibration contains valuable hidden information regarding the operating condition of the engine. Misfire can be detected by processing the vibration signals acquired from the engine using an accelerometer. The hidden information in the acquired signal can be analysed using various features extracted from the signals. A comparative performance analysis on classification accuracy of SVM when using statistical and histogram features for misfire detection in a spark ignition engine is presented.

Reference

- California Air Resources Board (1991), Technical status Update and Proposed Revisions
Misfire Detection in a Spark Ignition Engine using Support Vector Machines

to Malfunction and Diagnostic System Requirements Applicable to 1994 and Subsequent California Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles – (OBDII), CARB staff report.


Index Terms

Computer Science Signal Processing

Key words

misfire detection engine condition monitoring support vector machines IC engine statistical features histogram features