

Need Full-Text
access to IEEE *Xplore* for your organization?

[REQUEST A FREE TRIAL >](#)[Browse Conferences > Carpathian Control Conference...](#)[Back to Results](#) | [Next >](#)

The effect of air gap, wheel speed and drive angle on the anti-lock braking system efficiency

[Sign In or Purchase](#)
to View Full Text

387
Full
Text Views

Related Articles

Haptic object recognition using a multi-fingered dextrous hand

Uncertainty estimates for polyhedral object recognition

[View All](#)**2**

Author(s)

Le Khac Binh ; Petr Koci

[View All Authors](#)**Abstract**[Authors](#)[Figures](#)[References](#)[Citations](#)[Keywords](#)[Metrics](#)[Media](#)

Abstract:

Anti-lock Braking Systems (ABS) is a safe system and equipped in almost modern cars. In ABS, wheel speed sensors (WSS) are important components, they provide essential wheel speed information not only for anti-lock brake systems, but also for traction control and stability control systems. The wheel speed sensors on most vehicles are magnetic and generate an alternating current (AC) signal that increases in frequency and amplitude with wheel speed. When the teeth on the tone ring rotate past the sensor tip, it changes the magnetic field and induces a current in the sensor windings. The result is a classic sine wave current pattern that changes with wheel speed. The strength of the signal can be affected by not only wheel speed but also the air gap between the sensor and tone ring, resistance inside the sensor, resistance in the external wiring and connector. A precise gap is necessary to produce a strong, reliable signal. But if the gap is too close, metal-to-metal contact between the sensor and tone ring would damage both. Conversely, an air gap that's too wide may produce a weak or erratic signal or no signal at all. The paper presents the change of alternating current signal when changing sensor air gap, wheel speed and drive angle. By using PULSE LabShop and SignalAnalyser software, sensor KMI15, we observe the waveform on the scope. A scope will show the voltage and frequency of the signal, as well as any missing or distorted humps in the sine wave pattern. From this, we can determine the ABS brake efficiency.

Published in: Carpathian Control Conference (ICCC), 2011 12th International

Date of Conference: 25-28 May 2011

INSPEC Accession Number: 12109220

Date Added to IEEE Xplore: 12 July 2011

DOI: 10.1109/CarpathianCC.2011.5945856

ISBN Information:

Publisher: IEEE

Conference Location: Velke Karlovice, Czech Republic

get the latest
IEEE Research
Anytime, anywhere

MyXplore™
Mobile App

GET THE FREE APP

Download on the
App Store

GET IT ON
Google Play

Contents

I. Introduction

The automobile is one of our main means of transportation, and we make extensive use of it throughout our lives. This reason, among others, justifies the necessity of the application of the advances in sensors, instrumentation, estimation and control, etc., in building cars able to make intelligent driving decisions with the objective of improving our road safety.

[Read document](#)

IEEE Account

- » Change Username/Password
- » Update Address

Purchase Details

- » Payment Options
- » Order History
- » View Purchased Documents

Profile Information

- » Communications Preferences
- » Profession and Education
- » Technical Interests

Need Help?

- » **US & Canada:** +1 800 678 4333
- » **Worldwide:** +1 732 981 0060
- » Contact & Support

| [About IEEE Xplore](#) | [Contact Us](#) | [Help](#) | [Accessibility](#) | [Terms of Use](#) | [Nondiscrimination Policy](#) | [Sitemap](#) | [Privacy & Opting Out of Cookies](#)

A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

© Copyright 2018 IEEE - All rights reserved. Use of this web site signifies your agreement to the terms and conditions.