Fiber Optic Cable-Based Intelligent Dynamic Weighing



Overview

This research proposes a system architecture consisting of weak fiber Bragg grating (wFBG), data link, edge computing region and client interface.

Article Content

Dynamic Weighing System (WIM)

BISON''s advanced fiber-optic-based weigh-in-motion technology enables accurate measurement of the total weight and axle load of moving vehicles, thus ensuring

Intelligent Distributed Optical Fiber Sensing in Transportation ...

Building upon the foundational introduction of DOFS technical principles and monitoring solutions for intelligent transportation infrastructure, this paper elaborates on system design approaches, sensing

Intelligent Distributed Optical Fiber Sensing in Transportation ...

In this paper, we provide a state-of-the-art review on DOFS applications across typical linear infrastructure systems, encompassing highways, long-span bridges, rail transit networks, airport

Research on distributed monitoring system of intelligent highway

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This research proposes a system architecture consisting of weak fiber Bragg grating (wFBG), data link, edge computing region and client interface. The structure and demodulation of the

Fiber-Optical-Sensor-Based Technologies for Future Smart-Road

Fiber-optic sensor (FOS) technologies, given their high sensitivity, immunity to electromagnetic interference, and suitability for harsh environments, have emerged as promising

Free-flow dynamic weights system | OptiWIM

OptiWIM ® overcomes these shortcomings and, thanks to the newly used optic fiber technology, brings new unique features and unambiguously the highest possible accuracy of vehicle weight

USING FIBRE OPTIC CABLES TO DELIVER INTELLIGENT

Imagine monitoring traffic effectively by using existing fibre optic cables buried around the system. Distributed Acoustic Sensing converts a standard single mode telecoms fibre optic cable into an

Master''s Thesis

In this paper we will discuss the different types of WIM systems and their advantages, and then we will deepen our research in fiber optic WIM systems, compare them, and see which fiber optic

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According to the portable instrument and the measurement method disclosed by the invention, optical fiber sensing and transduction are adopted, signal transmission is realized in an optical way...

Development of Fiber Optic Sensor-Based Weight-In-Motion System

This research focuses on characterizing the effect of moving loads on fiber optic light loss. Problem-solving approach through the optical fiber macrobending method. This research aims to be

Optic fiber-based dynamic pressure sensor for WIM system

Based on the effect of polarization coupling between two orthogonally polarized eigenmodes of polarization-maintaining fiber, Ansari et al. report on using highly birefringence

Fiber optic weigh in motion: looking back and ahead

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This paper presents an analysis of the fiber optic weight- in-motion (WIM) smart sensor situation. Based on the interrelationship between technology and needs, the analysis is divided into

(PDF) Fiber optics for Weight-in-Motion (WiM)

The study examines various WIM technologies, identifying fiber optics as a promising alternative to traditional methods. Fiber Bragg Grating (FBG) technology shows the best accuracy of ±3% for high

A novel Weigh-in-motion system for traffic loads using F-P cavity fiber ...

The weigh-in-motion system can effectively support weight controls and traffic management by providing re-al-time traffic data. This paper presents a novel weigh-in-motion system for traffic loads using F-P

(PDF) Weight-in-motion (WIM) measurements by fiber optic sensor ...

Abstract and Figures In the present study the authors are discussing the possibility of fibre optic sensor application for weighing road vehicles in motion (WIM – weight-in-motion).

Multi-purpose fibre optic system for automated vehicle''s weighting-in ...

Multi-purpose fibre optic system for automated vehicle''s weighting-in-motion and classification in applications of intelligent transport systems Abstract: The problem of measuring vehicle''s weight-in

An optical fiber weighing sensor based on bending

We report a fiber optic relative humidity (RH) sensor based on the evanescent wave absorption spectroscopy using a single U-bend plastic-clad silica fiber with high dynamic range and

WEIGH-IN-MOTION STATIONS AND ROAD NETWORK

Optical WIM (as WIM with the use of fiber-optic cables is often referred to) can provide good measurement accuracy at reasonable cost. Furthermore, optical fiber-based systems can operate

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