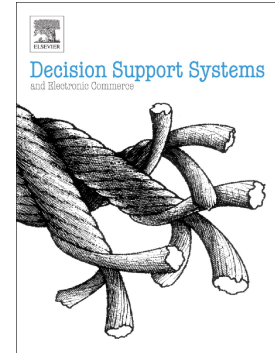


Accepted Manuscript

Misplaced product detection using sensor data without planograms

Andreas Solti, Manuel Raffel, Giovanni Romagnoli, Jan Mendling



PII: S0167-9236(18)30103-9
DOI: doi:[10.1016/j.dss.2018.06.006](https://doi.org/10.1016/j.dss.2018.06.006)
Reference: DECSUP 12964
To appear in: *Decision Support Systems*
Received date: 13 February 2018
Revised date: 19 June 2018
Accepted date: 20 June 2018

Please cite this article as: Andreas Solti, Manuel Raffel, Giovanni Romagnoli, Jan Mendling , Misplaced product detection using sensor data without planograms. Decsup (2018), doi:[10.1016/j.dss.2018.06.006](https://doi.org/10.1016/j.dss.2018.06.006)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Misplaced Product Detection Using Sensor Data Without Planograms

Andreas Solti^a, Manuel Raffel^a, Giovanni Romagnoli^b, Jan Mendling^a

^a*Vienna University of Economics and Business. Welthandelsplatz 1, 1020 Vienna, Austria*

^b*Università di Parma. via Università 12, Parma, Emilia-Romagna, 43121, Italy*

Abstract

Accurate and timely provisioning of products to the customers is essential in retail environments to avoid missed sales opportunities. One cause for missed sales is that products are misplaced in the store. This can be addressed by fast and accurately detecting those misplacements. A problem of current detection methods for misplaced products is their reliance on up-to-date planogram information, which is often missing in practice. This paper investigates the effectiveness and efficiency of outlier detection methods for finding misplaced products without planograms. To that end, we conduct simulation studies with realistic parameters for different store parameters and sensor infrastructure settings. We also evaluate the detection methods in a real setting with an RFID inventory robot. The findings indicate that our proposed MiProD aggregation of individual detection methods consistently outperforms individual techniques in detecting misplaced products.

Keywords: Data analysis, Sensors, Outlier detection, Inventory management

1. Introduction

A central challenge of daily operations in brick-and-mortar retail shops is the timely and accurate provision of products to the customers. Retailers try to avoid store execution errors, such as out-of-stock and inventory record in-

Download English Version:

<https://daneshyari.com/en/article/6948328>

Download Persian Version:

<https://daneshyari.com/article/6948328>

[Daneshyari.com](https://daneshyari.com)