

## 5 Documents

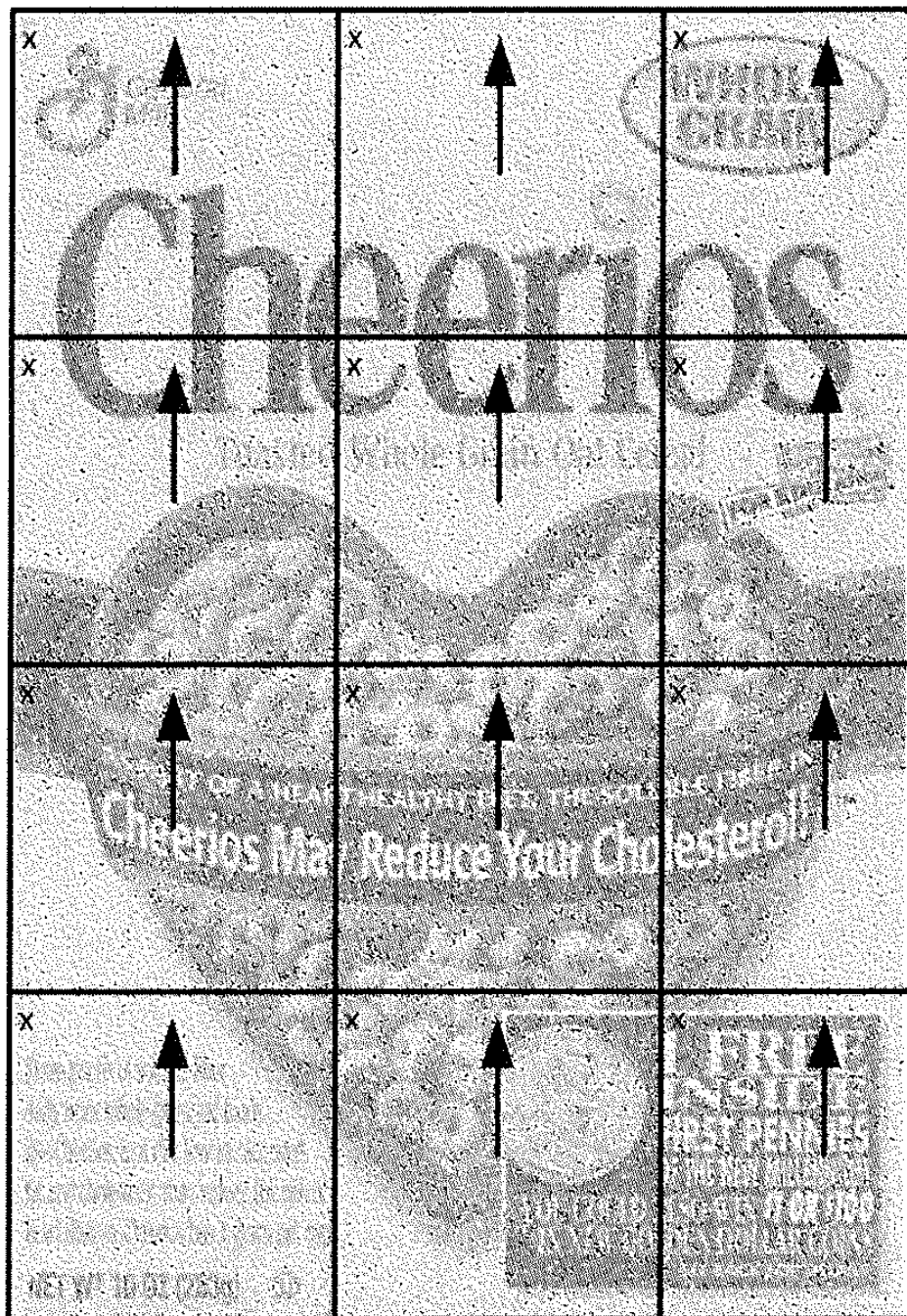
| Publication numbers              | Title                                                                                                                                                                                                                                         | Current assignees                 |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <a href="#">US20140052555 A1</a> | Methods and arrangements for identifying objects                                                                                                                                                                                              | DIGIMARC                          |
| <a href="#">US20120134576 A1</a> | Automatic recognition of images                                                                                                                                                                                                               | HEWLETT PACKARD<br>DEVELOPMENT    |
| <a href="#">EP1524622 A1</a>     | Method and image processing device for analyzing an object contour image, method and image processing device for detecting an object, industrial vision apparatus, smart camera, image display, security system, and computer program product | PHILIPS ELECTRONICS               |
| <a href="#">WO200301435 A1</a>   | Image based object identification                                                                                                                                                                                                             | EMBLAZE SYSTEMS                   |
| <a href="#">NL1018512 C1</a>     | Automatic check-out system                                                                                                                                                                                                                    | BEHEERMAATSCHAPPIJ<br>VAN DER LOO |

Family 1/5 - FAMPAT - ©Questel

**Title**

(WO201463157)

Methods and arrangements for identifying objects

**Images****Publication data including kind & date**

|                               |    |            |               |
|-------------------------------|----|------------|---------------|
| <a href="#">US20140052555</a> | A1 | 2014-02-20 | US20140052555 |
| <a href="#">CA2888153</a>     | A1 | 2014-04-24 | CA2888153     |
| <a href="#">WO2014063157</a>  | A2 | 2014-04-24 | WO201463157   |
| <a href="#">WO2014063157</a>  | A3 | 2014-06-19 | WO201463157   |
| <a href="#">US9129277</a>     | B2 | 2015-09-08 | US9129277     |
| <a href="#">US20160063821</a> | A1 | 2016-03-03 | US20160063821 |



|                               |    |            |               |
|-------------------------------|----|------------|---------------|
| <a href="#">US20160364634</a> | A1 | 2016-12-15 | US20160364634 |
| <a href="#">US9600982</a>     | B2 | 2017-03-21 | US9600982     |
| <a href="#">US20170249491</a> | A1 | 2017-08-31 | US20170249491 |

**Abstract**

(WO201463157)

In some arrangements, product packaging is digitally watermarked over most of its extent to facilitate high-throughput item identification at retail checkouts. Imagery captured by conventional or plenoptic cameras can be processed (e.g., by GPUs) to derive several different perspective -transformed views - further minimizing the need to manually reposition items for identification. Crinkles and other deformations in product packaging can be optically sensed, allowing such surfaces to be virtually flattened to aid identification. Piles of items can be 3D-modelled and virtually segmented into geometric primitives to aid identification, and to discover locations of obscured items. Other data (e.g., including data from sensors in aisles, shelves and carts, and gaze tracking for clues about visual saliency) can be used in assessing identification hypotheses about an item. Logos may be identified and used - or ignored - in product identification. A great variety of other features and arrangements are also detailed.

**Inventors**

RODRIGUEZ TONY F

BAI YANG

CALHOON SEAN

CONWELL WILLIAM Y

EVANS ERIC D

FILLER TOMAS

FOOTEN MARC G

MACINTOSH BRIAN T

STACH JOHN

**Latest standardized assignees - inventors removed**

DIGIMARC

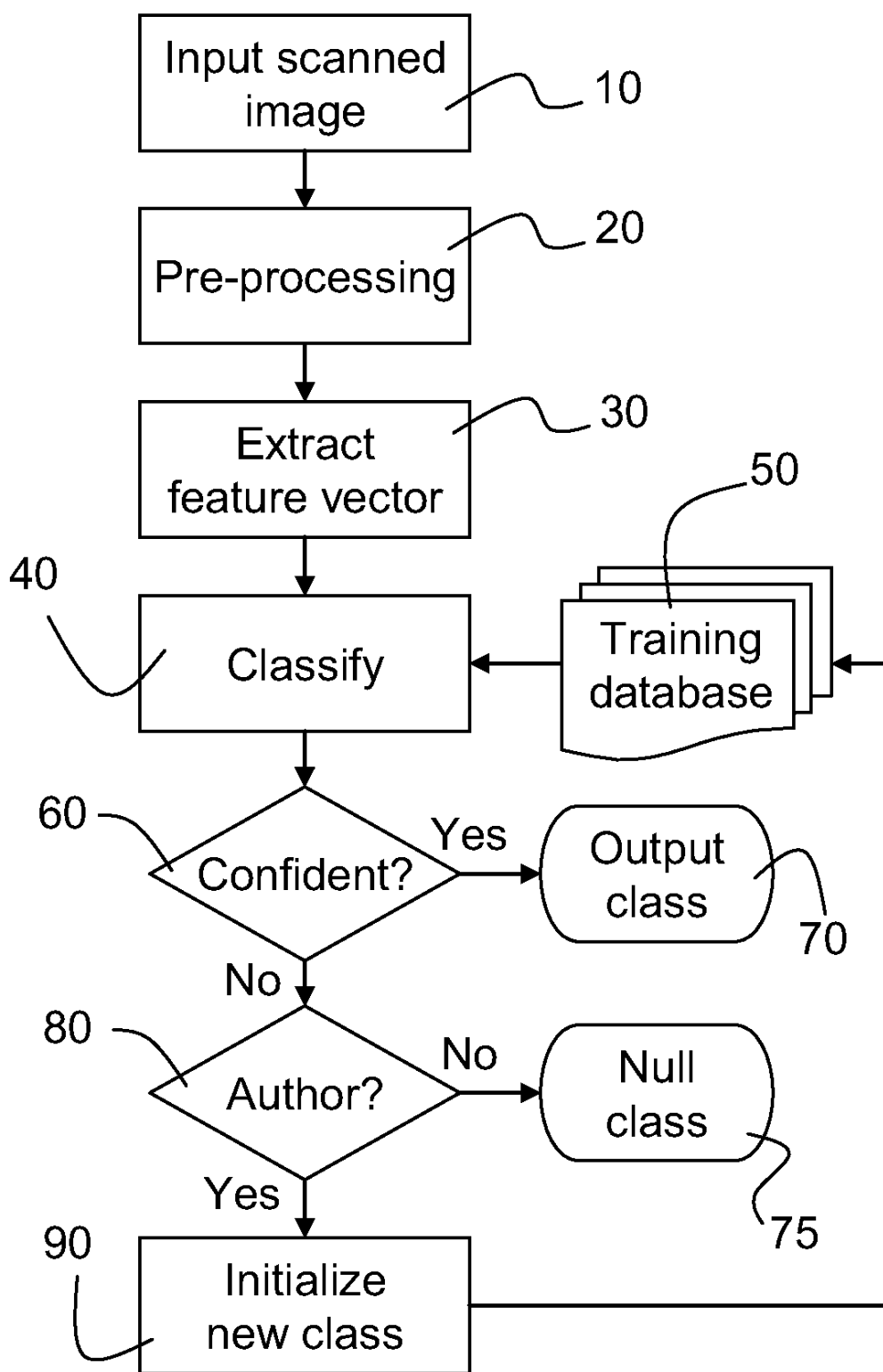
Family 2/5 - FAMPAT - ©Questel

**Title**

(US8744196)

Automatic recognition of images

**Images**

**Publication data including kind & date**

|                                 |    |            |               |
|---------------------------------|----|------------|---------------|
| <a href="#">US20120134576</a>   | A1 | 2012-05-31 | US20120134576 |
| <a href="#">IN3568/CHE/2010</a> | A  | 2013-03-29 | IN2010CH03568 |
| <a href="#">US8744196</a>       | B2 | 2014-06-03 | US8744196     |

**Abstract**

(US8744196)

Presented is a method of automatically performing an action, based on graphical input. The method comprises: receiving, for a user, an input image; comparing the input image with the contents of a user-customized database comprising a

plurality of records, each record representing a predefined class of image, wherein the user has previously associated records in the database with respective specified actions; attempting to recognize the image, based on the similarity of the input image to one of the predefined classes of image represented in the user-customized database; and if the image is recognized, performing the action previously associated by the user with the class. Also presented is apparatus for recognizing an image and a method of constructing a user-customized database.

## Inventors

SHARMA AVINASH

BANERJEE SERENE

KUCHIBHOTLA ANJANEYULU SEETHA RAMA

## Latest standardized assignees - inventors removed

HEWLETT PACKARD DEVELOPMENT

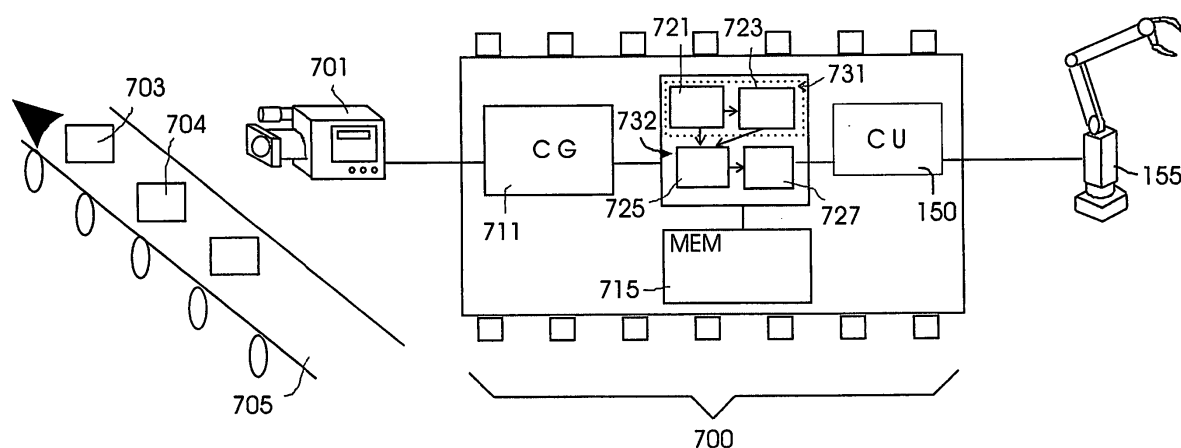
Family 3/5 - FAMPAT - ©Questel

## Title

(EP1678659)

Method and image processing device for analyzing an object contour image, method and image processing device for detecting an object, industrial vision apparatus, smart camera, image display, security system, and computer program product

## Images



## Publication data including kind & date

|                                   |    |            |                |
|-----------------------------------|----|------------|----------------|
| <a href="#">EP1524622</a>         | A1 | 2005-04-20 | EP1524622      |
| <a href="#">WO2005038699</a>      | A1 | 2005-04-28 | WO200538699    |
| <a href="#">EP1678659</a>         | A1 | 2006-07-12 | EP1678659      |
| <a href="#">KR20060100376</a>     | A  | 2006-09-20 | KR20060100376  |
| <a href="#">CN1867928</a>         | A  | 2006-11-22 | CN1867928      |
| <a href="#">JP2007508633</a>      | A  | 2007-04-05 | JP2007508633   |
| <a href="#">US20070098264</a>     | A1 | 2007-05-03 | US20070098264  |
| <a href="#">IN1732/CHENP/2006</a> | A  | 2007-06-29 | IN2006CN01732  |
| <a href="#">EP1678659</a>         | B1 | 2007-08-15 | EP1678659      |
| <a href="#">AT370461</a>          | T  | 2007-09-15 | ATE370461      |
| <a href="#">DE602004008317</a>    | D1 | 2007-09-27 | DE602004008317 |



## Abstract

(EP1678659)

The method of analyzing an object contour image (100), useful for fast object detection based on contour matching comprises: specifying a scan path (306) of positions (xR, yR) in the contour image (100) of a region of interest (303), for processing substantially all pixels of contour image (100); constructing a first table (111) containing for each pixel in the contour image (100) of non-zero value at least one position coordinate (x); constructing a fourth table (311) corresponding

to a position of the region of interest (303), containing at least for each parallel line of pixels traversing the region of interest (303), an index (312) of an entry (121) in the first table (111), of, given a scan direction, the first non zero pixel of the contour image (100) lying on the respective parallel line and being inside the region of interest (303); and constructing a fifth table (313) corresponding to a position of the region of interest (303), containing at least for each parallel line of pixels traversing the region of interest (303), an index (314) of an entry (121) in the first table (111), of, given the scan direction, the last non zero pixel of the contour image (100) lying on the respective parallel line and being inside the region of interest (303).

**Inventors**

VAN LIER ANTONIUS J M

LIU HONG

NICOLESCU CRISTINA

VAN LEEUWEN MARINUS B

**Latest standardized assignees - inventors removed**

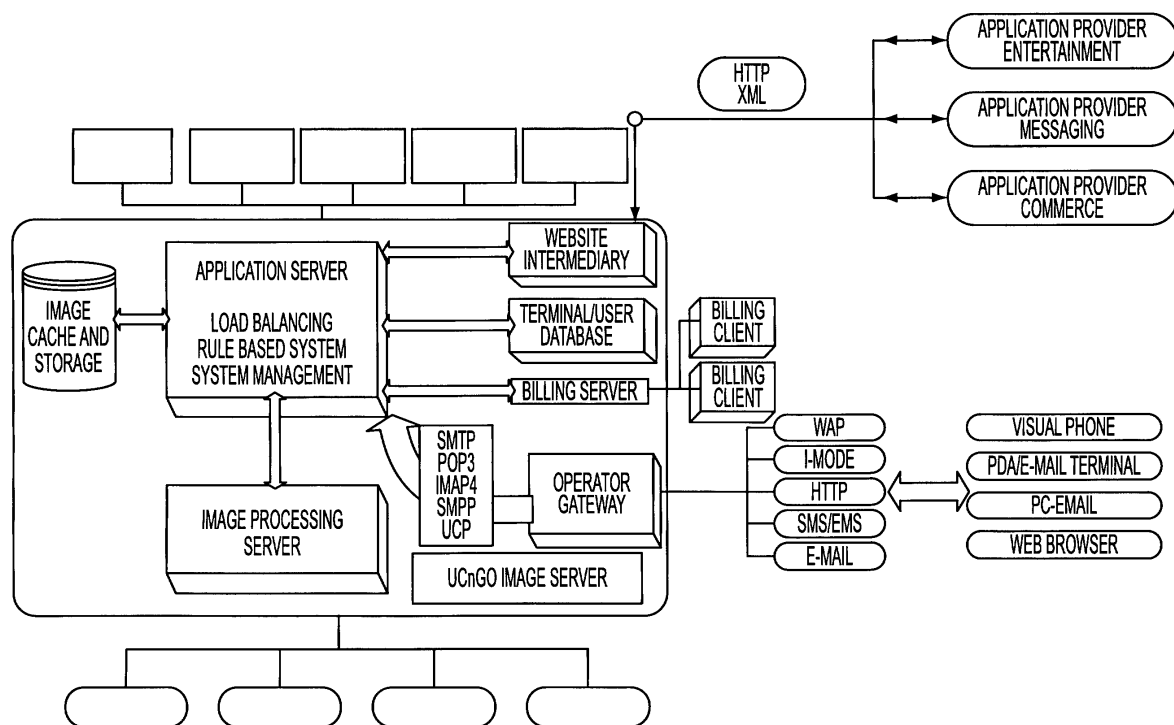
PHILIPS ELECTRONICS

Family 4/5 - FAMPAT - ©Questel

**Title**

(WO200301435)

Image based object identification

**Images****Publication data including kind & date**[WO03001435](#)

A1 2003-01-03

WO200301435

**Abstract**

(WO200301435)

A system for object identification that enables users utilizing an imaging device to obtain information about, select, purchase, or perform other operation on objects. It includes an imaging device, capable of capturing one-dimensional or two-dimensional images of objects. A device capable of sending the coded image through a wired/wireless channel to remote facilities is provided. Algorithms and software for processing and analyzing the images and for extracting from them symbolic information such as digits, letters, text, logos, symbols or icons are provided. It also includes algorithms and software facilitating the identification of the imaged objects based on the information gathered from the image and the information available in databases. Further, it includes algorithms and software for offering various information or services to

the user of the imaging device based on the information gathered from the image and the information available in databases.

**Inventors**

LEV TVSI

**Latest standardized assignees - inventors removed**

EMBLAZE SYSTEMS

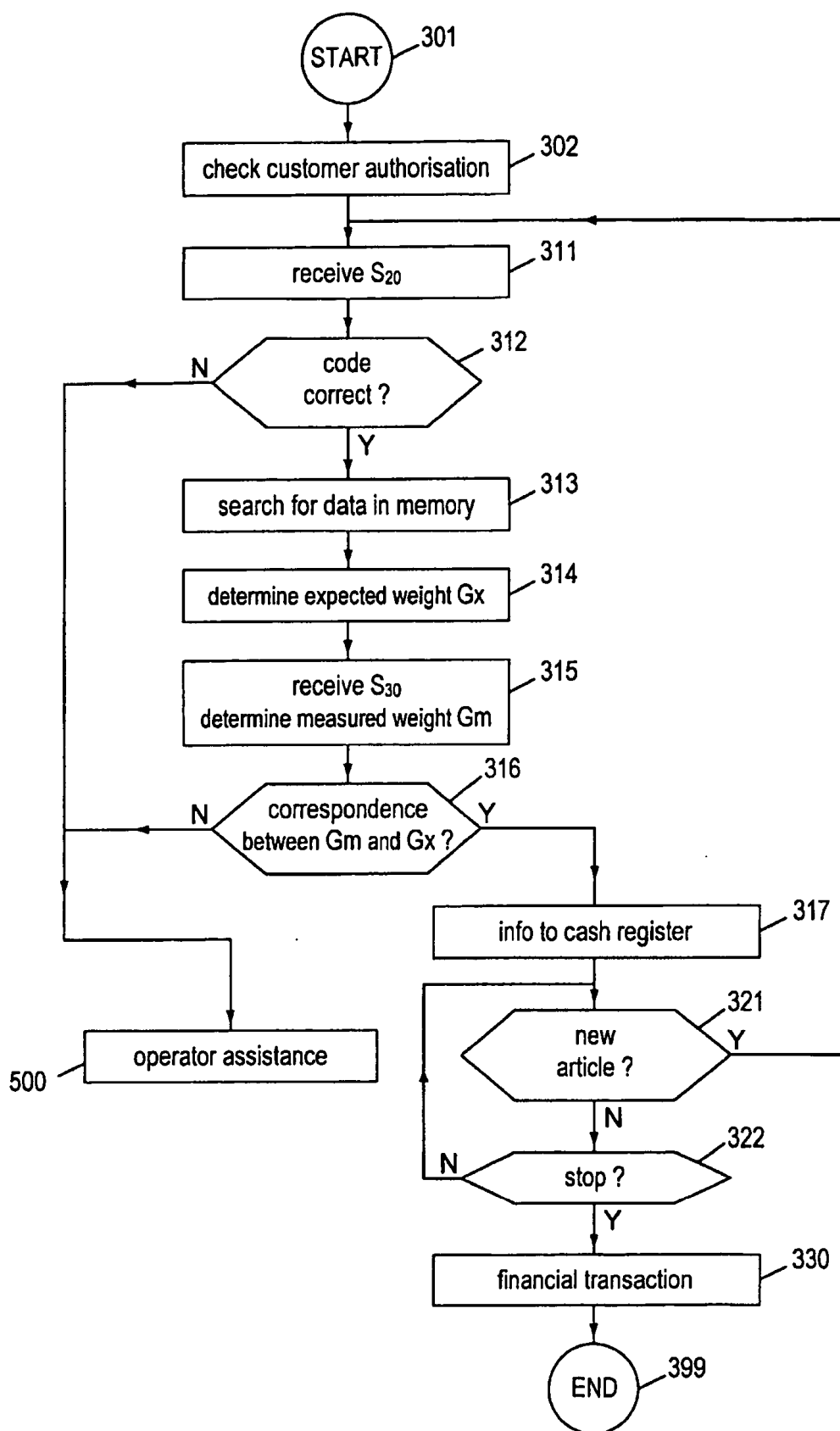
Family 5/5 - FAMPAT - ©Questel

**Title**

(EP1407433)

Automatic check-out system

**Images**



#### Publication data including kind & date

|                            |    |            |             |
|----------------------------|----|------------|-------------|
| <a href="#">NL1018512</a>  | C1 | 2001-11-02 | NL1018512   |
| <a href="#">NL1021040</a>  | A1 | 2003-01-14 | NL1021040   |
| <a href="#">WO03007256</a> | A2 | 2003-01-23 | WO200307256 |
| <a href="#">CA2453540</a>  | A1 | 2003-01-23 | CA2453540   |
| <a href="#">WO03007256</a> | A3 | 2003-12-31 | WO200307256 |
| <a href="#">NL1021040</a>  | C2 | 2004-01-27 | NL1021040   |



|                               |    |            |               |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
|-------------------------------|----|------------|---------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <a href="#">EP1407433</a>     | A2 | 2004-04-14 | EP1407433     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| <a href="#">KR20040036899</a> | A  | 2004-05-03 | KR20040036899 |  |  |  |  |
| <a href="#">US20040199427</a> | A1 | 2004-10-07 | US20040199427 |  |  |  |  |
| <a href="#">JP2004535030</a>  | A  | 2004-11-18 | JP2004535030  |  |  |  |  |

**Abstract**

(EP1407433)

An automatic checkout system is described, usable for application in for instance a supermarket, wherein purchases (2) on a conveyer belt (11) provided with a weighing sensor (30) are guided passed barcode reading means (20), and wherein the identification on the basis of this barcode is checked by weighing the weight (Gm) of an article and comparing this weigh to a weight (Gx) stored in a memory (120).

**Inventors**

VAN DER LOO FRANCISCUS GERARDU

**Latest standardized assignees - inventors removed**

BEHEERMAATSCHAPPIJ VAN DER LOO