

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD. AND
SAMSUNG ELECTRONICS AMERICA, INC.
Petitioner

v.

IMAGE PROCESSING TECHNOLOGIES LLC,
Patent Owner

Case No. IPR2017-01190
U.S. Patent No. 6,717,518

PETITIONER'S DEMONSTRATIVES FOR ORAL HEARING
(EXHIBIT 1020)

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

U.S. Patent No. 6,717,518

Samsung Electronics Co., Ltd. and
Samsung Electronics America, Inc.,
Petitioners,

v.

Image Processing Technologies, LLC,
Patent Owner.

CASE IPR2017-01190

Oral Argument

Overview of the '518 Patent

Claim Construction

Instituted Grounds for Review

Eriksson + Stringa

Ando + Suenaga

Ando + Stringa

Overview of the '518 Patent

Claim Construction

Instituted Grounds for Review

Eriksson + Stringa

Ando + Suenaga

Ando + Stringa

The '518 Patent

(12) **United States Patent**
Pirim et al.

(10) **Patent No.: US 6,717,518 B1**
(45) **Date of Patent: Apr. 6, 2004**

(54) **METHOD AND APPARATUS FOR DETECTION OF DROWSINESS**
(75) Inventors: Patrick Pirim, Paris (FR); Thomas Binford, Cupertino, CA (US)

(73) Assignee: Holding B.E.V.S.A., Luxembourg (LU)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/600,300

(22) PCT Filed: Jan. 15, 1999

(86) PCT No.: PCT/EP99/00300

§ 371 (c)(1), (2)

Cl. (4) Date: Feb. 9, 2001

(87) PCT Pub. No.: WO99/36893

PCT Pub. Date: Jul. 22, 1999

(30) Foreign Application Priority Data

Jan. 15, 1998 (FR) 98 00378

Aug. 25, 1998 (WO) PCT/EP98/05383

(51) Int. Cl. G08B 23/00

(52) U.S. Cl. 340/876, 348/143, 382/117

(58) Field of Search 382/100, 103, 115, 117, 348/143, 148, 672

(56) References Cited

U.S. PATENT DOCUMENTS

4,259,665 A 3/1981 Manning 340/575
4,485,375 A 11/1984 Hoshberger 340/576
4,553,697 A 11/1985 Thackeray 340/575
4,520,000 A 3/1990 Yoshimi et al. 340/575
5,195,006 A 3/1993 Martyniuk 382/272
5,218,987 A 6/1993 Iino et al. 350/210
5,253,083 A 10/1994 Iizuka 340/575
5,402,109 A 3/1995 Mannik 340/575
5,480,443 A 11/1995 Cooper 340/575
5,481,822 A 3/1996 Cochard et al. 382/103
5,682,441 A 10/1997 Mannik 340/575
5,684,461 A 11/1997 Jones 340/575

5,689,241 A 11/1997 Clarke, Sr. et al. 340/575
5,786,785 A 7/1998 Kamakura et al. 340/576
5,813,903 A 9/1998 Kaplan et al. 600/544
5,841,354 A 11/1998 Bae et al. 340/575
5,859,921 A 3/1999 Suzuki 382/118
5,878,156 A 3/1999 Okamura 382/118
6,304,187 B1 10/2001 Paim 340/576

FOREIGN PATENT DOCUMENTS

DE 10715119 A1 11/1997 G08B 23/00
WO 97/01246 1/1997 B04N 7/18
WO 96/05042 2/1996 G06F 7/20

OTHER PUBLICATIONS

Ueno, H. et al., "Development of Drowsiness Detection System" 1994 Vehicle Navigation & Information Systems Conference Proceedings, pp. 15-20, XP 000641294, Aug. 1994.

* cited by examiner

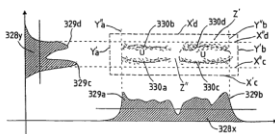
Primary Examiner—Thomas Melton
(74) Attorney, Agent, or Firm—Townsend and Townesend and Chew LLP

(57) ABSTRACT

In a process of detecting a person falling asleep, an image of the face of the person is acquired. Pixels of the image having characteristics corresponding to an eye of the person are selected and a histogram is formed of the selected pixels. The histogram is analyzed over time to identify each opening and closing of the eye, and characteristics indicative of the person falling asleep are determined. A sub-area of the image including the eye may be determined by identifying the head or a facial characteristic of the person, and then identifying the sub-area using an anthropomorphic model.

To determine openings and closings of the eye, histograms of shadowed pixels of the eye are analyzed to determine the width and height of the shadowing, or histograms of movement corresponding to blinking are analyzed. An apparatus for detecting a person falling asleep includes a sensor for acquiring an image of the face of the person, a controller, and a histogram formation unit for forming a histogram on pixels having selected characteristics. Also disclosed is a rear-view mirror assembly incorporating the apparatus.

39 Claims, 20 Drawing Sheets



Patent No.: US 6,717,518 B1
Date of Patent: Apr. 6, 2004

METHOD AND APPARATUS FOR DETECTION OF DROWSINESS

PCT Filed: Jan. 15, 1999

(30) Foreign Application Priority Data

Jan. 15, 1998 (FR) 98 00378
Aug. 25, 1998 (WO) PCT/EP98/05383

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.