

Search strategy

Query

..SEMSEARCH "BLUETOOTH" 82 "ELECTROMYOGRAPHY" 66 "EMOTION RECOGNITION" 100 "FACIAL
EXPRESSION RECOGNITION" 84 "GAME" 92 "GAME CONSOLE" 88 "GAME PLAY" 90 "USER EMOTION" 86 "VIDEO
GAME" 100 "VIDEO GAME PLAY" 96 "VIDEO GAME PLAYER" 94 "BEHAVIORAL PATTERN IDENTIFICATION" 100
"ECHOCARDIOGRAPHY SENSOR ELECTROMYOGRAPHY" 100

..SIMILARITY SS 1 RANKED 2 4 6 8 16 22

13 Documents

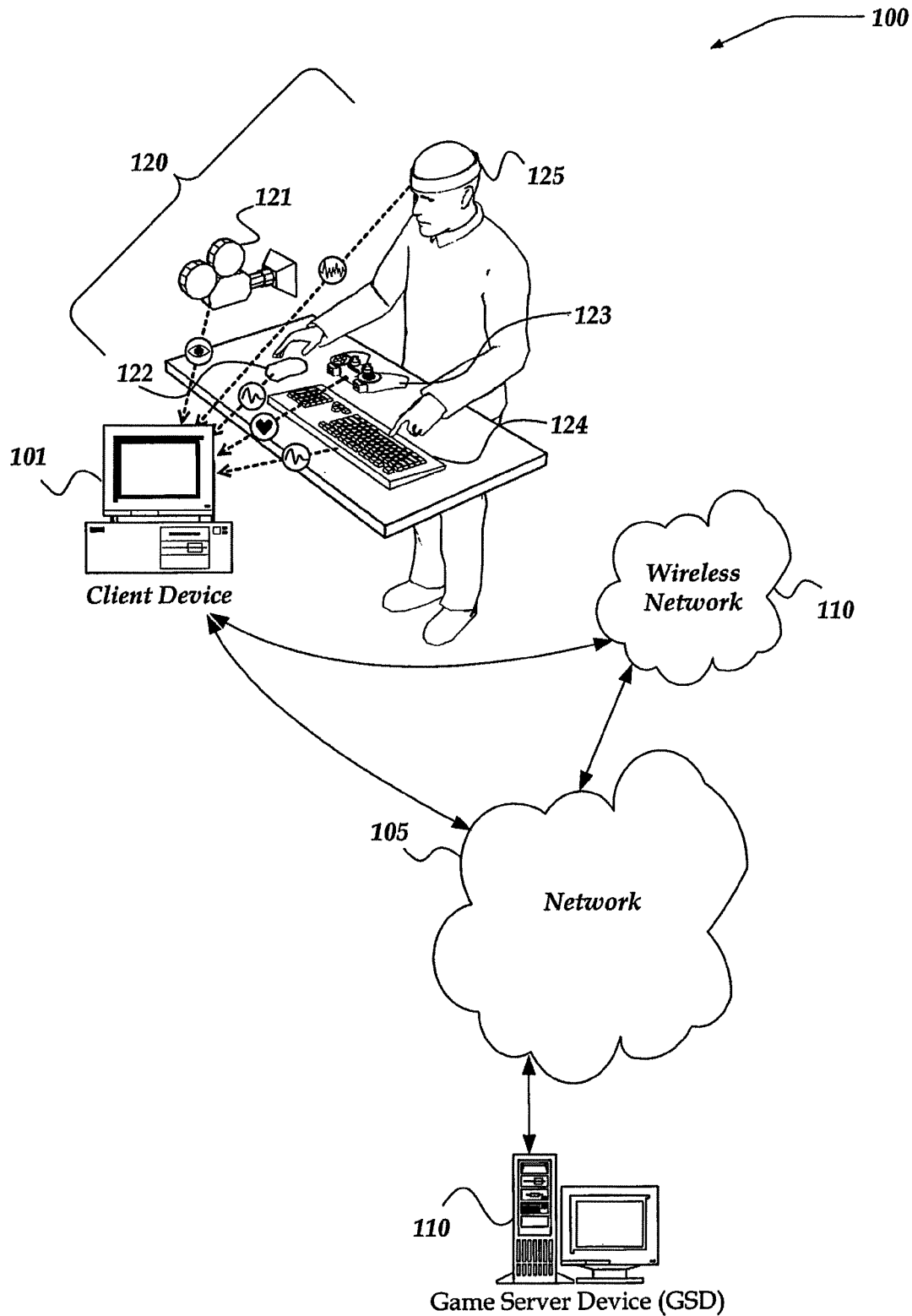
Publication numbers	Title	Current assignees
US20110009193 A1	Player biofeedback for dynamically controlling a video game state	VALVE
EP2715651 A2	Emotion-based user identification for online experiences	MICROSOFT TECHNOLOGY LICENSING
US20070033050 A1	Information processing apparatus and method for recognizing a user's emotion	SONY
EP3582865 A1	Sensing apparatus and method	SONY INTERACTIVE ENTERTAINMENT
WO201462521 A1	Emotion recognition using auditory attention cues extracted from users voice	SONY INTERACTIVE ENTERTAINMENT
WO2009134909 A2	Biofeedback for a gaming device, such as an electronic gaming machine (egm)	BALLY GAMING
US20170060231 A1	Function control method and electronic device processing therefor	SAMSUNG ELECTRONICS
US9084933 B1	Method and system for physiologically modulating action role-playing open world video games and simulations which use gesture and body image sensing control input devices	NASA - NATIONAL AERONAUTICS & SPACE ADMINISTRATION
US20140112556 A1	Multi-modal sensor based emotion recognition and emotional interface	SONY INTERACTIVE ENTERTAINMENT
WO2015100727 A1	Dynamic gaming experience adjustments	EMPIRE TECHNOLOGY DEVELOPMENT
EP1300831 A1	Method for detecting emotions involving subspace specialists	SONY
US20080081692 A1	Physiological user interface for a multi-user virtual environment	NASA - NATIONAL AERONAUTICS & SPACE ADMINISTRATION
US20180240261 A1	System, method and apparatus for detecting facial expression in a virtual reality system	MINDMAZE HOLDING

Family 1/13 - FAMPAT - ©Questel

Title

(US9511289)

Player biofeedback for dynamically controlling a video game state

Images**Publication numbers with kind code & date**[US10427042](#)

B2 2019-10-01

US10427042

[US20170080339](#)

A1 2017-03-23

US20170080339



US20170080339	A1	2017-03-23	US20170080339
US9511289	B2	2016-12-06	US9511289
US20110009193	A1	2011-01-13	US20110009193

**IPC - International classification**

A63F-013/00; A63F-013/00; A63F-013/212; A63F-013/212; A63F-013/42; A63F-013/63; A63F-013/65

Abstract

(US20110009193)

Various embodiments are directed towards employing one or more physical sensors arranged on or in proximity to a video game player to obtain biofeedback measures that are then useable to dynamically modify a state of play of a video game. The sensors may be connected or even un-connected to the game player, replace, or otherwise augment traditional physical game controllers. The sensors gather various biofeedback measures and provide such measures to a biofeedback application programming interface (API). Before and/or during video game play, the video game queries the biofeedback API to request inferences about the game player's state of arousal. The response to the query is then used to modify the state of the video game play. Where the video game is a multi-player video game, biofeedback measures from other game players may also be obtained and used to further modify the state of the video game play.

Inventors

BOND STEVEN J

AMBINDER MICHAEL S

Latest standardized assignees - inventors removed

VALVE

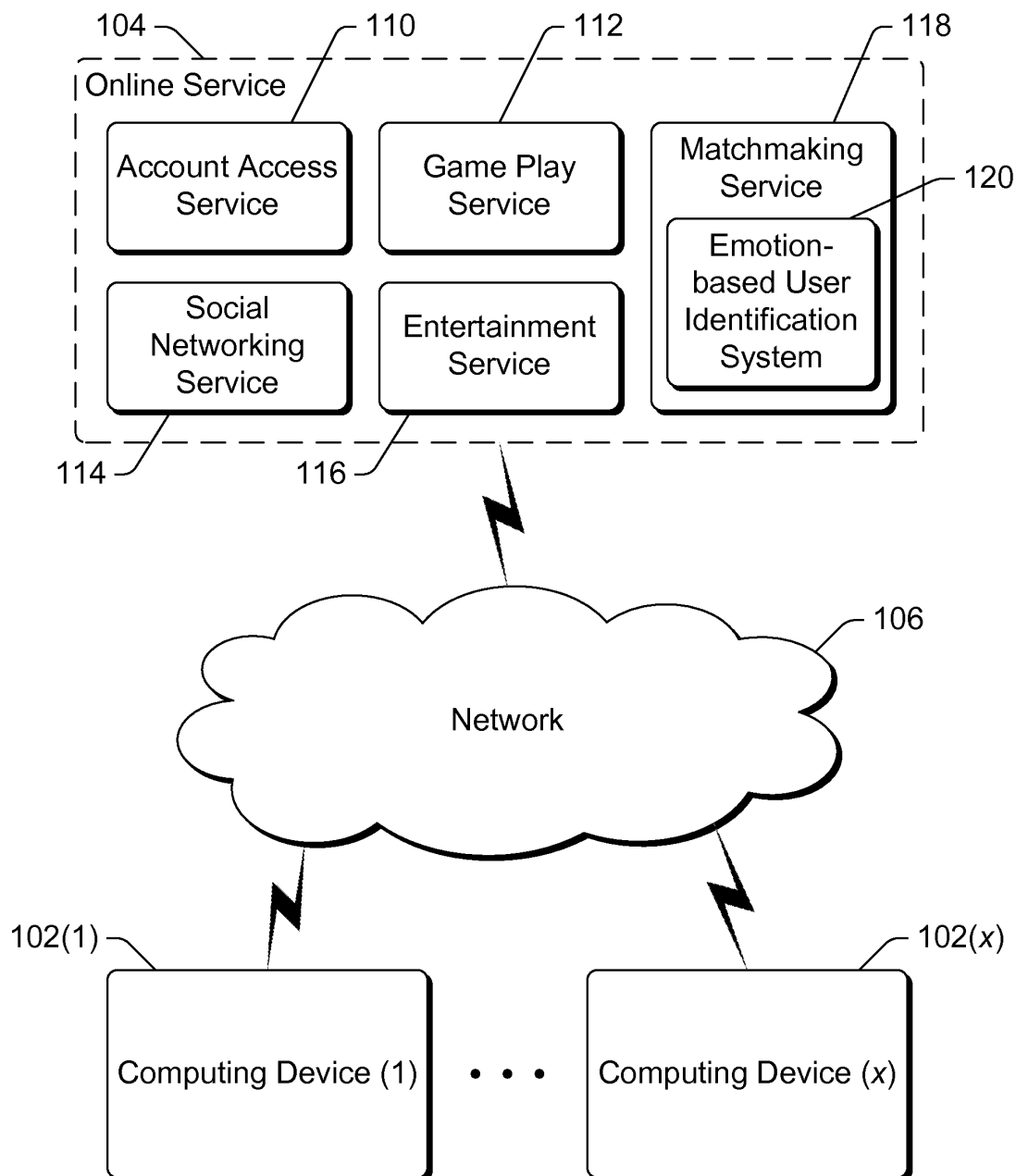
Family 2/13 - FAMPAT - ©Questel

Title

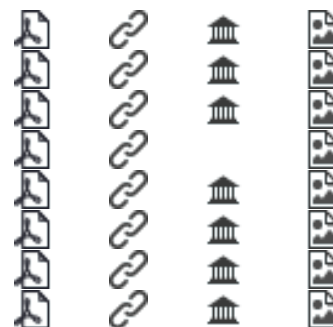
(EP2715651)

Emotion-based user identification for online experiences

Images

100**Publication numbers with kind code & date**

JP2014519124	A	2014-08-07	JP2014519124
EP2715651	A2	2014-04-09	EP2715651
EP2715651	A4	2014-04-09	EP2715651
KR20140038439	A	2014-03-28	KR20140038439
CN103562906	A	2014-02-05	CN103562906
WO2012/166989	A3	2013-02-28	WO2012166989
US20120311032	A1	2012-12-06	US20120311032
WO2012/166989	A2	2012-12-06	WO2012166989

**IPC - International classification**

G06F-013/00; G06F-015/16; G06F-015/16; G06F-017/00; G06F-017/00; G06F-017/30; G06Q-050/00; G06Q-050/00; G06Q-050/10; G06Q-050/10; G06Q-050/30

Abstract

(EP2715651)

Emotional response data of a particular user, when the particular user is interacting with each of multiple other users, is collected. Using the emotional response data, an emotion of the particular user when interacting with each of multiple other users is determined. Based on the determined emotions, one or more of the multiple other users are identified to share an online experience with the particular user.

Inventors

MURPHY BRIAN SCOTT

LATTA STEPHEN G

BENNETT DARREN ALEXANDER

PEREZ PEDRO

WRIGHT SHAWN C

MARKOVIC RELJA

HASTINGS RYAN LUCAS

GEISNER KEVIN

Latest standardized assignees - inventors removed

MICROSOFT TECHNOLOGY LICENSING

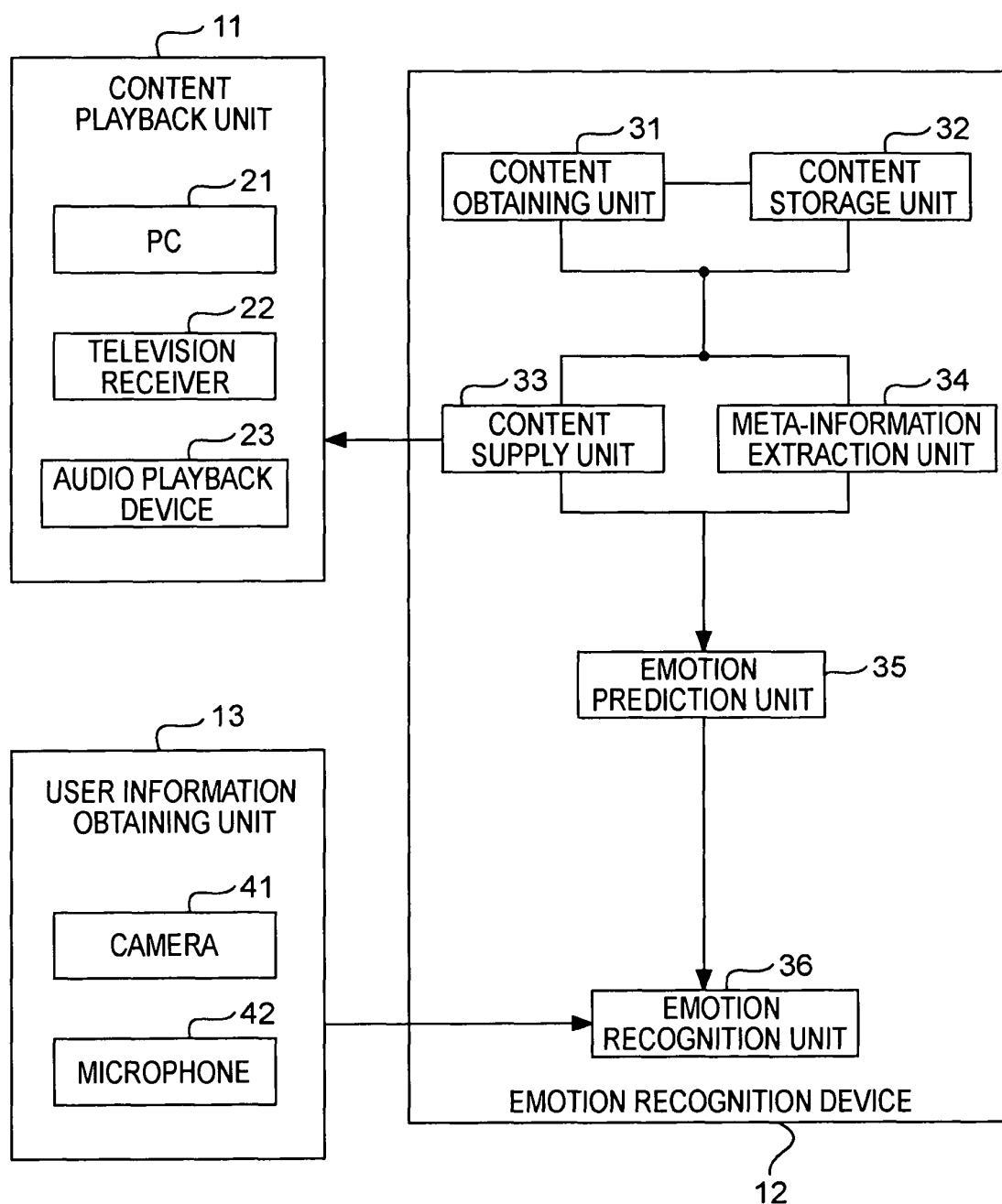
Family 3/13 - FAMPAT - ©Questel

Title

(US8407055)

Information processing apparatus and method for recognizing a user's emotion

Images



Publication numbers with kind code & date

US8407055	B2	2013-03-26	US8407055
CN100394438	C	2008-06-11	CN100394438C
JP2007041988	A	2007-02-15	JP2007041988
US20070033050	A1	2007-02-08	US20070033050
CN1908965	A	2007-02-07	CN1908965



IPC - International classification

G06K-009/62; G06K-009/62; G06T-007/20; G06T-007/20; G10L-015/02; G10L-015/16; G10L-021/06; G10L-021/06

Abstract

(US20070033050)

An information processing apparatus includes an obtaining unit that obtains meta-information concerning content; a predicting unit that predicts an emotion of a user who is viewing the content from the meta-information obtained by the obtaining unit; and a recognizing unit that recognizes an emotion of the user using the emotion predicted by the predicting unit and user information acquired from the user.

Inventors

ASANO YASUHARU

YAMAMOTO NORIYUKI

Latest standardized assignees - inventors removed

SONY

Family 4/13 - FAMPAT - ©Questel

Title

(EP3582865)

Sensing apparatus and method

Images

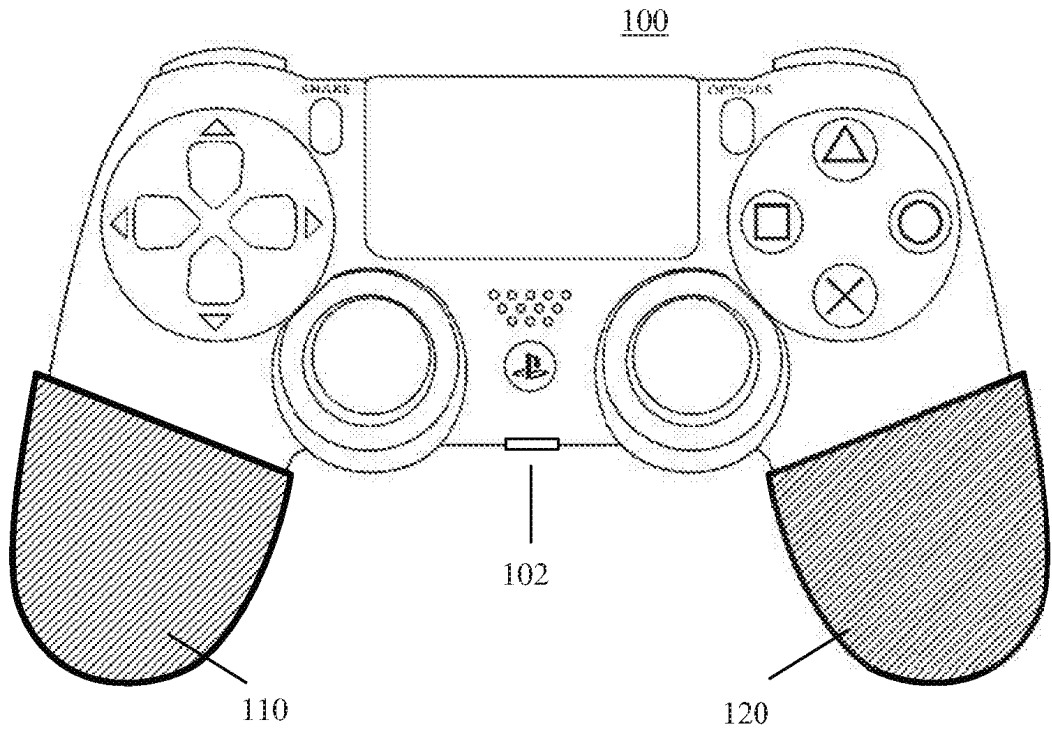


Figure 1A

Publication numbers with kind code & date

EP3582865	A1	2019-12-25	EP3582865
GB2562452	A	2018-11-21	GB2562452
WO2018/150162	A1	2018-08-23	WO2018150162
GB201702352	D0	2017-03-29	GB201702352



IPC - International classification

A63F-013/20; A63F-013/21; A63F-013/212; A63F-013/212; A63F-013/23; A63F-013/24; A63F-013/42; A63F-013/424; A63F-013/792; A63F-013/98; G06F-003/01

Abstract

(EP3582865)

A biofeedback sensor attachment for a controller, the biofeedback sensor attachment comprising one or more sensors for obtaining biofeedback information arranged such that at least one sensor is in contact with a user's hand during normal use of the controller, and an output unit operable to output the biofeedback information about measurements made by the one or more sensors.

Inventors

ANDALL HOGARTH

Latest standardized assignees - inventors removed

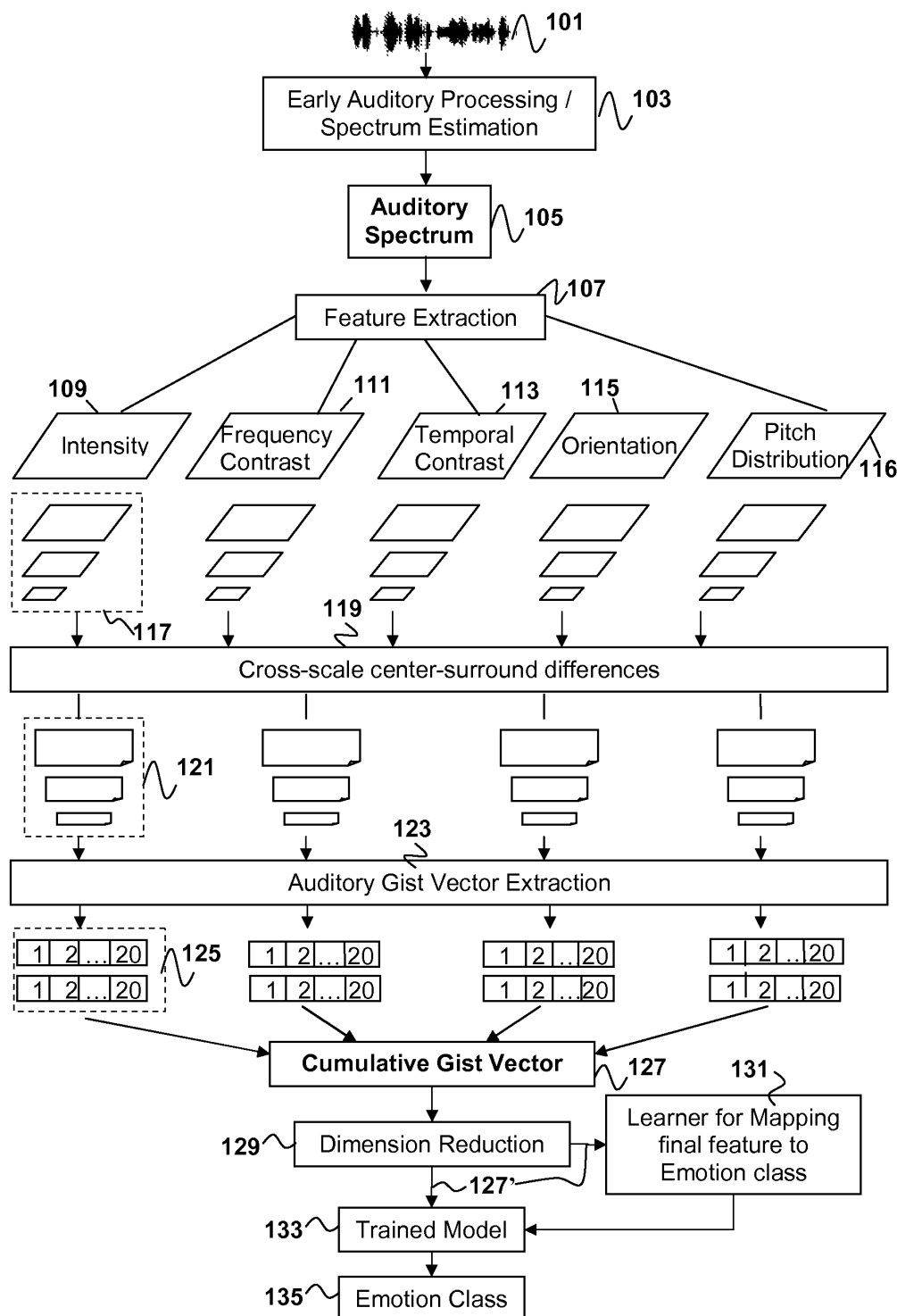
SONY INTERACTIVE ENTERTAINMENT

Family 5/13 - FAMPAT - ©Questel

Title

(WO201462521)

Emotion recognition using auditory attention cues extracted from users voice

Images**Publication numbers with kind code & date**

US9020822

B2

2015-04-28

US9020822

US20140114655

A1

2014-04-24

US20140114655

WO2014/062521

A1

2014-04-24

WO201462521

**IPC - International classification**

G10L-015/00; G10L-021/00; G10L-025/63; G10L-025/63

Abstract

(WO2014/062521)

Emotion recognition may be implemented on an input window of sound. One or more auditory attention features may be extracted from an auditory spectrum for the window using one or more two-dimensional spectro-temporal receptive filters. One or more feature maps corresponding to the one or more auditory attention features may be generated. Auditory gist features may be extracted from feature maps, and the auditory gist features may be analyzed to determine one or more emotion classes corresponding to the input window of sound. In addition, a bottom-up auditory attention model may be used to select emotionally salient parts of speech and execute emotion recognition only on the salient parts of speech while ignoring the rest of the speech signal.

Inventors

KALINLI-AKBACAK OZLEM

Latest standardized assignees - inventors removed

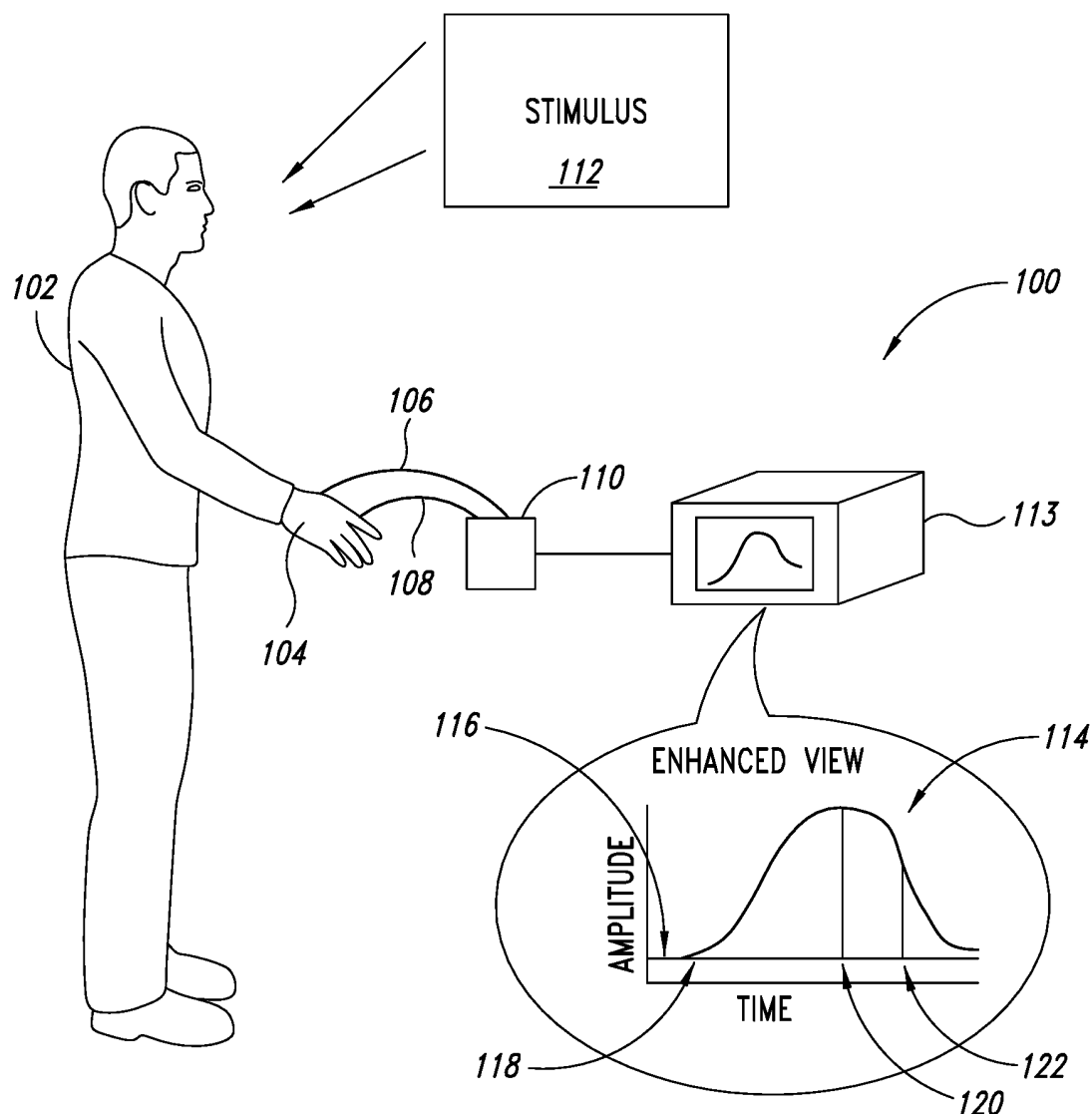
SONY INTERACTIVE ENTERTAINMENT

Family 6/13 - FAMPAT - ©Questel

Title

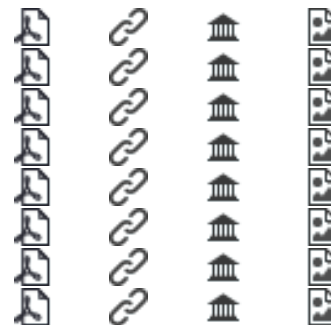
(WO2009134909)

Biofeedback for a gaming device, such as an electronic gaming machine (egm)

Images

Publication numbers with kind code & date

CN102076387	B	2014-04-16	CN102076387B
AU2009243112	B2	2013-11-21	AU2009243112
US8308562	B2	2012-11-13	US8308562
CN102076387	A	2011-05-25	CN102076387
WO2009/134909	A3	2010-01-21	WO2009134909
AU2009243112	A1	2009-11-05	AU2009243112
WO2009/134909	A2	2009-11-05	WO2009134909
US20090270170	A1	2009-10-29	US20090270170

**IPC - International classification**

A63F-009/24; A63F-013/00; A63F-013/00; A63F-013/06; A63F-013/21; A63F-013/42; A63F-013/60; G06F-003/00; G06F-017/00; G06F-019/00

Abstract

(WO2009/134909)

Environmental feedback and/or biofeedback is associated with one or more players' emotions in real time. The emotional feedback is provided to a game device being used by the player, such as an electronic gaming machine (EGM). The game device uses the biofeedback and/or environmental feedback to appropriately adjust the game play to maximize the game's entertainment value to the player(s). The player(s) can be identified, and the game device matches the emotional response with certain game elements being presented at that time and associates this matching to the identified player. The matches can be used to make an adjustment to the game device, to the environments, and/or to take some other action. The game device can also store the matches, combined with any collected environmental and/or biometric stimuli, on a game server or player tracking database via the network. Previous environmental/biometric information can be used to make immediate adjustments to the game or environment, or incorporated into future game design and environmental design.

Inventors

PATTON STEPHEN

Latest standardized assignees - inventors removed

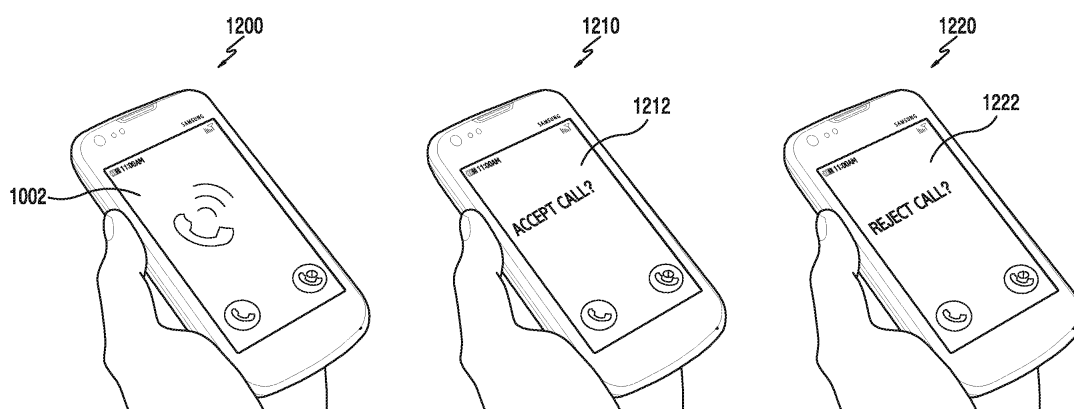
BALLY GAMING

Family 7/13 - FAMPAT - ©Questel

Title

(US20170060231)

Function control method and electronic device processing therefor

Images**Publication numbers with kind code & date**

KR20170027589	A	2017-03-10	KR20170027589
US20170060231	A1	2017-03-02	US20170060231



IPC - International classification

G06F-003/01; G06F-003/01; G06F-003/16; G06K-009/00; G06T-001/00

Abstract

(US20170060231)

Disclosed are a function control method and an electronic device processing the method. An electronic device according to various embodiments may include a memory and a processor electronically connected to the memory. According to an embodiment, the processor may perform a control such that at least one function for the electronic device is performed, an emotion of a user for the performed function is determined, and a scheme for controlling the performed function according to the emotion of the user is output.

Inventors

KIM KYUNG-HWA

Latest standardized assignees - inventors removed

SAMSUNG ELECTRONICS

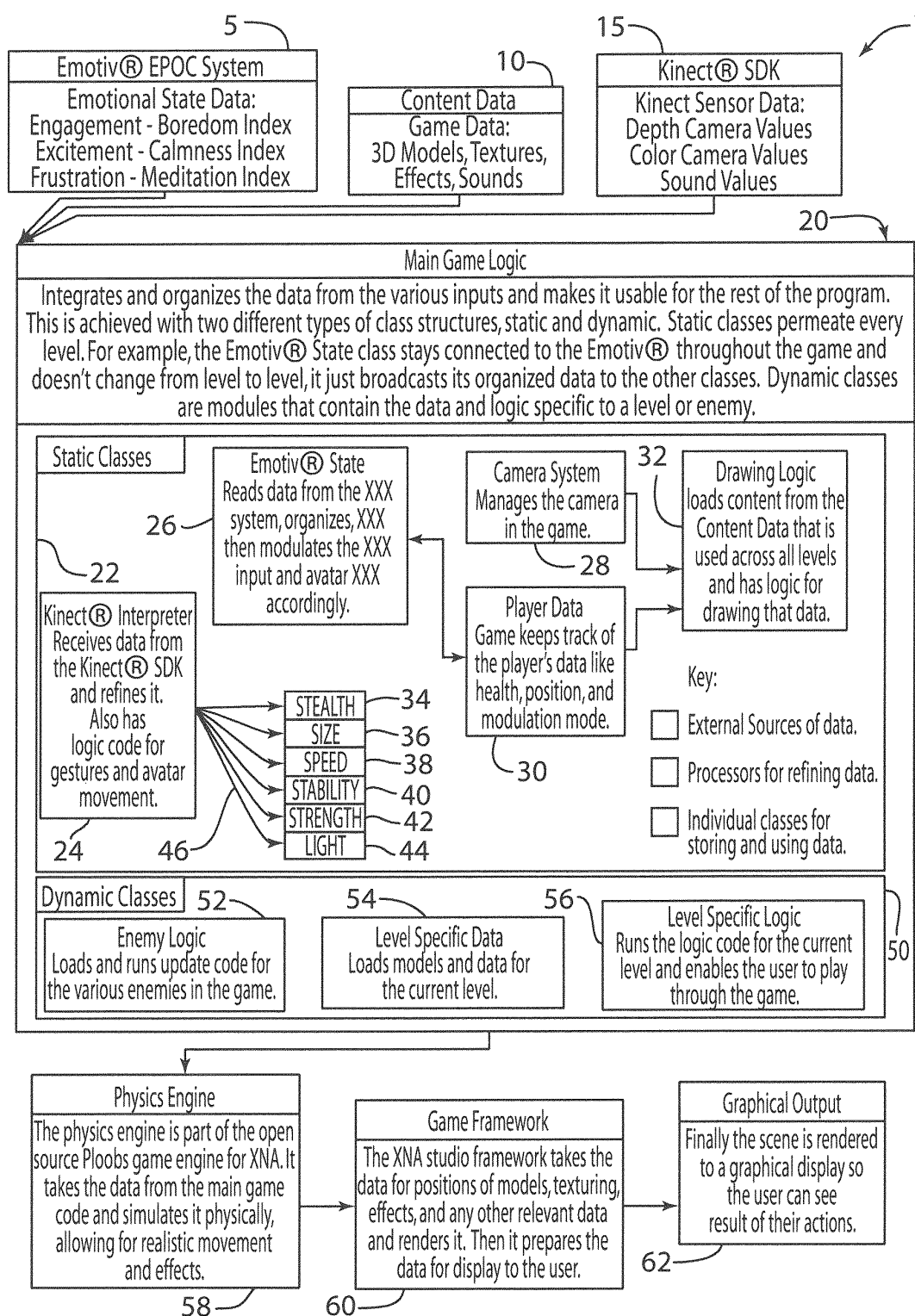
Family 8/13 - FAMPAT - ©Questel

Title

(US9084933)

Method and system for physiologically modulating action role-playing open world video games and simulations which use gesture and body image sensing control input devices

Images



Publication numbers with kind code & date

US9630093	B2	2017-04-25	US9630093
US20150258429	A1	2015-09-17	US20150258429
US9084933	B1	2015-07-21	US9084933



IPC - International classification

A63F-013/20; A63F-013/212; A63F-013/213; A63F-013/219; A63F-013/42

Abstract

(US9084933)

Method for physiologically modulating videogames and simulations includes utilizing input from a motion-sensing video game system and input from a physiological signal acquisition device. The inputs from the physiological signal sensors are utilized to change the response of a user's avatar to inputs from the motion-sensing sensors. The motion-sensing system

comprises a 3D sensor system having full-body 3D motion capture of a user's body. This arrangement encourages health-enhancing physiological self-regulation skills or therapeutic amplification of healthful physiological characteristics. The system provides increased motivation for users to utilize biofeedback as may be desired for treatment of various conditions.

Inventors

POPE ALAN T

STEPHENS CHAD L

JONES CHRISTOPHER A

Latest standardized assignees - inventors removed

NASA - NATIONAL AERONAUTICS & SPACE ADMINISTRATION

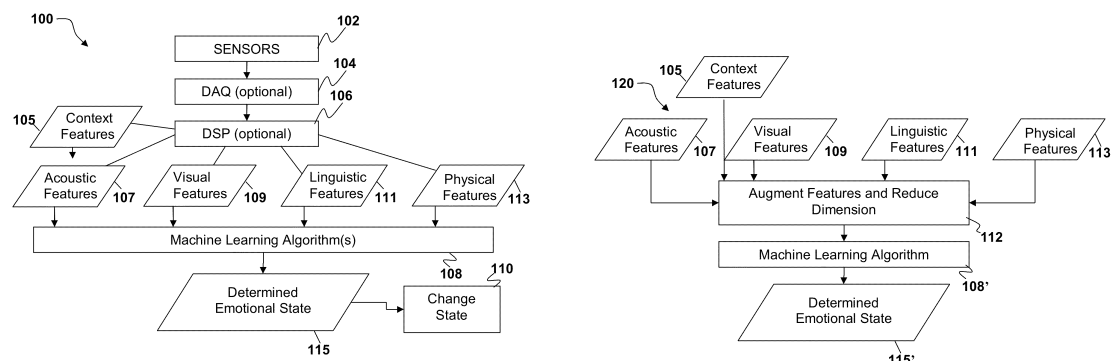
Family 9/13 - FAMPAT - ©Questel

Title

(US9031293)

Multi-modal sensor based emotion recognition and emotional interface

Images



Publication numbers with kind code & date

[US9031293](#)

B2

2015-05-12

US9031293

[US20140112556](#)

A1

2014-04-24

US20140112556



IPC - International classification

G06F-003/01; G06K-009/00; G06K-009/00; G06K-009/66; G10L-017/26; G10L-021/00; G10L-025/63

Abstract

(US20140112556)

Features, including one or more acoustic features, visual features, linguistic features, and physical features may be extracted from signals obtained by one or more sensors with a processor. The acoustic, visual, linguistic, and physical features may be analyzed with one or more machine learning algorithms and an emotional state of a user may be extracted from analysis of the features. It is emphasized that this abstract is provided to comply with the rules requiring an abstract that will allow a searcher or other reader to quickly ascertain the subject matter of the technical disclosure. It is submitted with the understanding that it will not be used to interpret or limit the scope or meaning of the claims.

Inventors

KALINLI-AKBACAK OZLEM

Latest standardized assignees - inventors removed

SONY INTERACTIVE ENTERTAINMENT

Family 10/13 - FAMPAT - ©Questel

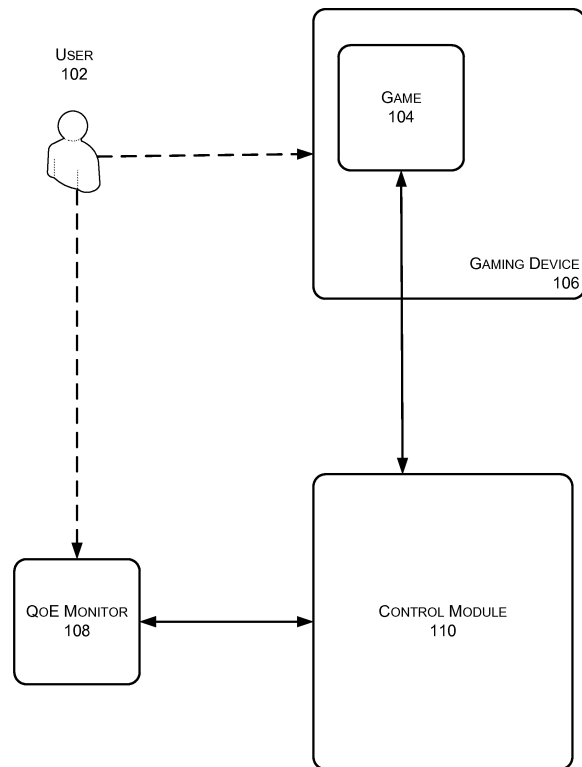
Title

(WO2015100727)

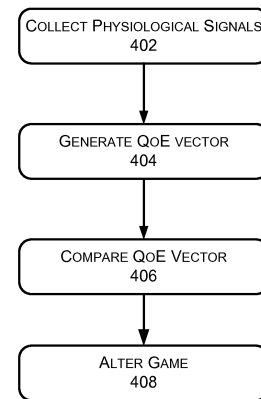
Dynamic gaming experience adjustments

Images

100



400

**Publication numbers with kind code & date**

US9827498	B2	2017-11-28	US9827498
US20160271497	A1	2016-09-22	US20160271497
WO2015/100727	A1	2015-07-09	WO2015100727

**IPC - International classification**

A63F-013/00; A63F-013/00; A63F-013/212; A63F-013/67

Abstract

(WO2015/100727)

Technologies are generally described to dynamically alter a game while a gamer is playing the game so as to affect the gaming experience experienced by the gamer. According to some examples, one or more physiological signals may be collected from a gamer as the gamer is playing a game. Based on the collected physiological signals, a Quality of Experience (QoE) vector that indicates the gaming experience of the gamer may be generated. The QoE vector may then be compared with a corresponding value of a predetermined QoE function, and the game may be altered based on the comparison.

Inventors

LI DAQI

FANG JUN

Latest standardized assignees - inventors removed

EMPIRE TECHNOLOGY DEVELOPMENT

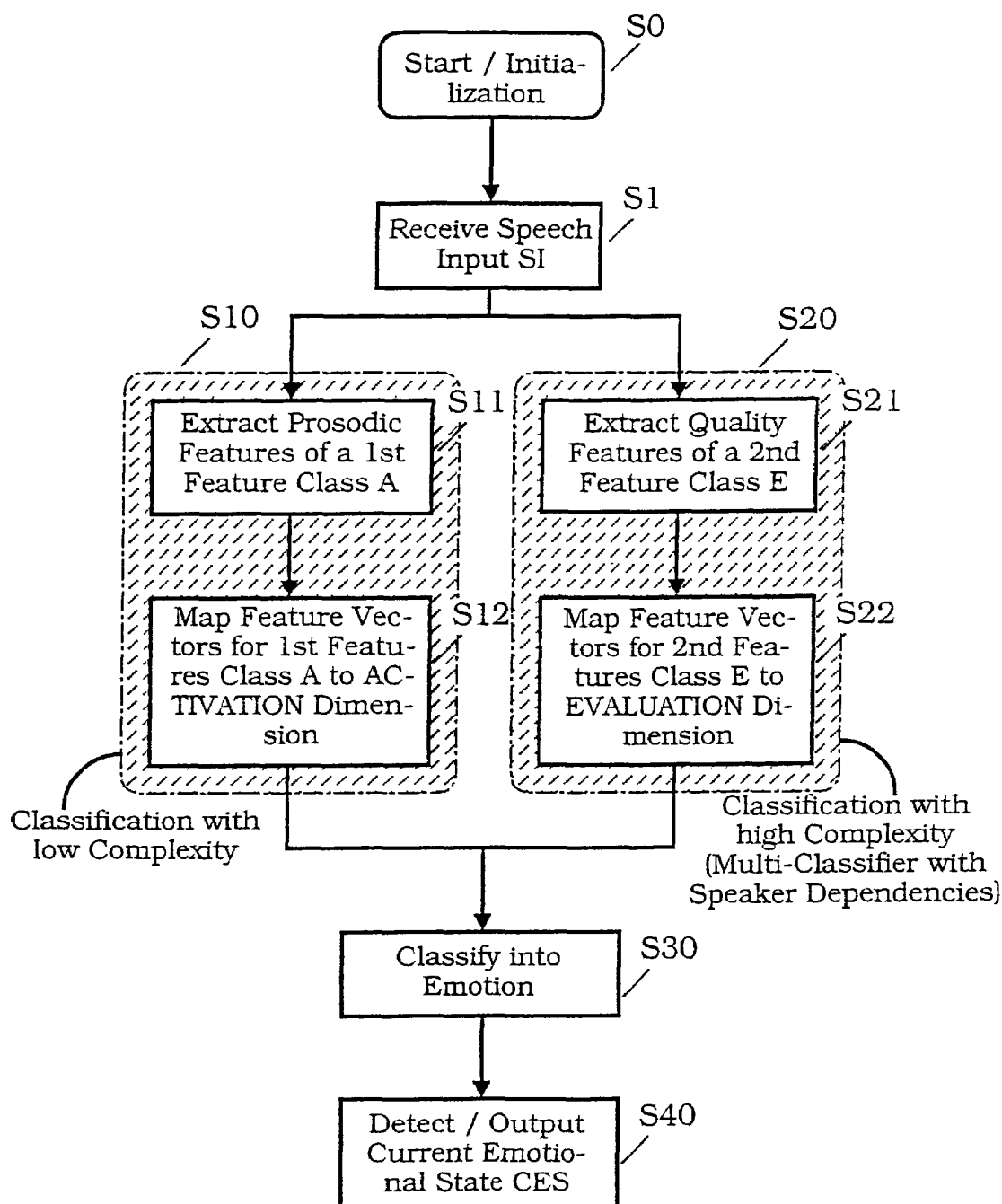
Family 11/13 - FAMPAT - ©Questel

Title

(EP1300831)

Method for detecting emotions involving subspace specialists

Images



Publication numbers with kind code & date

US7729914	B2	2010-06-01	US7729914
DE60115653	T2	2006-08-10	DE60115653
DE60115653	D1	2006-01-12	DE60115653
EP1300831	B1	2005-12-07	EP1300831
JP2003162294	A	2003-06-06	JP2003162294
US20030069728	A1	2003-04-10	US20030069728
EP1300831	A1	2003-04-09	EP1300831



IPC - International classification

G10L-011/00; G10L-015/00; G10L-015/02; G10L-015/10; G10L-015/18; G10L-017/00; G10L-017/26; G10L-021/00

Abstract

(EP1300831)

To detect and determine a current emotional state (CES) of a human being from a spoken speech input (SI), it is suggested in a method for detecting emotions to identify first and second feature classes (A, E) with, in particular distinct, dimensions of an underlying emotional manifold (EM) or emotional space (ES) and/or with subspaces thereof. <IMAGE>

Inventors

TATO RAQUEL

KEMP THOMAS

MARASEK KRZYSZTOF

Latest standardized assignees - inventors removed

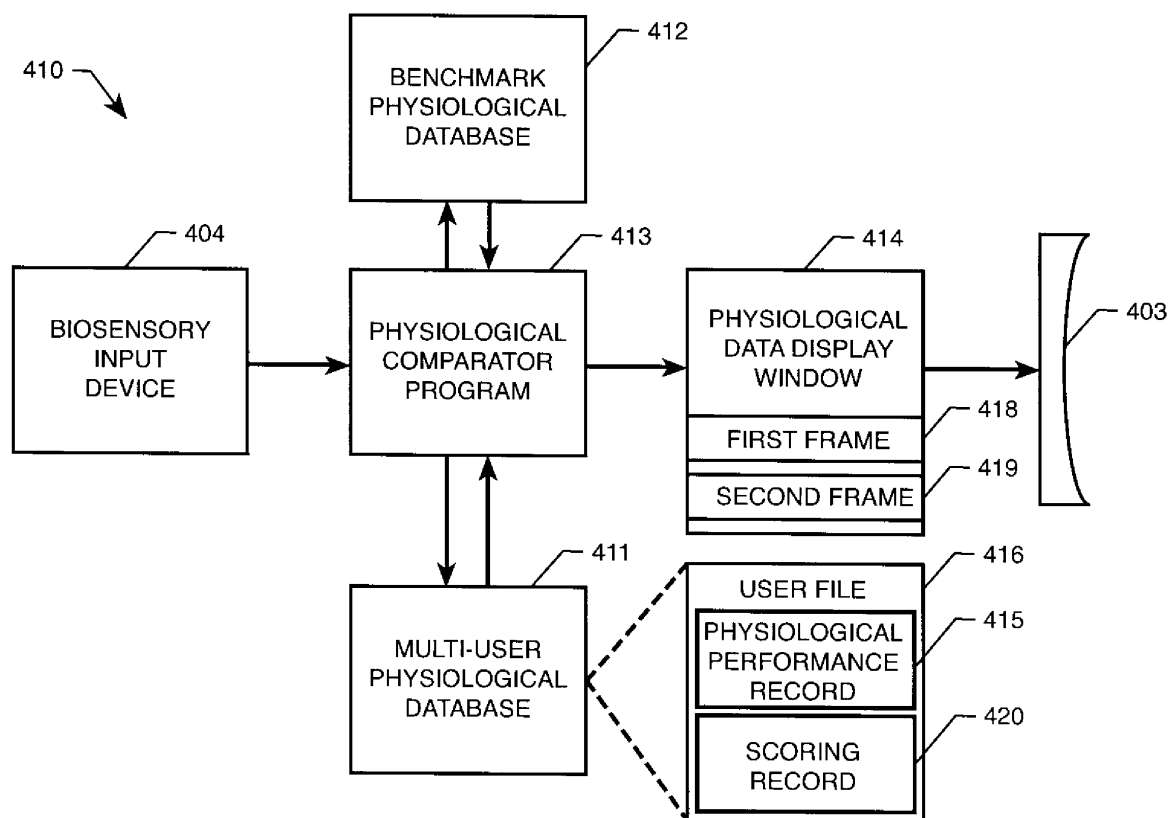
SONY

Family 12/13 - FAMPAT - ©Questel

Title

(US8062129)

Physiological user interface for a multi-user virtual environment

Images**Publication numbers with kind code & date**

US8858325	B2	2014-10-14	US8858325
US20110300523	A1	2011-12-08	US20110300523
US8062129	B2	2011-11-22	US8062129
US20080081692	A1	2008-04-03	US20080081692

**IPC - International classification**

A63F-013/20; A63F-013/40; G06F-017/00; G06F-017/00

Abstract

(US20080081692)

A system and method for incorporating biofeedback training into each user's interaction with a multi-user virtual environment, such as a multi-user videogame or a multi-user computer-simulated task, and for enhancing each user's sense of immersion in the multi-user virtual environment, by using measured values of physiological functions received as real-time outputs from at least one biosensory device operatively connected to each user while each user is interacting with the multi-user virtual environment to influence a score of each user's performance, such that each user demonstrating relatively superior physiological self-regulatory skill is rewarded and each user demonstrating relatively inferior physiological self-regulatory skill is penalized.

Inventors

POPE ALAN T

PALSSON OLAFUR S

Latest standardized assignees - inventors removed

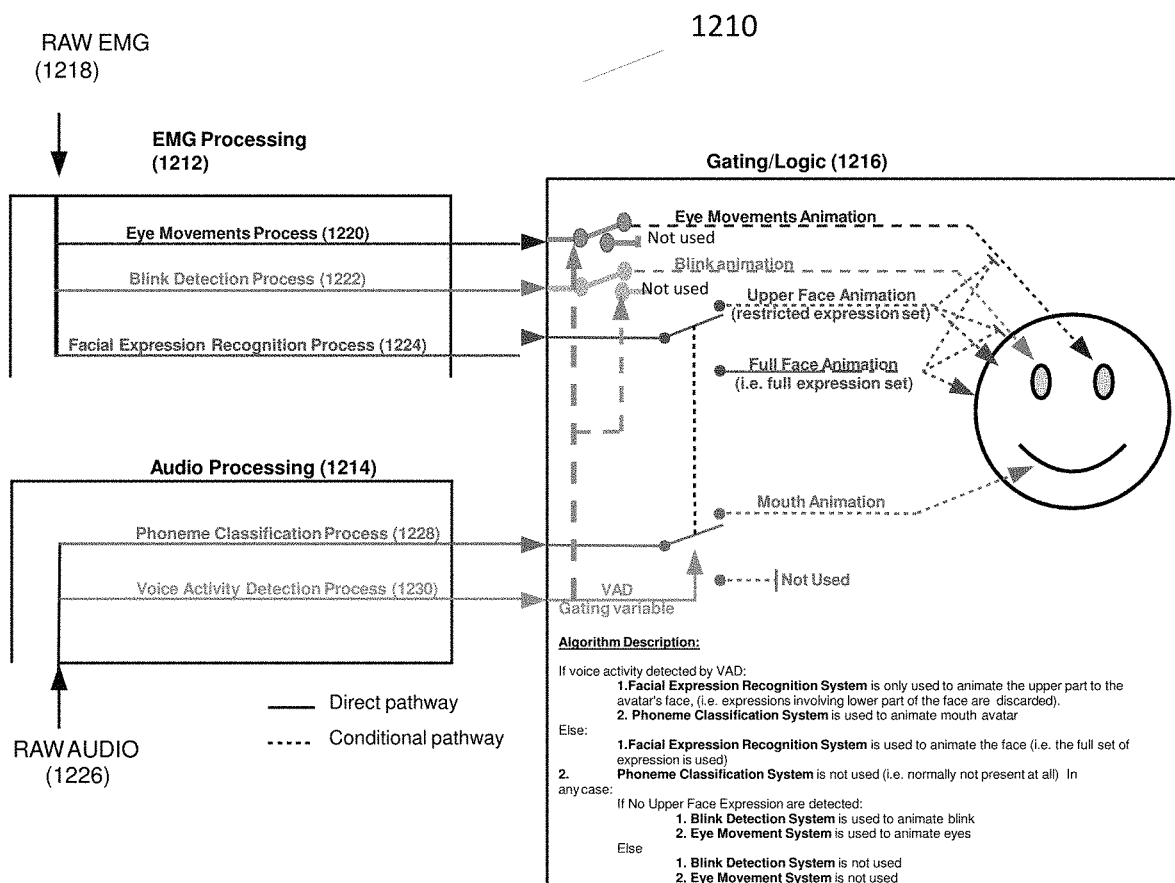
NASA - NATIONAL AERONAUTICS & SPACE ADMINISTRATION

Family 13/13 - FAMPAT - ©Questel

Title

(US10515474)

System, method and apparatus for detecting facial expression in a virtual reality system

Images**Publication numbers with kind code & date**

US10515474 B2 2019-12-24

US10515474

US20180240261 A1 2018-08-23

US20180240261

**IPC - International classification**

G02B-027/01; G06F-003/01; G06K-009/00; G06T-013/40

Abstract

(US20180240261)

A system, method and apparatus for detecting facial expressions according to EMG signals for a VR environment.

Inventors

TADI TEJ

LEEB ROBERT

BOURDAUD NICOLAS

GARIPELLI GANGADHAR

MENSI SKANDER

MERLINI NICOLAS

LEBRUN YANN

GIROUX ARTHUR

CARDIN SYLVAIN

Latest standardized assignees - inventors removed

MINDMAZE HOLDING