



New connection on: : 19-05-2018 : 04:21:59 - Last disconnection on: : 19-05-2018 : 00:51:19

V 4.0.0.44358(LP,U,linux) (Rev:43856 2017-04-27 09:03:29+0200#(D201802)) (RPM D201802)

Welcome to EPOQUE Rebuild under the Production Environment

[EPODOC: SS 9] solar and plant and power and preditcion

Results in EPODOC 0

EPODOC: term 'PREDITCION' not found in index 'BI'. WARNING(1)

[SS 10] solar and plant

Results in EPODOC 7.759

[SS 11] and prediction

An expression is expected. ERROR(-101305)

[SS 11] 10 and predic+

Results in EPODOC 54

[SS 12] 11 and power

Results in EPODOC 45

[SS 13] 12 and polyni+

Results in EPODOC 0

[SS 14] 12 and cloud+

Results in EPODOC 4

[SS 15] ..v

[EPODOC: SS 15] ..li



1/4 © EPODOC / EPO

PN - [CN106709585](#) A 20170524

PR - CN20151425007 20150720

AP - CN20151425007 20150720

DT - I

PA - ZHOU XIWEI

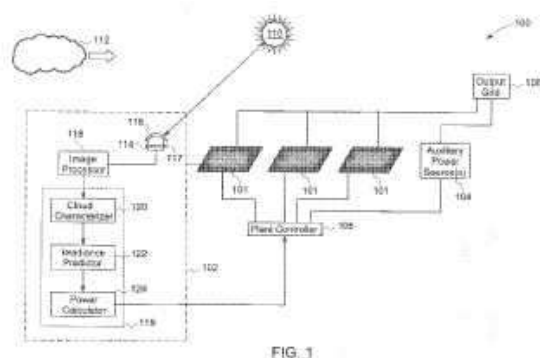
TI - System for realizing ultra-short-term photovoltaic **power prediction** by using real-time shooting

AB - The invention, which belongs to the technical field of new energy **power** generation, particularly relates to a system for realizing ultra-short-term photovoltaic **power prediction** by using real-

time shooting. The system is composed of a camera, a camera storage module, an image change recognition module, an environmental monitoring instrument, a computer, an image processing program module, a photovoltaic **power** analysis module, a history and statistical analysis database subsystem, a communication connection device, and a system **power** supply. A common shooting device and the environmental monitoring instrument obtain **cloud** data and environmental data of a photovoltaic **power plant** area; the computer analyzes and sets a **cloud** image change and an image gray scale at a time interval; and accurate minute-level ultra-short-term photovoltaic **power prediction** is realized by combining historical and statistical analysis data and data of the **solar** track point. The system can be implemented simply and practically and can be popularized easily.

2/4 © EPODOC / EPO

- PN - [US2013258068](#) A1 20131003
- PNFP - US9007460 B2 20150414
- PR - US201213434866 20120330
- AP - US201213434866 20120330
- DT - **
- CT - || R141 (A1)
[US2010309330](#) A1 20101209 [] (BECK BERNHARD [DE]);
[US2011220091](#) A1 20110915 [] (KROYZER GIL [IL]);
[US2012121125](#) A1 20120517 [] (DIMOV DMITRY [US]);
[EP1600890](#) A2 20051130 [] (TOSHIBA KK [JP])
- || STSE (B2)
[US2010309330](#) A1 20101209 [] (BECK BERNHARD [DE]);
[US2011220091](#) A1 20110915 [] (KROYZER GIL [IL]);
[US2012121125](#) A1 20120517 [] (DIMOV DMITRY [US]);
[EP1600890](#) A2 20051130 [] (TOSHIBA KK [JP])
- CTNP - || R141 (A1)
[] - McGuffe, K. et al., Almost a Century of "Imaging" Clouds Over the Whole-Sky Dome. Bull. Amer. Meteor. Soc., 70, 1243-12531989;
[] - Chi Wai Chow et al., Intra-hour forecasting with a total sky imager at the UC San Diego solar energy testbed, Solar Energy, Volume 85, Issue 11, Pages 2881-2893November 2011; and
[] - Lenz, Reiner, et al., "If I had a fisheye I would not need SO(1, n), or is hyperbolic geometry useful in image processing?" Proc. of the SSAB Symposium, Uppsala, Sweden1998.
[] - K. Miyamoto, "Fish Eye Lens," J. Opt. Soc. Am. 54, 1060-10611964
- || STSE (B2)
[] - McGuffe, K. et al., Almost a Century of "Imaging" Clouds Over the Whole-Sky Dome. Bull. Amer. Meteor. Soc., 70, 1243-12531989.



	[] - Chi Wai Chow et al., Intra-hour forecasting with a total sky imager at the UC San Diego solar energy testbed, Solar Energy, vol. 85, Issue 11, pp. 2881-2893 Nov. 2011; and. [] - Lenz, Reiner, et al., "If I had a fisheye I would not need SO(1, n), or is hyperbolic geometry useful in image processing?" Proc. of the SSAB Symposium, Uppsala, Sweden 1998. [] - K. Miyamoto, "Fish Eye Lens," J. Opt. Soc. Am. 54, 1060-1061 1964.
CCI	- G01W1/10 ; H01L31/02021 ; F24S50/00
CUI	- H04N13/204
CQI	- F24J2/40 ; H04N7/18
CCA	- Y02E10/40 ; Y02E10/50 ; F24S2201/00
CQA	- F24J2200/04
PA	- (A1 B2) SCHMIDT MICHAEL [DE]; HELLER CHRISTIAN MARIA ANTON [DE]; MAYER OLIVER GERHARD [DE]; ZETTL MARCUS [DE]; GONZALEZ OMAR IVAN STERN [DE]; HERNANDEZ YARUNAJEM MENDEZ [DE]; LYNASS MARK RONALD [DE]; SERRA EVA BERNAL [DE]; HARTUNG MARIANNE [DE]; GEN ELECTRIC [US]
TI	- (A1) Methods and Systems for Predicting Cloud Movement - (B2) Methods and systems for predicting cloud movement
AB	- (A1) A prediction system for predicting solar irradiance based on cloud characteristics is presented. The system includes a sky imager that includes a customized lens configured to capture one or more substantially planar images of the sky. The prediction system further includes an image processor coupled to the sky imager and configured to process the one or more substantially planar images. Moreover, the prediction system includes a computing system coupled to the image processor and configured to detect cloud characteristics based on the one or more substantially planar images, and predict the solar irradiance based on the cloud characteristics. Methods and non-transitory computer readable medium configured to perform the method for predicting power output of one or more solar panels in a solar plant based on cloud characteristics are also presented. - (B2)

A **prediction** system for **predicting solar** irradiance based on **cloud** characteristics includes a sky imager that includes a customized lens configured to capture one or more substantially planar images of the sky. The **prediction** system further includes an image processor coupled to the sky imager and configured to process the one or more substantially planar images. Moreover, the **prediction** system includes a computing system coupled to the image processor and configured to detect **cloud** characteristics based on the one or more substantially planar images, and **predict** the **solar** irradiance based on the **cloud** characteristics.

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PN - [EP2645135](#) A1 20131002

PR - US201213434866 20120330

AP - EP20130161715 20130328

DT - *; Rep

CT - || STSE (A1)

[US2010309330](#) A1 20101209 [XAY] (BECK BERNHARD [DE])

[X] 1,5-7

* paragraph [0056] - paragraph [0069];
figures 2a,2b2c,3a,3b,4a,4b *

[A] 10

[Y] 2-4,8,9,11-15;

[JP2007184354](#) A 20070719 [X] (MITSUBISHI ELECTRIC CORP)

[X] 1,5-7

* the whole document *;

[XP002698424](#) A[Y]

CTNP - || STSE (A1)

[Y] - Wikipedia, "Fisheye lens", (20120204),
URL: http://web.archive.org/web/20120209093307/http://en.wikipedia.org/wiki/Fisheye_lens, (20130607),

[XP002698424](#)

[Y] 2-4,8,9,11-15

* the whole document *

CCI - [G01W1/10](#) ; [H01L31/02021](#) ; [F24S50/00](#)

CUI - [H04N13/204](#)

CQI - [F24J2/40](#) ; [H04N7/18](#)

CCA - [Y02E10/40](#) ; [Y02E10/50](#) ; [F24S2201/00](#)

CQA - [F24J2200/04](#)

PA - GEN ELECTRIC [US]

TI - Method and system for **predicting cloud** movement

AB - A **prediction** system 102 for **predicting solar** irradiance based on **cloud** characteristics is presented. The system 102 includes a sky

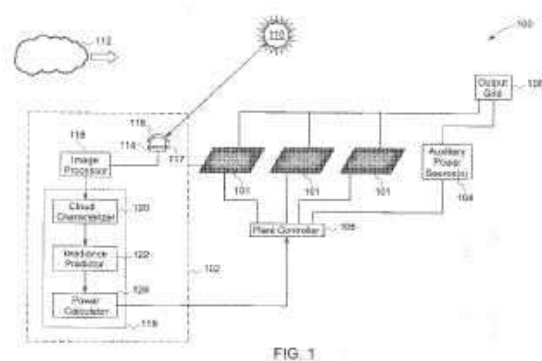
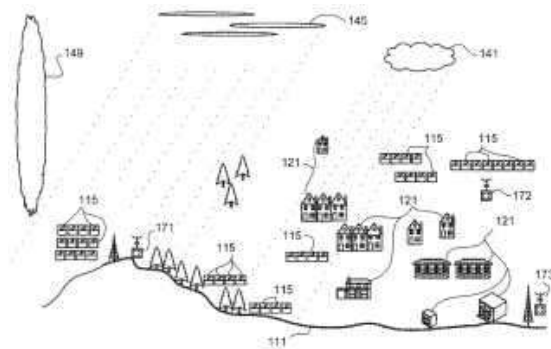


FIG. 1

imager 114 that includes a customized lens 116 configured to capture one or more substantially planar images of the sky. The **prediction** system further includes an image processor 118 coupled to the sky imager 114 and configured to process the one or more substantially planar images. Moreover, the **prediction** system includes a computing system 119 coupled to the image processor 118 and configured to detect **cloud** characteristics based on the one or more substantially planar images, and **predict** the **solar** irradiance based on the **cloud** characteristics. Methods and non-transitory computer readable medium configured to perform the method for **predicting power** output of one or more **solar** panels 101 in a **solar plant** 100 based on **cloud** characteristics are also presented.

4/4 © EPODOC / EPO

- PN - [US2010198420](#) A1 20100805
 PR - US20090320715 20090203
 AP - US20090320715 20090203
 DT - *, Rep
 CT - || R141 (A1)
[US4406950](#) A 19830927 [] (ROESEL JR JOHN F [US]);
[US5996943](#) A 19991207 [] (GODE GABOR [HU]);
[US2003006613](#) A1 20030109 [] (LOF PER-ANDERS KRISTIAN [SE], et al);
[US6512966](#) B2 20030128 [] (LOF PER-ANDERS KRISTIAN [SE], et al);
[US2002019758](#) A1 20020214 [] (SCARPELLI PETER C [US]);
[US2005039787](#) A1 20050224 [] (BING JAMES M [US]);
[US2009055300](#) A1 20090226 [] (MCDOWELL GRANT [AU]);
[US6037758](#) A 20000314 [] (PEREZ RICHARD [US]);
[US6529839](#) B1 20030304 [] (UGGERUD WARD [US], et al);
[US7509190](#) B2 20090324 [] (EMERY KEITH E [US], et al);
[US2010072818](#) A1 20100325 [] (KELLY SAMUEL THOMAS [US]);
[US2009146501](#) A1 20090611 [] (CYRUS MICHAEL [US]);
[US2010145532](#) A1 20100610 [] (GREGORY DANIEL CONSTANTINE [US], et al);
[US4345584](#) A 19820824 [] (ROYER GEORGE R);
[US6106970](#) A 20000822 [] (KALARNEY KERRY T [US]);
[US7580817](#) B2 20090825 [] (BING



JAMES M [US]);
[US2006208571](#) A1 20060921 [] (FAIRLIE
MATTHEW [CA]);
[US2007236187](#) A1 20071011 [] (WAI
RONG-JONG [TW], et al);
[US2008249665](#) A1 20081009 [] (EMERY
KEITH E [US], et al);
[US2004013923](#) A1 20040122 []
] (MOLTER TRENT [US], et al);
[US6883328](#) B2 20050426 [] (BRONICKI
LUCIEN Y [IL]);
[US2007273210](#) A1 20071129 [] (WANG
KON-KING M [US], et al);
[US2008212343](#) A1 20080904 []
] (LASSETER ROBERT H [US], et al);
[US2010057267](#) A1 20100304 [] (LIU YAN
[US], et al)

- CCI - [G01W1/10](#) ; [H02S10/00](#)
- CCA - [Y02E10/50](#) ; [Y02A90/14](#)
- PA - OPTISOLAR INC [US]
- TI - Dynamic management of **power**
production in a **power** system subject to
weather-related factors
- AB - Tracking movement of **clouds** is used
to **predict** the effects of **cloud** cover on
irradiation of a **solar**-powered
distributed **power** generation system.
The **predictions** enable a **solar power**
plant to maintain the changes in its
total **power** output within operating
requirements with less or no dependence
on energy storage, back up generation, or
load control, use centralized and/or
local coordination of **solar** farm control
systems to use storage to its best
advantage, alternately reduce **power**
fluctuations without **cloud** knowledge
and use real time **solar** output **prediction**
capabilities to be able to provide
utilities with advance information
regarding **power** fluctuations.