



Quality Insights

Patentcloud Quality Insights Annotation Report

Cedar Lane Technologies Inc. v. ASUSTeK Computer Inc.

WDTX-6-21-cv-01342

Focus on: U.S. Pat. No. 6,972,790

Filing date: Dec. 22, 2021

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Claim Construction and § 112 Invalidity

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Map claims to specification and file wrapper

Map claims to specification - '790

Which claim terms are or are not in the specification?

Claim Analysis > Claim# 1

Find relevant specification content as intrinsic evidence for claim term interpretation

24 Terms Identified in This Claim

[Click to Select Terms](#)



Select Text

Highlight text from within the claim with your cursor and click on the tooltip "Select Terms" to find references in the Specification.

Claim# 1

An interface for receiving data from an image sensor having an imaging array and a clock generator for transfer to a processor system comprising:

a memory for storing imaging array data and clocking signals at a rate determined by the clocking signals;

a signal generator for generating a signal for transmission to the processor system in response to the quantity of data in the memory;

and a circuit for controlling the transfer of the data from the memory at a rate determined by the processor system.



Claim Analysis finds these terms in the spec:
"imaging array", "clocking signals", "signal generator",
as well as other terms that are highlighted in red.

Which claim terms are or are not in the specification?

- ✍ Review the selected claim element and see how it is defined in the patent specification and related figures.

Figures of '790

[illegible]

Map claims to specification - '790

Does the allegedly infringing product element fall within or outside the patent's scope?

Claim Terms

Intent engine

The selected clause includes the following keywords:

Intents (234)

engine (103)

Content

[0054] The Intent engine 20 also displays a continuously updated Destination Candidate 32 based upon the Current Intent 31. The Destination Candidate 32 may be determined by providing the Current Intent as a reference to the database 23 to retrieve a ranked list of URLs for that Intent. In one embodiment, the Destination Candidate may be selected as the highest ranked URL of the Destination Candidate list. In one embodiment, the navigation history of the user may also be incorporated into the selection process so that if the visitor has already visited the highest ranked webpage for the Current Intent, then the Destination Candidate may be selected as the next highest candidate in the destination list, or the next highest and non-visited destination candidate.

With the claim scope interpretation from **Claim Analysis**, verify your findings against the compliant.

Answer the question:

Does the alleged Invention element fall within or outside the patent's scope?



ASUS Mobile Devices (see product list at end for models) Infringement of the '790 patent	
Claim 1	Evidence
a memory for storing imaging array data and clocking signals at a rate determined by the clocking signals;	<p>The ASUS mobile device provides a memory for storing imaging array data and clocking signals at a rate determined by the clocking signals.</p> <p>For example, the interface circuitry of the ASUS mobile device includes a buffer module that stores the image data that is received from the image capturing subsystem. The buffer module has control and clock signal inputs. The buffer module clocks its internal and external signals at a rate that is determined by the input clock signals. This enables the buffer module to store the image data at a rate that is in accordance with the pixel clock domain of the image capturing subsystem.</p>

Map claims to the file wrapper - '790

Which claim terms are in the file wrapper (i.e. examiner's opinion) ?

Disclosure Rate by Prior Art

Claim	Disclosure by Single Reference		Disclosure by Multiple References		Claim # 1
	Prosecution History	Post-Grant	Prosecution History	Post-Grant	
<input checked="" type="checkbox"/> #1	25%	0%	25%	0%	An interface for receiving data from an image sensor having an imaging array and a clock generator for transfer to a processor system comprising: a memory for storing imaging array data and clocking signals at a rate determined by the clocking signals; a signal generator for generating a signal for transmission to the processor system in response to the quantity of data in the memory; and a circuit for controlling the transfer of the data from the memory at a rate determined by the processor system.
<input checked="" type="checkbox"/> #15	80%	0%	80%	0%	

Confirm

Review how the asserted claims were disclosed by the prior art found by the examiner during prosecution and post-grant proceedings.

A higher percentage means more claim elements were disclosed by the prior art.

Claim Insights Summary Table > Claim Table (Claim# 1) | Select A Claim 1 15 **switch between claims**

How is each claim element disclosed by cited prior art? Click numbers to find detailed comparison.

The percentage "%" indicates how many keywords in an element being disclosed by a specific references.
[Click](#) to find comprehensive explanation of calculation.

All **Prosecution history** **Post-Grant** ☐ Responded prior arts only

Claims	Prior Art Ref. (3)		
	US6721008	US6833862	US6021449
#1.01 (50%)	50%	50%	0%
#1.02 (0%)	0%	0%	0%
#1.03 (50%)	0%	50%	50%

Disclosure Rate by Prior Art

Map claims terms to the file wrapper - '790

Why was this patent granted? Which claims were amended and how did the scope change?

Claims	Prior Art Ref. (3)	
	US6721008	US6833862
#1.01 (50%)	50%	50%
#1.02 (0%)	0%	0%
#1.03 (50%)	0%	50%
#1.04 (0%)	0%	0%

All of the limitations of this asserted claim element in '790 were 50% known by Lee(US6721008) and Li (US6833862).

Answer the questions:

Why was this patent granted?

1.01 1.02 1.03 1.04

Claim Element

#1.01 An **interface** for **receiving data** from an **image sensor** having an **imaging array** and a clock generator for transfer to a processor system comprising:

Terms not in the file wrapper

clock generator image sensor processor system

Find 1 Result(s)

Prior Art Ref.

Lee [US6721008] Li [US6833862]

Rejection

20050225-CTNE Prosecution History 35 U.S.C. § 103

4.

claim 15 is rejected under 35 u.s.c. 103(a) as being unpatentable over lee, us patent 6,721,008 b2 in view of li, us patent 6,833,862 b1.

regarding claim 15, lee discloses an integrated semiconductor imaging circuit(fig.3)(fig.3)for use with an electronic processing system comprising:an **imaging array** sensor(fig.3:12)having an array of sensing pixels and an array address generator(fig.3:16)integrated on a die(fig.3:10); and an **interface**(fig.3:89)integrated on the die for **receiving data** from the **imaging array** sensor as determined by the **imaging array** sensor and adapted to transfer the data to the electronic processing system(fig.3:80)as determined by the electronic processing system(col.4, line 66 – col.5, line 57).

the **interface** transferring the data to the electronic processing system in inherently taught by lee since the processing system(fig.3:80)works at a predetermined rate.

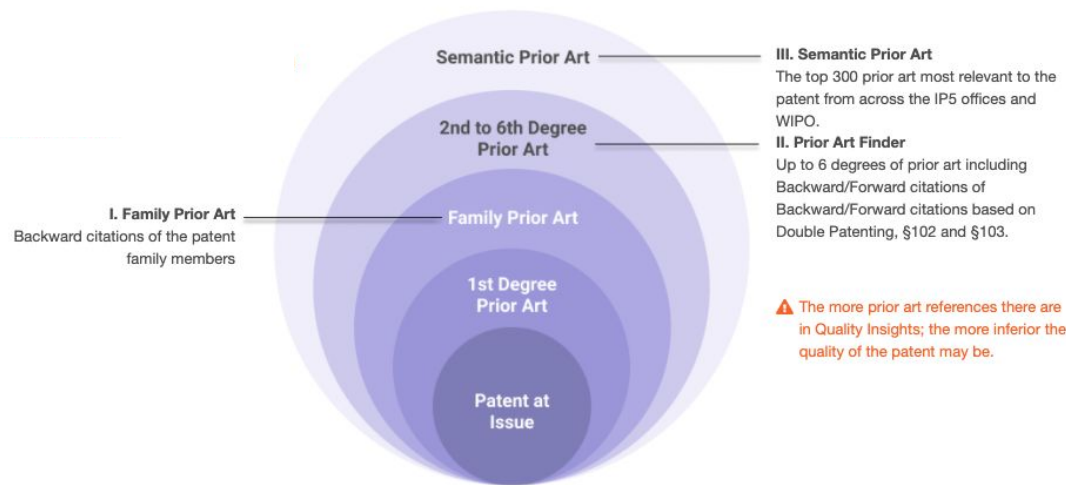
lee does not explicitly disclose the electronic processing system having a data bus.

however, li teaches an imaging circuit(fig.2)comprising a sensor array(fig.2:12), a bus **interface**(fig.2:54)with a data bus(fig.2:20)for transmitting data to a processing system(fig.2:18)(col.2, lines 32-64;col.3, lines 13-21).

therefore, taking the combined teaching of lee in view of li as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electronic processing system in lee with a data bus(usb)with the motivation of transferring the data from the imaging circuit to the electronic processing system as suggested by li(col.2, lines 32-64).

[Show Less](#)

How does Quality Insights generate prior art?



Prior Art Finder

Prior Art Finder for '790

Review cited and citing patents of '790 from the first to the sixth degree

Filter by:
 Applicability
 Legal Basis (102 or 103)
 Patent Office
 Legal Status

1st Degree Art
3

2nd Degree Art
16

N Degree Art
79

N Degree Art
 Extend forward/backward citations from the Second Degree Art

Discover prior art's similarity with claim chart format in seconds !

KEEP Mode

Ranked By : Legal Basis (§102 first) |

US6972790B2

1st Degree (3)

US6833862B1
US6721008B2
US20060044435A1

2nd Degree (16)

3rd Degree (20)

4th Degree (20)

5th Degree (20)

6th Degree

5th Degree List | Selected 0/20 Patent(s) [Select top 20 patents in list](#) [Confirm](#)

	#	Patent No.	Title	Legal Status ?	Appl. Date	Pub./Issue Date	Assignee (Std)
<input type="checkbox"/>	1	US20050167602A1	Imaging device having a pixel structure wit...	PGPub - Granted	2005-01-06	2005-08-04	DIERICKX BART
<input type="checkbox"/>	2	US7944491B2	Solid-state image-pickup device including u...	Expired	2004-09-20	2011-05-17	SONY CORP
<input type="checkbox"/>	3	US7956912B2	Active pixel sensor with mixed analog and ...	Lapsed	2006-09-29	2011-06-07	MICRON TECHNOLOGY II
<input type="checkbox"/>	4	US6025935A	Charge storage image scanner having equa...	Expired	1997-12-31	2000-02-15	PERIPHERAL IMAGING C
<input type="checkbox"/>	5	US6937279B1	Apparatus for converting analog image dat...	Lapsed	1999-12-22	2005-08-30	SK HYNIX INC
<input type="checkbox"/>	6	US6977603B1	Nonlinear flash analog to digital converter ...	Expired	2000-11-09	2005-12-20	MICRON TECHNOLOGY II
<input type="checkbox"/>	7	US6512543B1	Physical quantity distribution sensor, meth...	Expired	1998-03-12	2003-01-28	PANASONIC CORP

Up to the 6th
Degree List

Family Prior Art

Family Prior Art of '790

Review prior art cited by and cited against the family counterparts when available

Simple Family
10

Backward Citation: Patent
50

Backward Citation: Non-Patent Literature
8

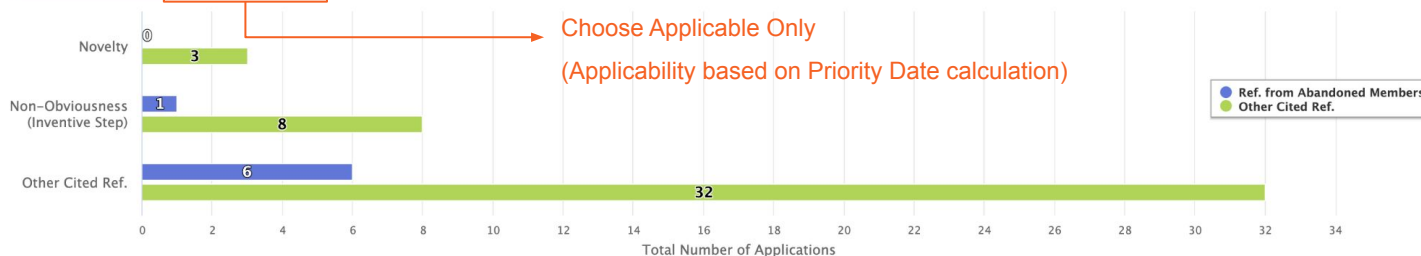
Backward Citation: Patent

Categorized to indicate relevance; You can start from applicable references cited as novelty prior art

Click on Cited Patents for Potential Prior Art

All References (50)

Applicable Only (47)



Choose Applicable Only
(Applicability based on Priority Date calculation)

KEEP Mode

Ranked By : Appl. Date

Prior Art List

	#	Patent No.	Title	Legal Status	Appl. Date	Pub./Issue Date	Assignee (Std)	Applicability
<input type="checkbox"/>	1	JPS63-228875A	DATA INPUT/OUTPUT DEVICE	Abandoned Appl.	1987-03-18	1988-09-22	CANON KK	(Pre-AIA) § 102(a) (Pre-AIA) § 102(b)
<input checked="" type="checkbox"/>	2	JPS63-294182A	SOLID-STATE IMAGE PICKUP DEVICE	PGPub - Granted	1987-05-27	1988-11-30	HITACHI LTD	(Pre-AIA) § 102(a) (Pre-AIA) § 102(b)
<input type="checkbox"/>	3	US4837628A	Electronic still camera for recording still pic...	Expired	1987-07-14	1989-06-06	TOSHIBA KK	(Pre-AIA) § 102(a) (Pre-AIA) § 102(b) (Pre-AIA) § 102(e)(2)

Semantic Prior Art

Semantic Prior Art of '790

Review potential prior art ranked by concept similarity

Across IP5 and WIPO thanks to Patentcloud's proprietary algorithm

Semantic Prior Art

Most Relevant US, EP, JP, KR, CN & WO potential prior art references based on [Semantic Similarity](#) with a patent's first claim and abstract.

[Change Scope](#)

Select claim text or enter the desired text/keywords

[Discover prior art's similarity with claim chart format in seconds !](#)

[KEEP Mode](#) 0 are of high semantic similarity

Ranked By : Relevance |

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<input type="checkbox"/>	<input type="checkbox"/>	Ranking	Patent No.	<input type="checkbox"/>	★	Title	Legal Status ?	Appl. Date	Pub./Issue Date	Assignee (Std)	Applicability
<input type="checkbox"/>		1	US6593967B1	<input type="checkbox"/>		Electronic camera having dual clocked line ...	Expired	1998-12-16	2003-07-15	EASTMAN KODAK CO	(Pre-AIA) § 102(e)(2)
<input type="checkbox"/>		2	US6947085B1	<input type="checkbox"/>		CMOS sensor with data flow control	Abandoned	1998-02-27	2005-09-20	INTEL CORP	(Pre-AIA) § 102(e)(2)
<input type="checkbox"/>		3	US6493025B1	<input type="checkbox"/>		Image sensing system equipped with interf...	Abandoned	1996-10-03	2002-12-10	SANYO ELECTRONIC CO LTD	(Pre-AIA) § 102(e)(2)
<input type="checkbox"/>		4	WO1999/065235A1	<input type="checkbox"/>		IMAGE SENSOR WITH CROPPING	PCT End - NP	1999-06-09	1999-12-16	LOGITECH EUROPE SA	(Pre-AIA) § 102(a) (Pre-AIA) § 102(b)
<input type="checkbox"/>		5	JPH09-097307A	<input type="checkbox"/>		WRITING CONTROL MECHANISM FOR IMA...	PGPub - Granted	1995-09-29	1997-04-08	OKI ELECTRIC IND CO LTD	(Pre-AIA) § 102(a) (Pre-AIA) § 102(b)
<input type="checkbox"/>		6	JPH04-140182A	<input type="checkbox"/>		PRINTER	Abandoned	1990-09-30	1992-05-14	SANYO ELECTRIC CO LTD	(Pre-AIA) § 102(a) (Pre-AIA) § 102(b)
<input type="checkbox"/>		7	US6021449A	<input type="checkbox"/>		Video FIFO overflow control method that bl...	Abandoned	1997-08-01	2000-02-01	INTERNATIONAL BUSINESS...	(Pre-AIA) § 102(e)(2)
<input type="checkbox"/>		8	US5920343A	<input type="checkbox"/>		Imaging system with image processing for ...	Expired	1996-08-09	1999-07-06	SANYO ELECTRIC CO LTD	(Pre-AIA) § 102(a) (Pre-AIA) § 102(b) (Pre-AIA) § 102(e)(2)
<input type="checkbox"/>		9	KD100175606B1	<input type="checkbox"/>		DATA INTERFACE ADAPTATION BETWEEN D	Abandoned	1996-10-25	1998-11-10	LG INFORMATION & COMM	(Pre-AIA) § 102(a)

Semantic Prior Art of '790

Review potential prior art ranked by concept similarity

Active

[US6972790B2](#)
 Host interface for imaging arrays

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[Overview](#)
[History](#)
[Claim Analysis](#)
[Claim Insights](#)
[Family Prior Art](#)
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[File Wrapper Search](#)

[About Semantic Prior Art](#)

Semantic Prior Art

Most Relevant US, EP, JP, KR, CN & WO potential prior art references based on [Semantic Similarity](#) within the scope below. [Reset to Default](#)

+ Add text from claims

Submit

[Discover prior art's similarity with claim chart format in s](#)

Add text from claims

Select A Claim

1

2

3

4

5

6

7

8


9

10

Next 10

An interface for receiving data from an image sensor having an imaging array and a clock generator for transfer to a processor system comprising: a memory for storing imaging array data and clocking signals at a rate determined by the clocking signals; a signal generator for generating a signal for transmission to the processor system in response to the quantity of data in the memory; and a circuit for controlling the transfer of the data from the memory at a rate determined by the processor system.

Add



adding text from claims to find more related Prior Art

Comparison tools

Prior Art Comparison (claim chart format)

What does this prior art say about the critical elements?

1.01
1.02
1.03
1.04

Find **14** Result(s) | Disclosure Rate : **50%**

[Disclosure Rate of Prior Art](#)

Claim Element

#1.01 An **interface** for **receiving data** from an **image sensor** having an **imaging array** and a **clock generator** for transfer to a **processor system** comprising:

Keyword List ⓘ

- 👁 **image sensor** (25) PA
- 👁 **clock generator** (9) PA
- 👁 **interface** (3) FW PA
- processor system** (0)
- receiving data** (0) FW
- imaging array** (0) FW

US6593967B1 Content

Abstract

An electronic camera for capturing and storing images includes an image capture section and an image processing section . The image capture section includes an **image sensor** for capturing an image and producing pixel data representative of the captured image , an analog - to - digital (A / D) converter for digitizing the pixel data , and a horizontal shift register responsive to applied vertical clock signals for receiving lines of the pixel data from the **image sensor** and responsive to applied horizontal clock signals for sequentially transferring the lines of pixel data to the A / D converter , the time between the application of horizontal and vertical clock signals providing for a vertical transfer interval wherein pixel data is prevented from being output from the horizontal shift register . The image processing section includes a first - in - first - out (FIFO) memory coupled to the A / D converter for temporarily storing the digitized pixel data , a digital signal processor coupled to the FIFO memory for processing the digitized pixel data , and a storage device coupled to the digital signal processor for storing the processed digitized pixel data . The electronic camera further includes a **clock generator** for producing the vertical and horizontal clock signals and a FIFO write signal for causing the digitized pixel data from the A / D converter to be transferred to storage locations in the FIFO memory at a first frequency , and a master pixel clock signal . The camera further includes circuitry for producing a FIFO read signal in response to the master pixel clock signal for transferring the digitized pixel data from the FIFO memory to the digital signal processor at a second frequency for processing the digitized pixel data , and after processing , for transferring the processed pixel data to the storage device . The second frequency is selected to be lower than the first frequency .

Claims

Claim# 1 An electronic camera for capturing and storing images , comprising : (a) an image capture section including : (i) an **image sensor** for capturing an image and producing pixel data representative of the captured image ; (ii) an analog - to - digital (A / D) converter for digitizing the pixel data ; and (iii) a horizontal shift register

✍ Answer the question:

What does this prior art say about the Claim elements: “image sensor”, “clock generator” ?

✍ Discover prior art similarity with keywords (includes keyword stemming) mapped to the selected prior art reference Abstract, Claims, and Specification.

Prior Art Comparison (sample output)

Easily generate a table like below

Claim		Claim-Term Interpretation	Semantic Prior Art - '634	3rd Degree Citation Prior Art - B
1	An interface for receiving data from an image sensor having an imaging array and a clock generator for transfer to a processor system comprising:	Refer to Claim Analysis results	50%
	a memory for storing imaging array data and clocking signals at a rate determined by the clocking signals;	75%
	a signal generator for generating a signal for transmission to the processor system in response to the quantity of data in the memory;	33%	
	and a circuit for controlling the transfer of the data from the memory at a rate determined by the processor system.	66%	

System-identified keywords and key phrases
(highlighting of other keywords is available)

Results from claim to specification
and file wrapper mapping

Results from prior art comparison
by claim element

Prior art downloads

Prior art downloads

Select all

Export

#	Patent No.	Title	Abandoned	1994-05-31	1993-02-23	NEC CORP	(Pre-AIA) § 102(a)	(Pre-AIA) § 102(b)	(Pre-AIA) § 102(e)(1)	(Pre-AIA) § 102(e)(2)
1	CN1247662A	Dual use spe								
2	EP0998105B1	Mobile teleph								
3	JPH09-036932A	EXTERNAL R								
4	JPH11-055358A	MOBILE RAD								
5	US5317622	Ringin circuit for use in a telephone set f...	Abandoned	1994-05-31	1993-02-23	NEC CORP	(Pre-AIA) § 102(a)	(Pre-AIA) § 102(b)	(Pre-AIA) § 102(e)(1)	(Pre-AIA) § 102(e)(2)



Download patent data in Excel or PDF format for Family Prior Art, Second Degree Prior Art, and/or Semantic Prior Art.

Prosecution and PTAB History

Key Events

Key Events - '790

1 Prosecution & 0 Post-Grant

Event History

1

Family Status

10 Applications

Prior Art Status

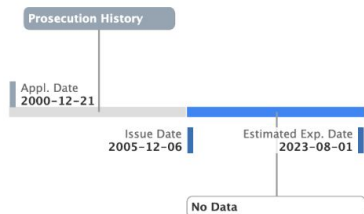
433 Applications / **8** NPL References

Event History | **1** Prosecution History / **0** Post-Grant

Validity challenges to a patent in its prosecution history and post-grant events

of Family Counterparts and Legal Status

of Highly Relevant Prior Art References



Legend	
Document Code	Document Description
CTNF	Non-final rejection
CLM	Claims
REM	Remarks

Timeline of Prosecution:



Key Events - '790

Prosecution History

09/742723 Prior Art Ref. | 3 Ref.

Check prior art cited and the legal basis of these challenges

Double Patenting

0 Ref.

§ 102

0 Ref.

§ 103

3 Ref.

[US6833862](#) (1st)
Li

[US6721008](#) (1st)
Lee

[US6021449](#)
Chow

Clickable events for original OAs and their OCR version when available.

Summary of 09/742723 History | 9 Event(s)

Data Last Updated on: 2021-10-25

Direct links to Grounds, Claims Highlighted and Prior Art Details

Descriptions (Code)	Date	Prior Art Ref.
Notice of Allowance (NOA)	2005-09-21	
Notice of Allowance (NOA)	2005-09-21	
Notice of Allowance (NOA)	2005-07-15	
Notice of Allowance (NOA)	2005-07-15	
Applicant Arguments/Remarks Made in an Amendment (REM)	2005-05-26	
Claims (CLM)		
Non-Final Rejection (CTNF)	2005-02-25	Grounds 2 ^
Legal Basis	Claims	Prior Art Ref.
35 U.S.C. § 103	claim 15	Lee US6721008 (1st) Li US6833862 Li US6833862 (1st)

Prosecution and PTAB History Search

Patent File Wrapper Search



Directly discover details in the prosecution history and post-grant proceeding across all documents via a keyword search.

Cross-Document Search

Enter keyword to find documents including specific legal basis or specific claim terms

[About File Wrapper Search](#)

touch sensor



Rejections, Remarks, and Notice of Allowance in Prosecution History | 13 Records

<input type="checkbox"/> Descriptions (Code) ?	Party	Date ?
<input type="checkbox"/> Notice of Allowance (NOA)	USPTO	2015-09-24
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2015-06-19
<input type="checkbox"/> Non-Final Rejection (CTNF)	USPTO	2015-03-19
<input type="checkbox"/> Request for Continued Examination (RCEX)	Applicant	2015-03-03
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2015-03-03
<input type="checkbox"/> Final Rejection (CTFR)	USPTO	2014-11-03
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2014-10-15
<input type="checkbox"/> Non-Final Rejection (CTNF)	USPTO	2014-07-15
<input type="checkbox"/> Request for Continued Examination (RCEX)	Applicant	2014-06-26
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2014-06-26
<input type="checkbox"/> Final Rejection (CTFR)	USPTO	2014-02-26
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2014-02-07
<input type="checkbox"/> Non-Final Rejection (CTNF)	USPTO	2013-11-07

Data Last Updated on 2021-04-08


Prosecution and PTAB History PDF Downloads


PDF Downloads

 Download the complete set or just part of the PDF files in the File Wrapper Search.



Cross-Document Search

Enter keyword to find documents including specific legal basis or specific claim terms



Rejections, Remarks, and Notice of Allowance in Prosecution History | 13 Records 

[About File Wrapper Search](#)

<input type="checkbox"/> Descriptions (Code) 	Party	Date 
<input type="checkbox"/> Notice of Allowance (NOA)	USPTO	2015-09-24
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2015-06-19
<input type="checkbox"/> Non-Final Rejection (CTNF)	USPTO	2015-03-19
<input type="checkbox"/> Request for Continued Examination (RCEX)	Applicant	2015-03-03
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2015-03-03
<input type="checkbox"/> Final Rejection (CTFR)	USPTO	2014-11-03
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2014-10-15
<input type="checkbox"/> Non-Final Rejection (CTNF)	USPTO	2014-07-15
<input type="checkbox"/> Request for Continued Examination (RCEX)	Applicant	2014-06-26
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2014-06-26
<input type="checkbox"/> Final Rejection (CTFR)	USPTO	2014-02-26
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2014-02-07
<input type="checkbox"/> Non-Final Rejection (CTNF)	USPTO	2013-11-07

Data Last Updated on 2021-04-08

Prosecution and PTAB History Side-by-side PDF and OCR

Side by Side: PDF & OCR




Conduct a keyword search in a single document to identify the claim scope quickly and easily. You can even search additional claim terms within rejections.

Keywords (2)

Select a Keyword Set

☒ sensor (23)

☒ flexible substrate (1)



US9256311B2 - CTNF (2015-03-19)

13/284,674 6 / 18 90%

Application/Control Number: 13/284,674 Page 5
Art Unit: 2867

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the touch panel taught by Grant by adding drive or sense electrodes made of flexible conductive material as taught by Hotelling since the sensor traces provide level shifting from a low voltage level to a higher voltage level, thus providing a better signal-to-noise ratio for improved noise reduction purposes while the drive traces provide shielding for the sense traces.

Neither Grant nor Hotelling specifically teach wherein the flexible conductive material of the drive or sense electrodes comprises first and second conductive lines that electrically contact one another at an intersection.

However, Gray does teach wherein the flexible conductive material of the drive or sense electrodes comprises first and second conductive lines that electrically contact one another at an intersection (Fig. 2; [0063]: **A number of conductors forming rows and columns of a conductive pattern (e.g., indium tin oxide (ITO)) may be deposited on a substrate composed of polyester or other material on one or more layers of the touchscreen... the row and column oriented conductors may be disposed on the same layer...**; See also Miller US 5,089,672; Col. 2, lines 11-16; Col. 5, lines 1-20; Col. 5, lines 61-68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Grant and Hotelling by including the conductive lines (rows and columns) taught by Gray for the purpose of "providing paths for signals traveling through the touchscreen" (See Gray; Abstract).

Save to Keyword Set

103(a) as being unpatentable over Grant et al. US 2008/0303782 A1 (previously cited and
... PAGE 5 ...

Application/Control Number: 13/284,674 Page 4
Art Unit: 2867

hereinafter Grant) in View of Hotelling et al. US 2008/0158183 A1 (previously cited and hereinafter Hotelling), in further View of Gray et al. US 2010/0045814 (previously cited and hereinafter Gray) and in further View of Frey et al. US 2009/0219257 (newly cited and hereinafter Frey).

Regarding claim 1, Grant does teach an apparatus (Abstract) comprising:
a substantially flexible substrate (Abstract: flexible touch sensitive surface); and
a touch [0003], [0005], [0006], [0022], [0023], [0027], and [0071], e.g., flexible surface, flexible circuitry, and capacitance touch [0003] which must be conductive to receive user input) disposed on the substantially flexible substrate (see at least Figs. 1A-1C; [0009-0011], configured to bend with the substantially flexible substrate (Figs. 1A-1C, 3 and the corresponding descriptions; [0003]).

Grant does not specifically teach the touch [0003] comprising drive or sense electrodes made of flexible conductive material.

However, Hotelling does teach a touch [0003] (Fig. 2a, 5 and the corresponding descriptions, and the Summary of the Invention, i.e., a touch [0003] comprises of row and column traces made of copper) comprising drive or sense electrodes (see at least Figs. 1 and 2a; [0008, 0030-0033]; claim 9; sense traces formed on a first side of a dielectric substrate; and drive traces formed on a second side of the substrate) made of flexible conductive material ([0008]; traces made of copper or other highly conductive metals running along the edge of the substrate).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the touch panel taught by Grant by adding drive or sense electrodes made of flexible conductive material as taught by Hotelling since the [0003] traces provide level shifting from a low voltage level to a higher voltage level, thus providing a better signal-to-noise ratio for improved noise reduction purposes while the drive traces provide shielding for the sense traces.

Neither Grant nor Hotelling specifically teach wherein the flexible conductive material of the drive or sense electrodes comprises first and second conductive lines that electrically contact one another at an intersection.



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