

**PatBase - Search results** 27 June 2017

**Search query (6):** FT=(plc and utc and clock and synchr\* and (daylight or dst)) and IC=(G06F1/04 or E02F9/20 or G04G7/00 or G05B19/042 or G05B19/05 or G06F1/04 or G06F1/12 or G06F11/00 or H04J3/06 or H04L7/00 or H04N )

**Results:** 9

Nicolas Vargas

**Title:** POWER LINE COMMUNICATION SYSTEM HAVING TIME SERVER

**Abstract:** Source: US2005017847A A system for bi-directional power distribution line communication. The system is configured for data communication with an endpoint transceiver located at a customer premise. The system comprises a time server in electrical communication with the transceiver, the time server configured to retrieve the time. A substation controller is in electrical communication with a power distribution line. The substation controller includes a transceiver and a programmable circuit. The programmable circuit includes a substation **clock**. The programmable circuit is programmed to periodically retrieve the time from the time server to calibrate the substation **clock** to the retrieved time, and to control the transceiver to transmit the time to the endpoint transceiver.

**Classifications:**

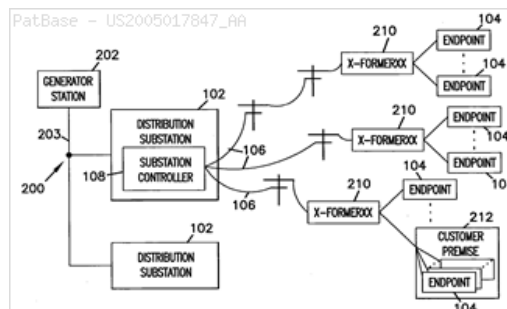
**International (IPC 8-9):** G01D4/00 G01R31/08 G05B11/01 G06F11/00 G08B1/08 G08C15/00 G08C19/00 H02J3/02 H04B3/54 H04J1/16 H04J3/14 H04L1/00 H04L12/26 H04L12/56 H04M11/04 H04M9/00 H04Q1/30 H04Q9/00 (Advanced/Invention); G05B11/01 G08C15/06 H04J1/00 H04J3/24 H04L12/28 (Advanced/Non-invention); G01D4/00 G01R31/08 G05B11/01 G06F11/00 G08B1/00 G08C15/00 G08C19/00 H02J3/02 H04B3/54 H04J1/00 H04J3/14 H04L1/00 H04L12/26 H04L12/56 H04M9/00 (Core/Invention); G05B11/01 H04J3/24 H04L12/28 (Core/Non-invention)

**International (IPC 1-7):** G01D4/00 H04B3/54 H04L12/56 H04M11/04 H04M9/00

**CPC:** H04B3/542 G01D4/004 Y02B90/242 Y04S20/322 H04B2203/5445 H04B3/54 H04B2203/5416 H04B2203/5425 H04B2203/5433 H04B2203/5466 H04B2203/5483 H04B2203/5491

**European:** G01D4/00R1 H04B3/54 H04B3/54A T04B203/54M10 T04B203/54M6 T04B203/54P2 T04B203/54S12 T04B203/54S14 T04B203/54S2 Y02B90/24B2 Y04S20/32B

**US:** 307/3 307/3S 340/12.32 340/12.32P 340/12.37 340/309.16 340/309.16S 340/310.01 340/310.11 340/310.11S 340/310.16 340/538.11 340/538.11P 340/870.02 340/870.02S 340/870.03 340/870.03P 340/870.3 370/216 370/242 370/389 370/389P 370/475 370/480 375/259 375/260 375/356 375/356P 455/402 455/402P

**Family:**

| Publication number | Publication date | Application number | Application date |
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| AT409986 E         | 20081015         | AT20040779245T     | 20040726         |
| CN1839557 A        | 20060927         | CN200480024240     | 20040726         |
| CN1839557 B        | 20110330         | CN200480024240     | 20040726         |
| DE602004016868 D1  | 20081113         | DE200460016868T    | 20040726         |
| DE602004043956 D1  | 20140130         | DE200460043956T    | 20040726         |
| EP1661260 A2       | 20060531         | EP20040779245      | 20040726         |
| EP1661260 B1       | 20081001         | EP20040779245      | 20040726         |
| EP2110958 A2       | 20091021         | EP20080165515      | 20040726         |
| EP2110958 A3       | 20110511         | EP20080165515      | 20040726         |
| EP2110958 B1       | 20131204         | EP20080165515      | 20040726         |
| US2005017847 AA    | 20050127         | US20030626465      | 20030724         |
| US2005020232 AA    | 20050127         | US20030626495      | 20030724         |
| US2005083925 AA    | 20050421         | US20030626496      | 20030724         |
| US2007126571 AA    | 20070607         | US20070700431      | 20070131         |
| US2007229305 AA    | 20071004         | US20070760041      | 20070608         |
| US2011121952 AA    | 20110526         | US20110019814      | 20110202         |
| US2015358049 AA    | 20151210         | US20150810204      | 20150727         |
| US7180412 BB       | 20070220         | US20030626465      | 20030724         |
| US7236765 BB       | 20070626         | US20030626495      | 20030724         |
| US7742393 BB       | 20100622         | US20030626496      | 20030724         |
| US7791468 BB       | 20100907         | US20070700431      | 20070131         |
| WO05011142 A2      | 20050203         | WO2004US24110      | 20040726         |
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**Priority:**

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| US20110019814 | 20110202 | US20070760041 | 20070608 | US20030626495 | 20030724 |
| US20070700431 | 20070131 | US20030626496 | 20030724 | US20150810204 | 20150727 |
| WO2004US24110 | 20040726 |               |          |               |          |

**Probable Assignee:** HUNT TECHNOLOGIES INC

**Assignee(s):** (std): OLSON VERNE J ; WOLTER CHAD K ; OLSON DAVID F ; BONICATTO DAMIAN G ; FLEN ROLF J ; HUNT TECHNOLOGIES INC ; LANDIS AND GYR TECHNOLOGIES LLC

**Assignee(s):** LANDIS AND GYR TECHNOLOGIES LLC PEQUOT LAKES ; HUNT TECHNOLOGIES LLC ; LLOYDS TSB BANK PLC ; LLOYDS TSB BANK PLC (UNITED KINGDOM PUBLIC COMPANY) ; LLOYDS TSB BANK PLC (UNITED KINGDOM PUBLIC COMPANY) ; LLOYDS TSB BANK PLC (UNITED KINGDOM PUBLIC COMPANY) LTD ; LLOYDS TSB BANK PLC (UNITED KINGDOM PUBLIC COMPANY) LTD

**Inventor(s):** (std): BONICATTO DAMIAN ; BONICATTO DAMIAN G ; BONICATTO DAMIAN G OLSON VERNE ; FLEN ROLF J ; FLEN ROLF J ; OLSON DAVID ; OLSON DAVID F ; OLSON VERNE ; OLSON VERNE J ; WOLTER CHAD ; WOLTER CHAD K

**Inventor(s):** WOLTER CHAD K BREEZY POINT ; OLSON VERNE J PEQUOT LAKES ; OLSON DAVID F PEQUOT LAKES ; FLEN ROLF J PEQUOT LAKES ; BONICATTO DAMIAN G OLSON VERNE J WOLTER CHAD K FLE ; BONICATTO DAMIAN G PEQUOT LAKES

**Agent(s):** HOFFMANN EITL; MERCHANT AND GOULD PC; MERCHANT AND GOULD

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**Title:** STEP TIME CHANGE COMPENSATION IN AN INDUSTRIAL AUTOMATION NETWORK

**Abstract:** Source: US2009016475A One or more embodiments provide Common Industrial Protocol (CIP) based time **synchronization** systems and methods. The CIP Sync solution can be part of Ethernet/IP and can be based on standard UDP (User Datagram Protocol) and/or IEEE 1588 (Time **Synchronization**) Ethernet technology. According to an embodiment is a system that compensates for step changes in a master **clock**.

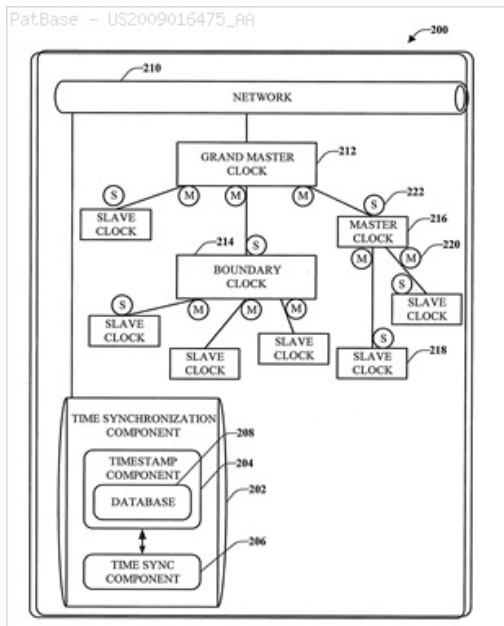
**Classifications:**

**International (IPC 8-9):** H04J3/06 H04L7/00 (Advanced/Invention); H04L7/00 (Core/Invention)

**CPC:** H04J3/0697 H04J3/0667

**European:** H04J3/06C1 H04J3/06C5P T04J3/06C1P2B

**US:** 368/46 368/47 370/509 375/354 375/356 375/356P 713/400 713/500



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2009016475 AA    | 20090115         | US20080237425      | 20080925         |
| US7447931 BA       | 20081104         | US20060279320      | 20060411         |
| US7656751 BB       | 20100202         | US20080237425      | 20080925         |

**Priority:**

US20050749318P 20051209      US20060279320 20060411      US20080237425 20080925

**Probable Assignee:** ROCKWELL AUTOMATION TECH INC

**Assignee(s):** (std): ROCKWELL AUTOMATION TECH INC

**Assignee(s):** ROCKWELL AUTOMATION TECHNOLOGIES INC

**Inventor(s):** (std): CHAFFEE MARK ; HARRIS KENDAL R ; RISCHAR CHARLES M

**Agent(s):** AMIN TUROCY AND CALVIN LLP ATTENTION HEATHER HOLMES; AMIN TUROCY AND CALVIN LLP; SPEROFF R SCOTT; R SCOTT; TUROCY AND WATSON LLP

**Title:** APPARATUS AND METHOD FOR TRANSMITTING/RECEIVING OF TIME INFORMATION BROADCASTING USING POWER LINE BROADCASTING

**Abstract:** The present invention relates to a time information broadcasting apparatus using a power line, in which since power line broadcasting uni-directionally transmits a small amount of data such as time information, whereas power line communication needs a carrier wave of a high frequency band in order to bi-directionally transmit a large amount of data, a carrier wave of a low frequency band can be used, and thus long-range power line broadcasting can be easily performed.

**Classifications:**

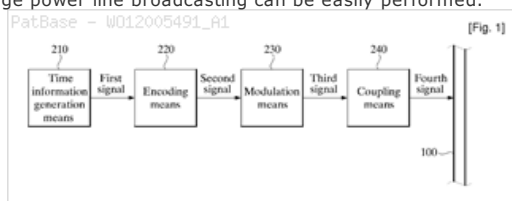
**International (IPC 8-9):** H04B3/54 H04L27/00

H04N5/44 (Advanced/Invention);

H04B3/54 H04N5/44 (Advanced/Non-invention)

**CPC:** H04B3/54 H04B2203/5416 H04B2203/5466 H04L25/49

**European:** H04B3/54 H04L25/49 T04B203/54M6 T04B203/54S2



**Family:**

| Publication number | Publication date | Application number | Application date |
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| KR101083723 B1     | 20111116         | KR20100064715      | 20100706         |
| KR101083724 B1     | 20111116         | KR20100064716      | 20100706         |
| WO12005491 A1      | 20120112         | WO2011KR04902      | 20110705         |

**Priority:**

KR20100064715 20100706 KR20100064716 20100706

**Probable Assignee:** KOREA RES INST OF STANDARDS

**Assignee(s):** (std): KIM MYUNG SOO ; KIM YOUNG BEOM ; KOREA RES INST OF STANDARDS ; KOREA RESEARCH INST OF STANDARDS AND SCIENCE KRISS ; WOO SAM YONG

**Assignee(s):** KOREA RESEARCH INSTITUTE OF STANDARDS AND SCIENCE

**Inventor(s):** (std): KIM MYUNG SOO ; KIM YOUNG BEOM ; WOO SAM YONG

**Inventor(s):** KIM MYUNGSOO

**Agent(s):** KIM MOON JONG ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**Title:** METHOD FOR RECEIVING ENHANCED SERVICE AND DISPLAY APPARATUS THEREOF

**Abstract:** Source: US2013239163A Provided are a method of receiving an enhanced service and a video display device thereof. The method includes: receiving an audio-visual (AV) content; extracting first feature information from the received AV content; receiving a database including at least one of content information, enhanced service information, and an enhanced service, which correspond to the first feature information, from a first server by transmitting the extracted first feature information to the first server; storing the database received from the first server in a memory; extracting second feature information from the received AV content; and searching and obtaining one of content information, enhanced service information, and an enhanced service, which correspond to the extracted feature information, from the database.

**Classifications:**

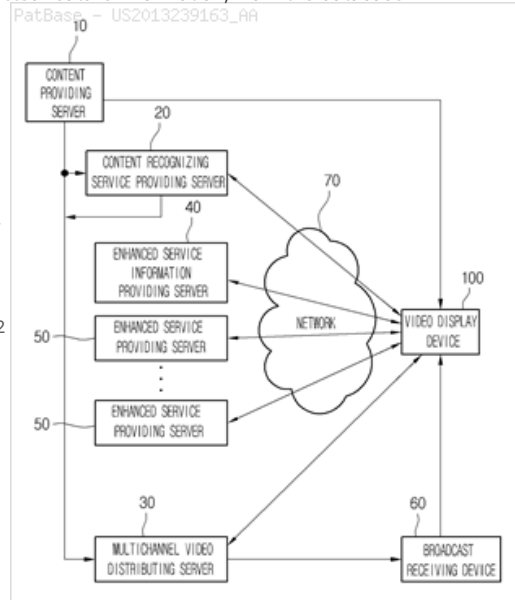
**International (IPC 8-9):** G06F13/00 G06F17/00 G06F3/00

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H04N21/4722 H04N21/475 H04N21/6377 H04N21/6543 H04N21/81  
H04N21/8358 H04N21/845 H04N21/854 H04N21/8547 H04N21/858  
H04N5/06 H04N5/445 H04N7/015 H04N7/08 H04N7/16  
H04N7/173 (Advanced/Invention)

**CPC:** H04N21/6543 H04N21/2665 H04N21/44008 H04N21/4722  
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H04N21/812 H04N21/4758 H04N21/43 H04N5/44591 H04N21/8133  
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**European:** H04N21/2665 H04N21/431L3 H04N21/462S H04N21/4722  
H04N21/6543 H04N21/845U

**US:** 1/1 348/473 348/521 348/563 715/201 725/109 725/110  
725/115 725/131 725/28 725/32 725/40 725/51

**Family:**

| Publication number | Publication date | Application number | Application date |
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| CA2814197 AA       | 20130409         | CA20112814197      | 20111124         |
| CA2814197 C        | 20161101         | CA20112814197      | 20111124         |
| CA2820574 AA       | 20130523         | CA20112820574      | 20111124         |
| CA2820574 C        | 20161025         | CA20112820574      | 20111124         |
| CA2822968 AA       | 20130625         | CA20112822968      | 20111213         |
| CN103229513 A      | 20130731         | CN201180056736     | 20111124         |
| CN103229513 B      | 20170606         | CN201180056736     | 20111124         |
| CN103283251 A      | 20130904         | CN201180062837     | 20111213         |
| CN103299648 A      | 20130911         | CN201180064457     | 20111124         |
| CN103299648 B      | 20170215         | CN201180064457     | 20111124         |
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| DE112011104029 T5  | 20130905         | DE201111104029T    | 20111213         |
| EP2645731 A2       | 20131002         | EP20110842509      | 20111124         |
| EP2645731 A4       | 20140521         | EP20110842509      | 20111124         |
| EP2645732 A2       | 20131002         | EP20110843708      | 20111124         |
| EP2645732 A4       | 20140521         | EP20110843708      | 20111124         |
| EP2658248 A1       | 20131030         | EP20110852435      | 20111213         |
| EP2658248 A4       | 20140709         | EP20110852435      | 20111213         |
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| GB201311855 A0     | 20130814         | GB20130011855      | 20111213         |
| GB2499754 A1       | 20130828         | GB20130010029      | 20111124         |
| GB2508451 A1       | 20140604         | GB20130011855      | 20111213         |
| GB2508451 B2       | 20170503         | GB20130011855      | 20111213         |
| KR101479890 B1     | 20150106         | KR20137014930      | 20111213         |
| KR101506823 B1     | 20150330         | KR20137013223      | 20111124         |
| KR101706832 B1     | 20170227         | KR20147016913      | 20111124         |
| KR20130083457 A    | 20130722         | KR20137013223      | 20111124         |
| KR20130098399 A    | 20130904         | KR20137014930      | 20111213         |
| KR20130136368 A    | 20131212         | KR20127007109      | 20111124         |
| KR20140084348 A    | 20140704         | KR20147016036      | 20111213         |
| KR20140094629 A    | 20140730         | KR20147016913      | 20111124         |
| US2013239163 AA    | 20130912         | US20110988995      | 20111124         |
| US2013271653 AA    | 20131017         | US20110994004      | 20111213         |
| US2014009680 AA    | 20140109         | US20110883239      | 20111124         |
| US2015156536 AA    | 20150604         | US20140556014      | 20141128         |
| US2015156537 AA    | 20150604         | US20140560694      | 20141204         |
| US2015172783 AA    | 20150618         | US20140554246      | 20141126         |
| US2015208117 AA    | 20150723         | US20150612901      | 20150203         |
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| US9661397 BB  | 20170523 | US20110994004 | 20111213 |
| WO12070901 A2 | 20120531 | WO2011KR09043 | 20111124 |
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| WO12091322 A1 | 20120705 | WO2011KR09564 | 20111213 |

**Priority:**

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| US20100417187P | 20101124 | US20100417192P | 20101124 | US20100417201P | 20101124 |
| US20100421623P | 20101209 | US20110490069P | 20110526 | US20100427200P | 20101226 |
| US20110525840P | 20110821 | US20110536064P | 20110919 | US20110549237P | 20111020 |
| US20110525837P | 20110821 | US20110525836P | 20110821 | US20110525838P | 20110821 |
| US20110532535P | 20110908 | US20110536066P | 20110919 | US20110549238P | 20111020 |
| WO2011KR09045  | 20111124 | WO2011KR09043  | 20111124 | WO2011KR09564  | 20111213 |
| US20110988995  | 20111124 | US20110994004  | 20111213 | US20110883239  | 20111124 |
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| US20150612901  | 20150203 |                |          |                |          |

**Probable Assignee:** LG ELECTRONICS INC

**Assignee(s):** (std): CHUNG JAEHEE ; JI AETTIE ; KIM JINPIL ; KIM KAWANSUK ; KIM KWANSUK ; MOON KYOUNGSOO ; LEE HYEONJAE ; PARK SUNGOK ; LEE JOONHUI ; LG ELECTRONICS INC ; KIM KYUNGHO ; KIM SANGHYUN ; SEO YOUNGJAE ; SEO DONGWAN ; LG ELECTRONICS INC ; SUH JONGYEUL ; SUII JONGYEUL

**Inventor(s):** (std): JI AE TTIE ; JI AET TIE ; JI AETTIE ; JINPIL KIM ; JONGYEUL SUH ; JOONHUI LEE ; KIM JIN PIL ; KIM JINPIL ; KIM KAWANSUK ; KIM KWAN SUK ; KIM KWANSUK ; KIM KYUNG HO ; KIM KYUNGHO ; KIM SANG HYUN ; KIM SANGHYUN ; KWANSUK KIM ; LEE HYEON JAE ; LEE HYEONJAE ; LEE JOON HUI ; LEE JOONHUI ; MOON KYOUNG SOO ; MOON KYOUNGSOO ; PARK SUNG OK ; PARK SUNGOK ; SANGHYUN KIM ; SEO DONG WAN ; SEO DONGWAN ; SEO YOUNG JAE ; SEO YOUNGJAE ; SUH JONG YEUL ; SUH JONGYEUL ; SUII JONGYEUL ; CHUNG JAE HEE ; CHUNG JAEHEE ; DONGWAN SEO

**Inventor(s):** HYEONJAE LEE ; JAEHEE CHUNG ; AETTIE JI ; KYOUNGSOO MOON

**Agent(s):** SMART AND BIGGAR; FRENKEL MATTHIAS ALEXANDER; KATERLE AXEL; MCKENNA LONG AND ALDRIDGE LLP; DENTONS US LLP; HAW YONG NOKE

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**Title:** METHOD FOR TRANSMITTING A BROADCAST SERVICE, AND METHOD AND APPARATUS FOR RECEIVING SAME

**Abstract:** Source: US2013291050A A broadcast receiver receives a packetized stream. The broadcast receiver extracts display time information from the header of the received packetized stream, and extracts preparation trigger information including a target service identifier from the payload of the received packetized stream. If a current time is a preparation time designated by the extracted display time information, the broadcast receiver starts to prepare an object corresponding to the target service identifier for activation at a later time.

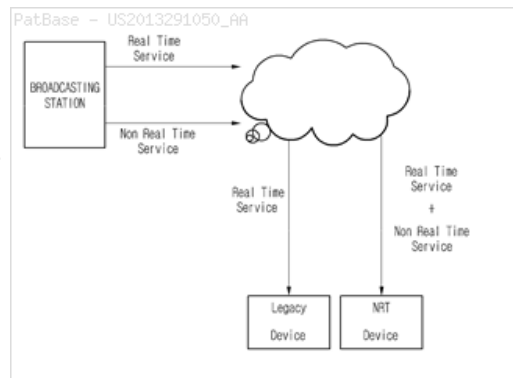
**Classifications:**

**International (IPC 8-9):** H04N21/2362 H04N21/242 H04N21/262 H04N21/43 H04N21/434 H04N21/438 H04N21/654 H04N21/6543 H04N21/8547 H04N21/858 H04N7/015 H04N7/173 (Advanced/Invention)

**CPC:** H04N21/654 H04N21/43 H04N21/8586 H04N21/26283 H04N21/2362 H04N21/4307 H04N21/4343 H04N21/4345 H04N21/4348 H04N21/6543 H04N21/4302 H04N21/242 H04N21/8547 H04N21/438

**European:** H04N21/2362 H04N21/262T H04N21/434P H04N21/434S H04N21/434W H04N21/43S2

**US:** 1/1 725/105 725/118 725/131



**Family:**

| Publication number | Publication date | Application number | Application date |
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| DE112011103965 T5  | 20130822         | DE201111103965T    | 20111223         |
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| EP2658247 A4       | 20141231         | EP20110854361      | 20111223         |
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| GB2501021 B2       | 20170329         | GB20130011853      | 20111223         |
| KR101455557 B1     | 20141104         | KR20137016074      | 20111223         |
| KR20130087584 A    | 20130806         | KR20137016074      | 20111223         |
| KR20140094628 A    | 20140730         | KR20147016867      | 20111223         |
| US2013291050 AA    | 20131031         | US20110997882      | 20111223         |
| US2014304760 AA    | 20141009         | US20140209781      | 20140313         |
| US2016066065 AA    | 20160303         | US20150935824      | 20151109         |
| US8726328 BB       | 20140513         | US20110997882      | 20111223         |
| US9215497 BB       | 20151215         | US20140209781      | 20140313         |
| WO12091370 A1      | 20120705         | WO2011KR10051      | 20111223         |

**Priority:**

|                |          |                |          |               |          |
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| US20100427199P | 20101226 | US20110429459P | 20110104 | US20110997882 | 20111223 |
| US20140209781  | 20140313 | US20130997882  | 20130625 | US20150935824 | 20151109 |
| WO2011KR10051  | 20111223 |                |          |               |          |

**Probable Assignee:** LG ELECTRONICS INC

**Assignee(s):** (std): KIM KWANSUK ; KIM SANGHYUN ; LEE JOONHUI ; LG ELECTRONICS INC ; SEO DONGWAN ; SUH JONGYEUL

**Inventor(s):** (std): DONGWAN SEO ; JONGYEUL SUH ; KIM KWANSUK ; KIM SANG HYUN ; KIM KWAN SUK ; JOONHUI LEE ; SEO DONGWAN ; KIM SANGHYUN ; LEE JOONHUI ; SEO DONG WAN ; LEE JOON HUI ; SUH JONG YEUL ; SANGHYUN KIM ; KWANSUK KIM ; SUH JONGYEUL

**Agent(s):** SMART AND BIGGAR; FRENKEL MATTHIAS ALEXANDER; MCKENNA LONG AND ALDRIDGE LLP; DENTONS US LLP; HAW YONG NOKE

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**Title:** METHOD AND APPARATUS FOR TRANSMITTING AND RECEIVING MULTIMEDIA SERVICE

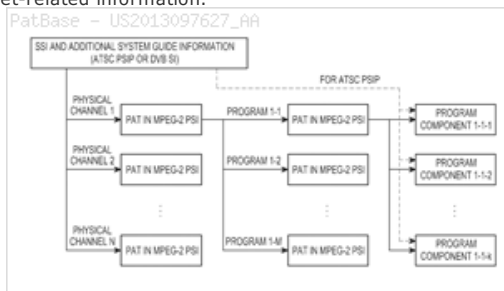
**Abstract:** Source: US2013097627A A method for receiving a multimedia service is provided. The method includes receiving service specific information for at least one multimedia service provided from different networks, selecting one service based on the service specific information, and receiving the selected service. The service specific information includes one of a first service map table including information about at least one service which is transmitted over a plurality of logical channels, and a second service map table including information about at least one service which is transmitted over a single logical channel. Each of the first and second service map tables includes asset-related information.

**Classifications:**

**International (IPC 8-9):** G06F13/00 G06F21/10 H04H20/28 H04H20/65 H04H20/81 H04H20/95 H04H60/07 H04H60/13 H04H60/23 H04H60/25 H04H60/40 H04H60/65 H04H60/73 H04H60/82 H04L29/06 H04N21/234 H04N21/235 H04N21/236 H04N21/2362 H04N21/262 H04N21/434 H04N21/435 H04N21/437 H04N21/454 H04N21/462 H04N21/4623 H04N21/482 H04N21/61 H04N21/6583 H04N21/83 H04N21/84 (Advanced/Invention); H04H20/93 H04H60/13 (Advanced/Non-invention)

**CPC:** H04L63/10 H04H20/40 H04N21/2362 H04L2463/101 H04N21/235 G06F21/10 H04H60/13 H04H60/73 H04N21/4345 H04N21/462 H04N21/6125 H04N21/26606 H04N21/26613 G06F21/12 H04H20/93 H04H60/23

**US:** 1/1 725/25 725/54 726/26



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2013255124 AA    | 20131107         | AU20130255124      | 20130502         |
| AU2013255124 AB    | 20150226         | AU20130255124      | 20130502         |
| AU2013255124 BB    | 20161117         | AU20130255124      | 20130502         |
| AU2017200925 AA    | 20170302         | AU20170200925      | 20170210         |
| CA2872506 AA       | 20141103         | CA20132872506      | 20130502         |
| CN104025479 A      | 20140903         | CN201280061942     | 20121015         |
| CN104335593 A      | 20150204         | CN201380027909     | 20130502         |
| CN104412604 A      | 20150311         | CN201380035064     | 20130502         |
| EP2767014 A1       | 20140820         | EP20120839272      | 20121015         |
| EP2767014 A4       | 20150729         | EP20120839272      | 20121015         |
| EP2845390 A1       | 20150311         | EP20130785254      | 20130502         |
| EP2845390 A4       | 20160127         | EP20130785254      | 20130502         |
| EP2846551 A1       | 20150311         | EP20130784923      | 20130502         |
| EP2846551 A4       | 20160210         | EP20130784923      | 20130502         |
| IN02764KN2014 A    | 20151204         | IN2014KN02764      | 20141201         |
| JP2014534696 T2    | 20141218         | JP20140535654T     | 20121015         |
| JP2015520968 T2    | 20150723         | JP20150510187T     | 20130502         |
| JP2015524178 T2    | 20150820         | JP20150510186T     | 20130502         |
| JP2016154342 A2    | 20160825         | JP20160045771      | 20160309         |
| JP5947455 B2       | 20160706         | JP20150510187T     | 20130502         |
| JP6122523 B2       | 20170426         | JP20160045771      | 20160309         |
| KR101501344 B1     | 20150310         | KR20130042576      | 20130417         |
| KR20130123314 A    | 20131112         | KR20130042576      | 20130417         |
| KR20140090202 A    | 20140716         | KR20147012751      | 20121015         |
| KR20150035565 A    | 20150406         | KR20147033934      | 20130502         |
| MX2014013277 A1    | 20150212         | MX20140013277      | 20130502         |
| MX343219 B         | 20161028         | MX20140013277      | 20130502         |
| US2013097627 AA    | 20130418         | US20120651716      | 20121015         |
| US2013298253 AA    | 20131107         | US20130875674      | 20130502         |
| US2015150055 AA    | 20150528         | US20130398645      | 20130502         |
| US2017019690 AA    | 20170119         | US20160281773      | 20160930         |
| US9462311 BB       | 20161004         | US20130398645      | 20130502         |
| WO13055179 A1      | 20130418         | WO2012KR08383      | 20121015         |
| WO13165186 A1      | 20131107         | WO2013KR03804      | 20130502         |
| WO13165187 A1      | 20131107         | WO2013KR03808      | 20130502         |

**Priority:**

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| AU20130255124  | 20130502 | AU20170200925  | 20170210 | KR20110104619  | 20111013 |
| KR20130042576  | 20130417 | JP20150510187T | 20130502 | JP20160045771  | 20160309 |
| US20120671923P | 20120716 | US20120651716  | 20121015 | US20120641410P | 20120502 |
| US20120641444P | 20120502 | US20130875674  | 20130502 | US20130398645  | 20130502 |
| US20150398645  | 20150204 | US20160281773  | 20160930 | WO2012KR08383  | 20121015 |
| WO2013KR03808  | 20130502 | WO2013KR03804  | 20130502 |                |          |

**Probable Assignee:** SAMSUNG ELECTRONICS CO LTD

**Assignee(s):** (std): COOPERATION FOUNDATION UNIV OF SEOUL IND ; SAMSUNG ELECTRONICS CO LTD ; UNIV SEOUL INDUSTRY COOP FOUND ; UNIV SEOUL INDUSTRY COOPERAT ; UNIV SEOUL IND COOP FOUND ; UNIV SEOUL IND COOPERAT ; UNIV SEOUL FOUNDATION OF IND ACADEMIC COOPERATION ; UNIV OF SEOUL IND COOP FOUND

**Assignee(s):** UNIV OF SEOUL INDUSTRY COOPERATION FOUNDATION ; UNIV OF SEOUL IND COOPERATION FOUNDATION ; SAMSUNG ELECTRONICS CO LTD129, SAMSUNG-ROYEONGTONG-GUSUWON-SI443-742GYEONGGI-DOKR ; SONG JAE YEON ; SAMSUNG ELECTRONICS CO ; UNIVERSITY OF SEOUL INDUSTRY COOPERAT ; UNIVERSITY OF SEOUL INDUSTRY COOPERATION FOUNDATION ; HWANG SUNG OH ; KIM YONG HAN ; OF SEOUL FOUNDATION OF IND ACADEMIC COOPERATION UNIV ; OF SEOUL IND COOPERAT UNIV ; OF SEOUL IND COOPERATION FOUNDATION UNIV ; OF SEOUL IND COOPERATION FOUNDATION UNIV163 SEOULSIRIPDAE-RODONGDAEMUN-GU130-743SEOULKR ; RHYU SUNG RYEUL ; PARK KYUNG MO ; OF SEOUL IND COOPERATION FOUNDATIO UNIV ; OF SEOUL IND COOPERATION FOUNDATION A CORP UNIV

**Inventor(s):** (std): HWANG SUNG OH ; JAE YEON SONG ; KIM YONG HAN ; KYUNG MO PARK ; PARK KYUNG MO ; RHYU

SUNG RYEUL ; SONG JAE YEON ; SUNG OH HWANG ; SUNG RYEUL RHYU ; YONG HAN KIM

**Inventor(s):** SONG JAE YEONKR ; RHYU SUNG RYEULKR ; PARK KYUNG MOKR ; KIM YONG HANKR ; HWANG SUNG OHKR

**Agent(s):** GRIFFITH HACK; MARKS AND CLERK; NEDERLANDSCH OCTROOIBUREAU; JEFFERSON IP LAW LLP; LEE KEON JOO

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**Title:** SYSTEM AND METHOD OF **SYNCHRONIZING** TIME BETWEEN MULTIPLE SYSTEMS

**Abstract:** Source: US2015073571A Systems and methods for **synchronizing** time between multiple systems on a mining machine. The system includes a programmable logic controller (**PLC**) for controlling the mining machine and for transmitting a time to **synchronize** computer subsystems on the machine. The **PLC** includes a system **clock** that is programmed to operate on local time. A battery pack is connected to the **PLC** to allow the system **clock** to function continuously, even when the machine is turned off. Computer subsystems request and receive time updates from the **PLC**. A local time on each computer subsystem is determined based on the time update received from the **PLC**. Each computer subsystem includes a time zone parameter set to Coordinated Universal Time (**UTC**) and a **Daylight** Saving Time (**DST**) parameter that is disabled. Accordingly, the local time on each computer subsystem is set to the time update value received from the **PLC**.

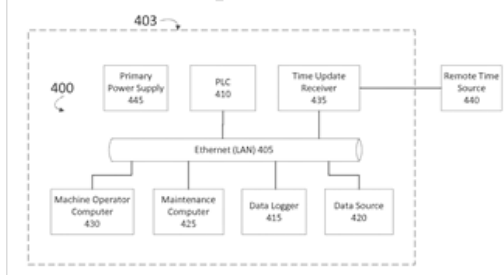
**Classifications:**

**International (IPC 8-9):** E02F9/20 G04G7/00 G05B19/042  
G05B19/05 G06F1/04 G06F1/12 G06F11/00 H04J3/06 H04L7/00  
H04N (Advanced/Invention);  
G05B19/05 (Advanced/Non-invention);  
G06F11/00 (Core/Invention);  
H04N (Subclass/Invention)

**CPC:** G05B19/05 G05B2219/15063 G06F11/00

**US:** 700/86

PatBase - US2015073571\_AA

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AR097589 AA        | 20160323         | AR2014P103350      | 20140908         |
| AU2014221220 AA    | 20150326         | AU20140221220      | 20140903         |
| BR102014021948 A2  | 20160419         | BR20141021948      | 20140904         |
| CA2862916 AA       | 20150309         | CA20142862916      | 20140904         |
| CL2014002378 A1    | 20150710         | CL20140002378      | 20140908         |
| CN104426648 A      | 20150318         | CN201410455462     | 20140909         |
| CN204362065 U      | 20150527         | CN201420515069U    | 20140909         |
| CO7540069 A1       | 20160310         | CO20140197868      | 20140908         |
| ES2537834 AB       | 20150612         | ES20140031299      | 20140909         |
| ES2537834 BB       | 20160216         | ES20140031299      | 20140909         |
| ES2537834 R1       | 20150901         | ES20140031299      | 20140909         |
| IN02543DE2014 A    | 20150626         | IN2014DE02543      | 20140905         |
| MX2014010785 A1    | 20150528         | MX20140010785      | 20140908         |
| MX344916 B         | 20170110         | MX20140010785      | 20140908         |
| PE05692015 A1      | 20150506         | PE20140001385      | 20140909         |
| RU2014136147 A     | 20160327         | RU20140136147      | 20140904         |
| US2015073571 AA    | 20150312         | US20130021287      | 20130909         |

**Priority:**

US20130021287 20130909

**Probable Assignee:** HARNISCHFEGER TECHNOLOGIES INC

**Assignee(s):** (std): HARNISCHFEGER TECH INC

**Assignee(s):** HARNISCHFEGER TECHNOLOGIES INC ; PAYNE CHARLES D ; BASULTO JORGE A

**Inventor(s):** (std): BASULTO JORGE A ; CHARLES D PAYNE ; JORGE A BASULTO ; PAYNE CHARLES D

**Inventor(s):** CHARLES PAYNE

**Agent(s):** GRIFFITH HACK; RIDOUT AND MAYBEE LLP; PORZIO RIOS AND ASOCIADOS; SILVANA MARIA LOPEZ DIAZ; DE ELZABURU ALBERTO

**Title:** TIME-KEEPING BETWEEN DEVICES USING POWER DISTRIBUTION LINE COMMUNICATIONS

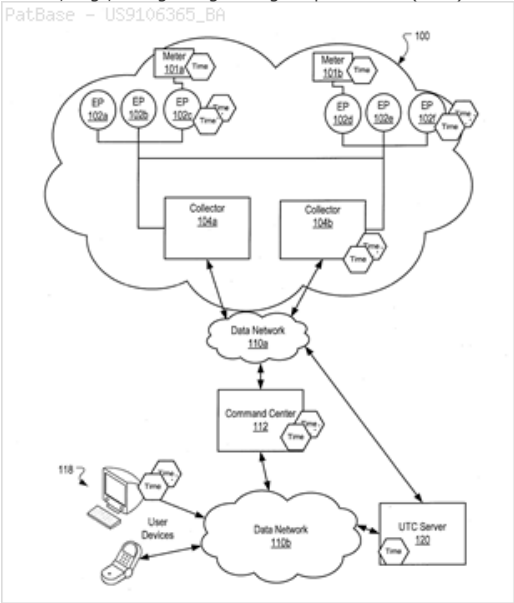
**Abstract:** Source: US9106365B Particular embodiments are directed towards a method for communicating time-based data in a power line communication system. The communication system utilized in the method includes: a command center; a collector device; and a plurality of endpoint devices. The method includes communicating, from the collector device, downstream data to the plurality of endpoint devices. This downstream communication utilizes a communication protocol that is relative to a collector network time, and is over a set of power distribution lines carrying alternating current (AC). The collector network time uses the local oscillator. The AC zero-crossing event can be used as a time base for other versions of the network time. Conceptually, the AC can be thought of as acting as a reference **clock** for maintaining these other network times, although the **clocking** function can be carried out in the digital realm, e.g., using a digital-signal processor (DSP).

**Classifications:**

**International (IPC 8-9):** G08B23/00 H04L7/00 (Advanced/Invention)

**CPC:** H04L7/00 G08B23/00 H04B3/54 H04J3/0661 G04G7/00 H04B2203/542

**US:** 1/1



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US9106365 BA       | 20150811         | US20110334589      | 20111222         |

**Priority:**

US20110334589 20111222

**Probable Assignee:** LANDIS AND GYR TECHNOLOGIES LLC

**Assignee(s):** (std): BONICATTO DAMIAN ; FLEN ROLF ; HAUG STUART L ; WOLTER CHAD ; OLSON VERNE ; LANDIS AND GYR TECHNOLOGIES LLC

**Assignee(s):** HUNT TECHNOLOGIES LLC

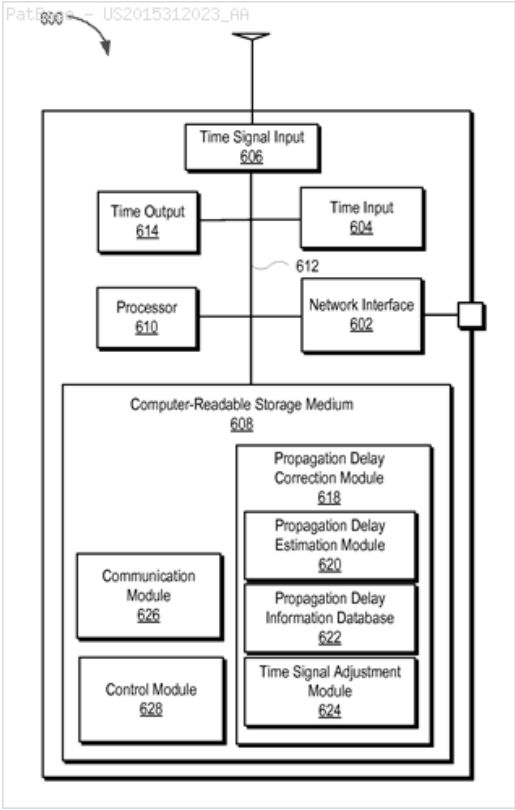
**Inventor(s):** (std): BONICATTO DAMIAN ; FLEN ROLF ; HAUG STUART L ; OLSON VERNE ; WOLTER CHAD

**Agent(s):** CRAWFORD MAUNU PLLC

**Title:** TIME SIGNAL PROPAGATION DELAY CORRECTION

**Abstract:** Source: US2015312023A Disclosed herein are a variety of systems and methods for correcting for propagation delay in time signals used in connection with an electric power generation and delivery system. According to various embodiments, a device consistent with the present disclosure may determine an estimated propagation delay between an accurate time source and a receiving device. The propagation delay may be determined based on a variety of transmission parameters including, for example, communication channel type and/or length. A corrected time signal may be generated by advancing a reference incitation such as an "on-time" reference and/or "start-of-second" reference included in the time signal by an amount associated with the propagation delay. The corrected time signal may then be transmitted to the receiving device.

**Classifications:**  
**International (IPC 8-9):** H04J3/06 H04L7/00 (Advanced/Invention)  
**CPC:** H04L7/0041 H04J3/0635 H04J3/0682  
**US:** 1/1 375/371



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2015312023 AA    | 20151029         | US20140264394      | 20140429         |
| US9270442 BB       | 20160223         | US20140264394      | 20140429         |
| WO15167745 A1      | 20151105         | WO2015US24000      | 20150402         |

**Priority:**

US20140264394 20140429

**Probable Assignee:** SCHWEITZER ENGINEERING LAB INC

**Assignee(s):** (std): SCHWEITZER ENGINEERING LAB INC

**Assignee(s):** SCHWEITZER ENGINEERING LABORATORIES INC

**Inventor(s):** (std): ACHANTA SRINIVAS ; RICE RAYMOND W

**Agent(s):** RICHARD M; JOHN P; EDGE RICHARD M

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW