

## SEARCH HISTORY

<b>Application Number</b>	PCT/US 19/63366
<b>Search Conducted By</b>	JL
<b>Search Approved By</b>	JL

<b>US/IPC Classifications Searched</b>	CPC: H04L 63/1433, H04L 63/14, Y04S 40/24; IPC(8): G06F 21/00 (2020.01); USPC: 703/14, 716/106, 703/6, 726/14
<b>Date Conducted</b>	02 March 2020 (02.03.2020)

<b>Documentation Searched</b>	CPC: H04L 63/1433, H04L 63/14, Y04S 40/24; USPC: 703/14, 716/106, 703/6, 726/14 (keyword limited; terms below)
<b>Search Terms Used</b>	cyber-physical health state key communicate validate control path reconstruct, etc.
<b>Date Conducted</b>	02 March 2020 (02.03.2020)

<b>Electronic Database Searched</b>	PatBase
<b>Files Searched</b>	Full-text: AU BE BR CA CH CN DE DK EP ES FI FR GB IN JP KR SE TH TW US WO Bibliographic: (Europe) AT BA BE BG CH CS CY CZ DD DK EE ES FI GE GR HR HU IE IS IT LT LU LV MC MD MT NL NO PL PT RO RS SE SI SK SM TR UA YU (Asia) EA GC HK ID IL IN KZ MN MY PH RU SG SU TH TJ TW UZ VN (North America) CA CR CU DO GT HN MX NI PA SV TT (South America) AR BR CL CO EC PE UY (Australasia) AU NZ (Africa) AP DZ EG KE MA MW OA ZA ZM ZW
<b>Date Conducted</b>	02 March 2020 (02.03.2020)

**Search Logic:**

\*\*\* CLASSIFICATION-BASED SEARCH \*\*\*

Search 1: (IC=(G06F21/00) or UC=(703/14 or 716/106 or 703/6 or 726/14) or CPC=(H04L63/1433 or H04L63/14 or Y04S40/24)) (Results 78987)

Search 2: ((cyber\* or network\* or digital\* or software\*) w5 (health\* or erro\* or fail\* or fault\*)) (Results 181684)  
 Search 3: (1 and 2) (Results 4333)  
 Search 4: 3 and ((physical\* or hardware\*) w5 (health\* or erro\* or fail\* or fault\*)) (Results 724)  
 Search 5: 4 and ((state\* or status or health\* or erro\* or fail\* or fault\*) w3 key) (Results 74)  
 Search 6: 5 and ((split\* or partial\* or portion\* or divi\* or fragment\*) w3 key) (Results 27)  
 Search 7: 6 and ((reconstruct\* or rebuil\* or regen\* or recom\* or re-construct\* or re-buil\* or re-com\* or re-gen\* or merg\*) w5 key) (Results 18)  
 Search 8: 7 and ((valid\* or verif\* or confirm\* or match\* or erro\* or match\* or mismatch\*) w5 (key or state or status or health\*)) (Results 18)  
 Search 9: 8 and (erro\* or fault\* or fail\* or mismatch\*) (Results 18)

\*\*\* FREEFORM SEARCH \*\*\*

Search 10: 2 and ((physical\* or hardware\*) w5 (health\* or erro\* or fail\* or fault\*)) (Results 22503)  
 Search 11: 10 and ((state\* or status or health\* or erro\* or fail\* or fault\*) w3 key) (Results 613)  
 Search 12: 11 and ((split\* or partial\* or portion\* or divi\* or fragment\*) w3 key) (Results 57)  
 Search 13: 12 and ((reconstruct\* or rebuil\* or regen\* or recom\* or re-construct\* or re-buil\* or re-com\* or re-gen\* or merg\*) w5 key) (Results 24)  
 Search 14: 13 and ((valid\* or verif\* or confirm\* or match\* or erro\* or match\* or mismatch\*) w5 (key or state or status or health\*)) (Results 24)  
 Search 15: 14 and (erro\* or fault\* or fail\* or mismatch\*) (Results 24)

<b>Electronic Database Searched</b>	Google
<b>Files Searched</b>	Google Scholar (excluding patents)
<b>Date Conducted</b>	02 March 2020 (02.03.2020)
<b>Search Logic:</b>	
About 24,000 results (0.11 sec) on cyber-physical health state key	
About 18,000 results (0.14 sec) on cyber-physical health state key communicate validate control path	
About 4,350 results (0.10 sec) on cyber-physical health state key communicate validate control path reconstruct	

<b>Electronic Database Searched</b>	PubWEST					
<b>Files Searched</b>	PGPB, USPT, EPAB, JPAB					
<b>Date Conducted</b>	02 March 2020 (02.03.2020)					
<b>Search Logic:</b>						
DATE: Monday, March 02, 2020						
<u>Purge Queries</u> <u>Printable Copy</u> <u>Create Case</u>						
<b>Order By</b>	<b><u>Set Name</u></b> Side by Side	<b><u>Query</u></b>	<b><u>Hit Count</u></b>	<b><u>Set Name Result Set</u></b>	<b><u>Set Name Grid</u></b>	<b><u>Set Name Classification</u></b>
<i>DB=PGPB,USPT,EPAB,JPAB; PLUR=YES; OP=ADJ</i>						
Date	<u>L15</u>	L14 and (erro\$ or fault\$ or fail\$ or mismatch\$ or anomal\$)	2	<u>L15</u>	<u>L15</u>	<u>L15</u>
Date	<u>L14</u>	L13 and ((valid\$ or verif\$ or confirm\$ or match\$ or erro\$ or match\$ or mismatch\$ or anomal\$) near5 (key or state or status or health\$))	2	<u>L14</u>	<u>L14</u>	<u>L14</u>
Date	<u>L13</u>	L12 and ((reconstruct\$ or rebuild\$ or regen\$ or recom\$ or re-construct\$ or re-buil\$ or re-com\$ or re-gen\$ or merg\$) near5 key)	3	<u>L13</u>	<u>L13</u>	<u>L13</u>
Date	<u>L12</u>	L11 and ((state\$ or status or health\$ or erro\$ or fail\$ or fault\$) near5 key)	18	<u>L12</u>	<u>L12</u>	<u>L12</u>
Date	<u>L11</u>	L10 and ((split\$ or partial\$ or divi\$ or fragment\$) near3 key)	67	<u>L11</u>	<u>L11</u>	<u>L11</u>
Date	<u>L10</u>	L9 and @pd<20181129	14744	<u>L10</u>	<u>L10</u>	<u>L10</u>
Date	<u>L9</u>	((cyber\$ or network\$ or infrastructur\$) near3 (health\$ or state or status) near3 (monitor\$ or scan\$ or assess\$ or evaluat\$))	16577	<u>L9</u>	<u>L9</u>	<u>L9</u>
Date	<u>L8</u>	L7 and (erro\$ or fault\$ or fail\$ or mismatch\$ or anomal\$)	235	<u>L8</u>	<u>L8</u>	<u>L8</u>
Date	<u>L7</u>	L6 and ((valid\$ or verif\$ or confirm\$ or match\$ or erro\$ or match\$ or mismatch\$ or anomal\$) near5 (key or state or status or health\$))	237	<u>L7</u>	<u>L7</u>	<u>L7</u>
Date	<u>L6</u>	L5 and ((reconstruct\$ or rebuild\$ or	242	<u>L6</u>	<u>L6</u>	<u>L6</u>

Date	<u>L5</u>	regen\$ or recom\$ or re-construct\$ or re-buil\$ or re-com\$ or re-gen\$ or merg\$) near5 key)	575	<u>L5</u>	<u>L5</u>	<u>L5</u>
Date	<u>L4</u>	L4 and ((state\$ or status or health\$ or erro\$ or fail\$ or fault\$) near5 key)	1168	<u>L4</u>	<u>L4</u>	<u>L4</u>
Date	<u>L3</u>	L3 and ((physical\$ or hardware\$ or infrastructur\$) near5 (health\$ or erro\$ or fail\$ or fault\$ or state or status))	3705	<u>L3</u>	<u>L3</u>	<u>L3</u>
Date	<u>L2</u>	L2 and ((cyber\$ or network\$ or digital\$ or software\$ or infrastructur\$) near5 (health\$ or erro\$ or fail\$ or fault\$ or state or status))	27338	<u>L2</u>	<u>L2</u>	<u>L2</u>
Date	<u>L1</u>	L1 and @pd<20181129 ((split\$ or partial\$ or divi\$ or fragment\$) near3 key)	29625	<u>L1</u>	<u>L1</u>	<u>L1</u>

END OF SEARCH HISTORY