

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT7347216

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
NIO USA, INC.	02/16/2022

RECEIVING PARTY DATA

Name:	NIO TECHNOLOGY (ANHUI) CO., LTD.
Street Address:	BUILDING F, #3963 SUSONG ROAD
Internal Address:	HENGCHUANG INTELLIGENT SCIENCE AND TECHNOLOGY PARK, ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONE
City:	HEFEI, ANHUI
State/Country:	CHINA
Postal Code:	230000

PROPERTY NUMBERS Total: 278

Property Type	Number
Patent Number:	10189363
Patent Number:	10124690
Patent Number:	10336194
Patent Number:	9694685
Patent Number:	10556599
Patent Number:	10220717
Patent Number:	9944192
Patent Number:	10532663
Patent Number:	10131238
Patent Number:	10183584
Patent Number:	10611251
Patent Number:	10632852
Patent Number:	10427530
Patent Number:	10093195
Patent Number:	10071641
Patent Number:	10753761
Patent Number:	10160339
Patent Number:	9964415
Patent Number:	10354460

PATENT

Property Type	Number
Patent Number:	10304261
Patent Number:	10252631
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Patent Number:	10784668
Application Number:	15396613

Property Type	Number
Application Number:	15394402
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Application Number:	16844766
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Application Number:	17462936
Application Number:	17183971
Application Number:	17202823
Application Number:	17147197
Application Number:	17191081
Application Number:	17191408

CORRESPONDENCE DATA

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Address Line 2: SUITE 1200
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ATTORNEY DOCKET NUMBER:	8322-564-1
NAME OF SUBMITTER:	DOUGLAS W. SWARTZ
SIGNATURE:	/Douglas W. Swartz/
DATE SIGNED:	05/24/2022

Total Attachments: 17

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PATENT ASSIGNMENT

WHEREAS, NIO USA, INC. (hereinafter "ASSIGNOR"), a corporation duly registered in the State of California, having a place of business at 3200 North First Street, San Jose, California 95134, owns the entire right, title, and interest to certain new and useful inventions (hereinafter "Inventions") for which applications for Letters Patent have been prepared and filed, and in some instances issued as patents, and as further identified in the attached Exhibit A (hereinafter "Applications"), and

WHEREAS, NIO TECHNOLOGY (ANHUI) CO., LTD. (hereinafter ASSIGNEE"), a corporate entity duly registered in the People's Republic of China, having a place of business at Building F, #3963 Susong Road, Hengchuang Intelligent Technology Park, Economic and Technological Development Zone, Hefei, Anhui 230000, People's Republic of China, desires to acquire the entire right, title, and interest in and to the Inventions and Applications for all territories in the world and any improvements and modifications thereto and any Letters Patents to be granted for the Inventions and Applications in all territories in the world;

NOW, THEREFORE, be it known that the ASSIGNOR, for and in consideration of certain good and valuable consideration, the sufficiency and receipt of which is hereby acknowledged by ASSIGNEE, has irrevocably sold, assigned, transferred, and set over, and does hereby irrevocably sell, assign, transfer, and set over unto ASSIGNEE, its successors, legal representatives, and assigns, the entire right, title, and interest in and to the Inventions and Applications for all territories in the world and any improvements and modifications thereto, the Applications, all applications from which the Applications claim the benefit of priority, all applications claiming the benefit of priority from the Applications, including, but not limited to, all non-provisional, divisional, continuation, and continuation-in-part applications, and reissue and reexaminations thereof; all Letters Patent, Invention Registrations, Utility Models, Extension and other patent rights, that may be granted thereon in the United States of America or any territory in the world; together with the right to claim priority under the International Convention in all member countries (collectively "Related Applications"); and all causes of action arising therefrom including, without limitation, the right to enforce and sue for damages, injunctive relief, and/or other remedies for past, present, and future infringement of rights resulting from the Inventions, the Applications, or any patent issuing therefrom, and the right to recover and retain all monetary damages, proceeds (including, but not limited to, all license royalties), and/or other recovery thereof;

AND ASSIGNOR, for and in consideration of, the certain good and valuable consideration, does further sell, assign, transfer, and set over to ASSIGNEE, the right to claim priority to the Applications for all Related Applications, including without limitation, all applications pursuant to the Patent Cooperation Treaty and national and regional applications filed therefrom, all applications for the territory of the United

States of America or any territory in the world, and all divisional, continuation, and continuation-in-part applications, and reissue applications thereof, and all applications in all territories in the world, and the right to be granted a patent for any of the foregoing applications;

AND ASSIGNOR covenants and agrees that it has the full right to convey the entire right, title, and interest herein assigned and that it has not executed and will not execute any assignment or other instrument in conflict with this Assignment;

AND ASSIGNOR further covenants and agrees that upon request by ASSIGNEE, its successors, legal representatives, and/or assigns, and without further consideration, ASSIGNOR will do all lawful acts that may be necessary or desirable to assist ASSIGNEE, its successors, legal representatives, and/or assigns to obtain and enforce patent protection for the Inventions in the United States and in all territories in the world, it being understood that any expense incident to the rendering of such assistance will be borne by ASSIGNEE, its successors, legal representatives, and/or assigns.

AND ASSIGNOR further covenants and agrees that the acquisition of the entire right, title, and interest in and to the Inventions and Applications for all territories in the world and any improvements and modifications thereto and any Letters Patents to be granted for the Inventions and Applications in all territories in the world by ASSIGNEE will be [REDACTED]

[REDACTED] Both ASSIGNEE AND ASSIGNOR agree to comply with NIO's transfer pricing policy that the price for the transaction covered by this Agreement shall satisfy the arm's length principle. Both parties also agree to have in place documentation to support the determination of the arm's length pricing under this Agreement for the transaction. If the amount paid by ASSIGNOR is subject to final adjustment by any government tax authority, ASSIGNOR shall pay ASSIGNEE, or ASSIGNEE shall pay ASSIGNOR, as the case may be, the full amount of such adjustment. If ASSIGNEE is required under any applicable law, regulation or government order to withhold any taxes or other government charges on any amounts payable by ASSIGNEE under this agreement, ASSIGNEE shall withhold, and shall pay over to the appropriate government authorities, all such taxes and other government charges. ASSIGNEE shall obtain, and shall furnish to ASSIGNOR on a timely basis, official tax receipts or other evidence of payment of all such taxes and other government charges, sufficient to permit ASSIGNOR to establish ASSIGNOR's right to a credit for such taxes and other government charges against ASSIGNOR's tax liabilities. ASSIGNOR shall provide ASSIGNEE with such assistance as ASSIGNEE shall reasonable request in connection with any application by ASSIGNEE to qualify for the benefit of a reduced rate of withholding taxation under the terms of any applicable Tax Treaty. The Commissioner of Patents is hereby authorized and requested to issue the Letters Patent solely in accordance

with the terms of this Assignment, to ASSIGNEE, its successors, legal representatives and assigns, as an assignee of an equal, undivided right, title, and interest therein.

This Assignment may be executed in counterparts, and said counterparts being deemed as original Patent Assignment documents collectively.

IN WITNESS WHEREOF, the parties hereto have executed this Patent Assignment as of the date indicated hereunder, and the Patent Assignment will retroactively take effect as of January 1, 2021.

ASSIGNOR:

NIO USA, INC.

Signature

Ganesh Iyer
Printed Name

U.S. Managing Director & Global CIO
Title

Date

2/16/2022

ASSIGNEE:

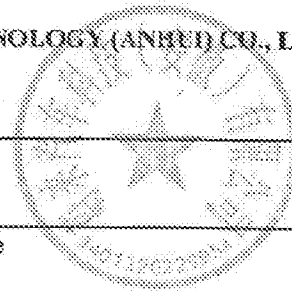
NIO TECHNOLOGY (ANHUI) CO., LTD.

Signature

Printed Name

Title

Date



INSERT NOTARY BLOCK BASED ON LOCATION

see attached certificate.
Date 2/16/2022

CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

STATE OF CALIFORNIA

COUNTY OF SANTA CLARA

)
) SS
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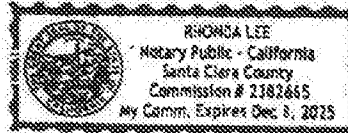
On February 16 2022 before me

Rhonda Lee, Notary Public
(here insert name and title of the officer)

personally appeared Genesh Tyer, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Signature Rhonda Lee (Seal)

EXHIBIT A

SR File No.	Title	Country	Serial No.	Filing Date	Patent No.	Issue Date
8322-2	ELECTRIC VEHICLE ROADWAY CHARGING SYSTEM AND METHOD OF USE	US	14/954,436	11/30/2015	10,189,363	01/29/2019
8322-3	ELECTRIC VEHICLE CHARGING DEVICE POSITIONING AND METHOD OF USE	US	14/954,484	11/30/2015	10,124,690	11/13/2018
8322-4	ELECTRIC VEHICLE CHARGING DEVICE ALIGNMENT AND METHOD OF USE	US	14/979,158	12/22/2015	10,336,194	07/02/2019
8322-5	ELECTRIC VEHICLE CHARGING DEVICE OBSTACLE AVOIDANCE AND WARNING SYSTEM AND METHOD OF USE	US	14/981,368	12/28/2015	9,694,685	07/04/2017
8322-6	CONDITIONAL PROGRESSIVE DEGRADATION OF ELECTRIC VEHICLE POWER SUPPLY SYSTEM	US	15/384,043	12/19/2016	10,556,599	02/11/2020
8322-7	ELECTRIC VEHICLE EMERGENCY CHARGING SYSTEM AND METHOD OF USE	US	15/010,701	01/29/2016	10,220,717	03/05/2019
8322-10	ELECTRIC VEHICLE CHARGING STATION SYSTEM AND METHOD OF USE	US	15/048,307	02/19/2016	9,944,192	04/17/2018
8322-11	ELECTRIC VEHICLE OVERHEAD CHARGING SYSTEM AND METHOD OF USE	US	15/044,940	02/16/2016	10,532,663	01/14/2020
8322-12	CHARGING TRANSMISSION LINE UNDER ROADWAY FOR MOVING ELECTRIC VEHICLE	US	15/055,345	02/26/2016	10,131,238	11/20/2018
8322-13	MULTI-MODE RECHARGEABLE ELECTRIC VEHICLE	US	15/074,593	03/18/2016	10,183,584	01/22/2019
8322-14	DISTRIBUTED PROCESSING NETWORK FOR RECHARGEABLE ELECTRIC VEHICLE TRACKING AND ROUTING	US	15/074,624	03/18/2016	10,611,251	04/07/2020
8322-15	ELECTRIC VEHICLE OPTICAL CHARGING SYSTEM AND METHOD OF USE	US	15/145,416	05/03/2016	10,632,852	04/28/2020
8322-17	VEHICLE CHARGE QUERY AND EXCHANGE SYSTEM AND METHOD OF USE	US	15/169,073	05/31/2016	10,427,530	10/01/2019
8322-20	INTEGRATED VEHICLE CHARGING PANEL SYSTEM AND METHOD OF USE	US	15/198,034	06/30/2016	10,093,195	10/09/2018
8322-25	ELECTRIC CONTACT DEVICE FOR ELECTRIC VEHICLES AND METHOD OF USE	US	15/246,867	08/25/2016	10,071,641	09/11/2018
8322-26	UNIVERSAL BATTERY AND MODULAR POWER SYSTEM	US	15/282,869	09/30/2016	10,753,761	08/25/2020
8322-28	SMART GRID MANAGEMENT	US	15/237,937	08/16/2016	10,160,339	12/25/2018
8322-29	TRACKING POWER CONSUMPTION AND PAYMENT	US	15/282,880	09/30/2016	9,964,415	05/08/2018
8322-30	METHODS AND SYSTEMS FOR ASSOCIATING SENSITIVE INFORMATION OF A PASSENGER WITH A VEHICLE	US	15/396,591	12/31/2016	10,354,460	07/16/2019
8322-31	DUPLICATED WIRELESS TRANSCEIVERS ASSOCIATED WITH A VEHICLE TO RECEIVE AND SEND SENSITIVE INFORMATION	US	15/396,592	12/31/2016	10,304,261	05/28/2019
8322-33	COMMUNICATIONS BETWEEN VEHICLE AND CHARGING SYSTEM	US	15/282,890	09/30/2016	10,252,631	04/09/2019
8322-35	SAFETY SHIELD FOR CHARGING	US	15/283,279	09/30/2016	10,080,318	09/18/2018

SR File No.	Title	Country	Serial No.	Filing Date	Patent No.	Issue Date
8322-36	CHARGING DEVICES WITHIN WHEEL PORTIONS	US	15/283,285	09/30/2016	10,059,213	08/28/2018
8322-37	COLLECTING BATTERY PACK STATE INFORMATION	US	15/339,540	10/31/2016	10,762,553	09/01/2020
8322-38	VEHICLE IDENTIFICATION OR AUTHENTICATION	US	15/339,599	10/31/2016	9,984,522	05/29/2018
8322-39	DEPLOYABLE SAFETY SHIELD FOR CHARGING	US	15/289,131	10/08/2016	10,166,875	01/01/2019
8322-40	WHEEL ASSEMBLY WITH INDUCTIVE CHARGING FOR VEHICLE USING REGENERATIVE BRAKING	US	15/344,285	11/04/2016	10,076,960	09/18/2018
8322-41	CONDITIONAL OR TEMPORARY FEATURE AVAILABILITY	US	15/339,019	10/31/2016	10,262,469	04/16/2019
8322-43	SYSTEM AND METHOD FOR ASSOCIATING USER AND VEHICLE INFORMATION FOR COMMUNICATION TO A THIRD PARTY	US	15/396,595	12/31/2016	10,685,503	06/16/2020
8322-44	METHODS AND SYSTEMS FOR COMMUNICATING ESTIMATED TIME OF ARRIVAL TO A THIRD PARTY	US	15/396,597	12/31/2016	10,679,276	06/09/2020
8322-46	SECURE COMMUNICATIONS WITH SENSITIVE USER INFORMATION THROUGH A VEHICLE	US	15/396,604	12/31/2016	10,388,081	08/20/2019
8322-48	METHODS AND SYSTEMS FOR AUTOMATICALLY SENDING RULE-BASED COMMUNICATIONS FROM A VEHICLE	US	15/396,610	12/31/2016	10,672,060	06/02/2020
8322-49	SYSTEM AND METHOD FOR AUTOMATICALLY TRIGGERING THE COMMUNICATION OF SENSITIVE INFORMATION THROUGH A VEHICLE TO A THIRD PARTY	US	15/396,613	12/31/2016		
8322-51	FLOATING ARMATURE	US	15/351,440	11/14/2016	10,604,020	03/31/2020
8322-53	VEHICLE WITH A SOFT-TOUCH ANTENNA FOR COMMUNICATING SENSITIVE INFORMATION	US	15/396,616	12/31/2016	9,946,906	04/17/2018
8322-54	BIFURCATED COMMUNICATIONS TO A THIRD PARTY THROUGH A VEHICLE	US	15/396,620	12/31/2016	10,032,319	07/24/2018
8322-55	METHOD AND SYSTEM FOR ADAPTIVE VEHICLE CONTROL IN AUTONOMOUS VEHICLES	US	15/415,650	01/25/2017	10,586,254	03/10/2020
8322-56	METHOD AND SYSTEM FOR DATA OPTIMIZATION	US	15/393,010	12/28/2016	10,515,390	12/24/2019
8322-58	SMART REFILL ASSISTANT FOR ELECTRIC VEHICLES	US	15/393,072	12/28/2016	10,699,305	06/30/2020
8322-62	SENSOR SURFACE OBJECT DETECTION METHODS AND SYSTEMS	US	15/394,425	12/29/2016	10,430,833	10/01/2019
8322-63	AUTHENTICATION USING ELECTROMAGNET SIGNAL DETECTION	US	15/392,065	12/28/2016	10,363,938	07/30/2019
8322-64	SENSOR CLEANING DEVICES AND SYSTEMS	US	15/394,419	12/29/2016	10,604,120	03/31/2020
8322-65	LOW-PROFILE IMAGING SYSTEM WITH ENHANCED VIEWING ANGLES	US	15/394,402	12/29/2016		
8322-66	VEHICLE AUTONOMOUS COLLISION PREDICTION AND ESCAPING SYSTEM (ACE)	US	15/394,541	12/29/2016		

SR File No.	Title	Country	Serial No.	Filing Date	Patent No.	Issue Date
8322-67	VEHICLE AUTONOMY LEVEL SELECTION BASED ON USER CONTEXT	US	15/395,924	12/30/2016	10,410,250	09/10/2019
8322-68	AUTONOMY FIRST ROUTE OPTIMIZATION FOR AUTONOMOUS VEHICLES	US	15/395,952	12/30/2016		
8322-71	STRUCTURE FOR UPDATING SOFTWARE IN REMOTE DEVICE	US	15/423,186	02/02/2017	10,209,981	02/19/2019
8322-72	SYSTEM AND METHOD FOR FIREWALLS BETWEEN VEHICLE NETWORKS	US	15/423,102	02/02/2017		
8322-73	SYSTEMS AND METHODS FOR AUTOMATICALLY DISENGAGING A BRAKING FUNCTION OF A VEHICLE	US	15/396,581	12/31/2016	10,275,797	04/30/2019
8322-74	BATTERY AGNOSTIC PROVISIONING OF POWER	US	15/395,129	12/30/2016	10,395,440	08/27/2019
8322-74-CON	BATTERY AGNOSTIC PROVISIONING OF POWER	US	16/519,191	07/23/2019		
8322-76	USER-ADJUSTED DISPLAY DEVICES AND METHODS OF OPERATING THE SAME	US	15/393,097	12/28/2016	10,699,326	06/30/2020
8322-78	FFEEEDBACK PERFORMANCE CONTROL AND TRACKING	US	15/393,054	12/28/2016		
8322-80	METHOD AND SYSTEM FOR AUTHENTICATION IN AUTONOMOUS VEHICLES	US	15/393,028	12/28/2016	9,963,106	05/08/2018
8322-81	METHOD AND SYSTEM FOR BEHAVIORAL SHARING IN AUTONOMOUS VEHICLES	US	15/393,137	12/28/2016	10,031,523	07/24/2018
8322-82	METHOD AND SYSTEM FOR COLLECTIVE AUTONOMOUS OPERATION DATABASE FOR AUTONOMOUS VEHICLES	US	15/394,489	12/29/2016	10,083,604	09/25/2018
8322-83	VOICE BIOMETRIC PRE-PURCHASE ENROLLMENT FOR AUTONOMOUS VEHICLES	US	15/407,480	01/17/2017	10,464,530	11/05/2019
8322-84	HIGH VOLTAGE FAST CHARGE UTILIZING TWO CHARGE PORTS	US	15/433,882	02/15/2017	10,471,838	11/12/2019
8322-86	SELF-DESTRUCT ZONE AND AUTONOMOUS VEHICLE NAVIGATION	US	15/407,066	01/16/2017	10,471,829	11/12/2019
8322-87	METHOD AND SYSTEM FOR PROVIDING AN ESCAPE ROUTE FROM A VEHICLE	US	15/407,071	01/16/2017	10,328,853	06/25/2019
8322-88	MACHINE LEARNING FOR PERSONALIZED DRIVING	US	15/408,143	01/17/2017	10,286,915	05/14/2019
8322-89	METHOD AND SYSTEM FOR EJECTING A CHARGING HANDLE FROM A VEHICLE	US	15/407,073	01/16/2017	10,399,445	09/03/2019
8322-90	REPORTING OF VEHICLE BATTERY STATE OF HEALTH AND CHARGE	US	15/396,057	12/30/2016	10,598,734	03/24/2020
8322-91	SNOW FLOW MODE FOR AUTONOMOUS DRIVING	US	15/407,097	01/16/2017	10,073,463	09/11/2018
8322-92	AUTONOMOUS EV CHARGING PRIORITY NETWORK	US	15/394,451	12/29/2016		
8322-94	METHOD AND SYSTEM FOR USING WEATHER INFORMATION IN OPERATION OF AUTONOMOUS VEHICLES	US	15/407,064	01/16/2017	10,031,521	07/24/2018
8322-95	METHOD AND SYSTEM FOR SHARING PARKING SPACE AVAILABILITY AMONG AUTONOMOUS VEHICLES	US	15/407,075	01/16/2017	9,984,572	05/29/2018

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8322-96	RECHARGEABLE VEHICLE THERMAL MANAGEMENT CHARGING SYSTEM	US	15/408,079	01/17/2017	10,369,898	08/06/2019
8322-97	AUTONOMOUS OVERRIDE SAFETY	US	15/395,745	12/30/2016	10,466,061	11/05/2019
8322-98	SECURED VEHICLE FOR USER USE ONLY	US	15/406,138	01/13/2017	10,074,223	09/11/2018
8322-99	REAL-TIME NETWORK VULNERABILITY ANALYSIS AND PATCHING	US	15/408,007	01/17/2017	10,616,259	04/07/2020
8322-145	DASH PANEL EXTERIOR MOUNTED PASSENGER AIRBAG	US	15/459,980	03/15/2017	10,040,414	08/07/2018
8322-146	COMPACT SIDE-BY-SIDE MOTOR GEARBOX UNIT	US	15/690,069	08/29/2017	10,486,512	11/26/2019
8322-148	VIRTUAL MACHINE (VM) APPROACH TO EMBEDDED SYSTEM HOT UPDATE	US	15/484,469	04/11/2017	10,360,020	07/23/2019
8322-151	ADAPTIVE ROUTE AND MOTION PLANNING BASED ON LEARNED EXTERNAL AND INTERNAL VEHICLE ENVIRONMENT	US	15/634,197	06/27/2017	10,234,302	03/19/2019
8322-154	PRODUCTIVE AND ACCIDENT-FREE DRIVING MODES FOR A VEHICLE	US	15/665,644	08/01/2017	10,837,790	11/17/2020
8322-157	IMPACT PERFORMANCE	US	16/233,957	12/27/2018	10,836,437	11/17/2020
8322-159	SUPERCOOLING OF COMPONENTS DURING EXTREME CONDITIONS	US	15/479,008	04/04/2017	10,118,503	11/06/2018
8322-161	SPLIT BATTERY FOR AUTONOMOUS DRIVING	US	15/701,034	09/11/2017		
8322-162	MODULAR MOTOR GEARBOX UNIT AND DRIVE SYSTEM	US	15/841,080	12/13/2017	10,703,201	07/07/2020
8322-165	SINGLE-POSITION SEQUENTIAL LASER WELDING SYSTEM	US	15/474,860	03/30/2017		
8322-167	USING A SPACER TO BLOCK PATH OF THERMALLY CONDUCTIVE STRUCTURAL ADHESIVE IN LITHIUM ION CELLS	US	15/581,216	04/28/2017	10,601,090	03/24/2020
8322-170	BATTERY CELL COOLING PLATE WITH CELL VENTS	US	15/610,137	05/31/2017	10,476,115	11/12/2019
8322-173	PERSONALIZED NEWS RECOMMENDATION ENGINE	US	15/797,775	10/30/2017	10,747,833	08/18/2020
8322-175	PRECONDITIONED CHARGING USING AN AUTONOMOUS VEHICLE	US	15/492,962	04/20/2017	10,300,808	05/28/2019
8322-176	METHOD FOR DETECTING THE USE OF UNAUTHORIZED SECURITY CREDENTIALS IN CONNECTED VEHICLES	US	15/599,256	05/18/2017	10,530,816	01/07/2020
8322-177	POWER SYSTEMS AND METHODS FOR ELECTRIC VEHICLES	US	15/712,532	09/22/2017	10,727,680	07/28/2020
8322-180	SPRING LOADED BUSBAR FOR LASER WELDING OPERATION	US	15/581,126	04/28/2017	10,199,626	02/05/2019
8322-181	SYSTEMS AND METHOD FOR PUSHING A BUSBAR AGAINST A BATTERY CELL USING MAGNETIC FORCE	US	15/492,922	04/20/2017	10,668,578	06/02/2020
8322-182	MAGNETICALLY COATED BUSBAR TABS	US	15/593,705	05/12/2017	10,811,663	10/20/2020
8322-183	SELF-CONTAINED DOOR HINGE MECHANISM	US	15/583,550	05/01/2017	10,267,075	04/23/2019
8322-187	NETWORK-BASED SYSTEM FOR SELLING AND SERVICING CARS	US	15/202,013	07/05/2016	10,692,126	06/23/2020
8322-187-DIV	NETWORK-BASED SYSTEM FOR SELLING AND SERVICING CARS	US	16/824,498	03/19/2020		

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8322-188-CIP	VEHICLE HAVING A BATTERY PACK DIRECTLY ATTACHED TO THE CROSS RAILS OF A FRAME STRUCTURE	US	15/429,095	02/09/2017	10,017,037	07/10/2018
8322-188-IN	VEHICLE HAVING A RIGID FRAME STRUCTURE FOR RECEIVING A REPLACEABLE BATTERY PACK	IN	201614037284	10/31/2016		
8322-189-IN	REPLACEABLE BATTERY ASSEMBLY HAVING A LATCHING MECHANISM	IN	201614037283	10/31/2016		
8322-190-IN	MODULAR BATTERY ASSEMBLY	IN	201614037285	10/31/2016		
8322-193-IN	SYSTEMS AND METHODS FOR REPLACING A VEHICLE BATTERY	IN	201614037370	11/01/2016		
8322-194	BATTERY MODULE HAVING A PRESSURE SENSOR	US	15/284,606	10/04/2016	10,818,978	10/27/2020
8322-196	VEHICLE-TO-PEDESTRIAN COMMUNICATION SYSTEMS	US	15/250,356	08/29/2016	9,928,734	03/27/2018
8322-197	COOLING SYSTEM FOR A BATTERY PACK SYSTEM FOR QUICKLY ADDRESSING THERMAL RUNAWAY	US	15/340,233	11/01/2016	10,608,299	03/31/2020
8322-198	ELECTROCHROMIC VEHICLE WINDOW	US	15/364,863	11/30/2016	10,243,381	03/26/2019
8322-199	AUTOMATIC VEHICLE CABIN AIR FILTRATION SYSTEM	US	15/340,225	11/01/2016	10,245,924	04/02/2019
8322-200	SMART CRUISE CONTROL AND ADAS FOR RANGE EXTENSION	US	15/280,225	09/29/2016	10,668,823	06/02/2020
8322-201	BATTERY MODULE HOUSING HAVING AN INTEGRALLY-FORMED COOLING PLATE	US	15/363,004	11/29/2016	10,700,395	06/30/2020
8322-202	SMART REGENERATIVE BRAKING CONTROL	US	15/339,268	10/31/2016	10,245,957	04/02/2019
8322-203	BATTERY MODULE INCLUDING A WELDLESS BUSBAR HAVING AN INTEGRATED FUSIBLE LINK	US	15/394,935	12/30/2016	10,074,846	09/11/2018
8322-205	BATTERY MODULE STRUCTURAL INTEGRATION	US	15/253,250	08/31/2016	10,749,156	08/18/2020
8322-207	DAMPING ARRANGEMENT FOR BATTERY CELL	US	15/392,508	12/28/2016	10,644,279	05/05/2020
8322-208	BATTERY MODULE WITH AUXILIARY COMPONENTS	US	15/366,248	12/01/2016	10,347,887	07/09/2019
8322-209	SANITY MONITOR FOR POWER MODULE	US	15/393,527	12/29/2016	10,144,292	12/04/2018
8322-210	SYSTEM FOR TRACKING AND IDENTIFYING VEHICLES AND PEDESTRIANS	US	15/366,615	12/01/2016	10,410,064	09/10/2019
8322-211	SYSTEM FOR CONTROLLING A VEHICLE BASED ON WHEEL ANGLE TRACKING	US	15/394,925	12/30/2016	10,259,454	04/16/2019
8322-212	REMOTE LOCKING SYSTEM FOR AN AUTONOMOUS VEHICLE	US	15/396,594	12/31/2016	10,502,318	12/10/2019
8322-213	Using Vehicle Sensor Data to Monitor Pedestrian Health	US	15/366,623	12/01/2016	10,694,357	06/23/2020
8322-215	SYSTEM FOR CONTROLLING A VEHICLE BASED ON THERMAL PROFILE TRACKING	US	15/394,919	12/30/2016	10,053,089	08/21/2018
8322-216	USING VEHICLE SENSOR DATA TO MONITOR ENVIRONMENTAL AND GEOLOGIC CONDITIONS	US	15/366,628	12/01/2016	10,708,547	07/07/2020
8322-218	TRANSMISSION PACKAGING FOR AN EPICYCLIC/PLANETARY GEARBOX UNIT WITH INTEGRATED OIL PUMP	US	15/365,427	11/30/2016	10,260,617	04/16/2019
8322-219	AUTOMATIC OIL EXCHANGE SERVICE FOR ELECTRIC VEHICLE GEARBOXES	US	15/365,422	11/30/2016	10,514,088	12/24/2019

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8322-220	ARTICULATING MECHANISM FOR A VEHICLE DOOR	US	15/718,244	09/28/2017	10,443,282	10/15/2019
8322-223	LEASE OBSERVATION AND EVENT RECORDING	US	15/394,158	12/29/2016	10,249,104	04/02/2019
8322-235	DUAL-NETWORK FOR FAULT TOLERANCE	US	15/717,179	09/27/2017	10,608,941	03/31/2020
8322-237	SENSOR FUSION METHODS FOR AUGMENTED REALITY NAVIGATION	US	15/940,337	03/29/2018		
8322-238	UTILIZATION OF SMOOTHING FUNCTIONS FOR ACCELERATION AND DECELERATION PROFILE GENERATION	US	15/610,274	05/31/2017	10,703,367	07/07/2020
8322-243	DUAL INVERTER AND ELECTRIC MOTOR SPLIT-FLOW COOLING SYSTEM	US	15/799,376	10/31/2017	10,396,631	08/27/2019
8322-244	ROLLOVER CONTROL ALGORITHM	US	15/637,603	06/29/2017	10,562,524	02/18/2020
8322-250	DISTRIBUTED AND UPGRADABLE AUDIO SYSTEM	US	15/705,500	09/15/2017	10,250,983	04/02/2019
8322-251	FIXED STRUCTURE SEAT	US	15/788,375	10/19/2017	10,343,558	07/09/2019
8322-251-CON	FIXED STRUCTURE SEAT	US	16/505,702	07/08/2019	10,857,915	12/08/2020
8322-255	CAMERA POSE ESTIMATION METHOD FOR AUGMENTED REALITY MANUAL FOR CARS	US	15/648,271	07/12/2017		
8322-258	POWER ELECTRONICS WITH INTEGRATED BUSBAR COOLING	US	15/689,557	08/29/2017	10,608,301	03/31/2020
8322-262	SYSTEMS AND METHODS FOR TRIP PLANNING UNDER UNCERTAINTY	US	15/727,838	10/09/2017		
8322-263	INTEGRATED POWER SYSTEMS FOR ELECTRIC VEHICLES	US	15/654,953	07/20/2017	10,442,375	10/15/2019
8322-265	METHOD AND SYSTEM FOR MULTIPLE SENSOR CORRELATION DIAGNOSTIC AND SENSOR FUSION/DNN MONITOR FOR AUTONOMOUS DRIVING APPLICATION	US	15/671,521	08/08/2017	10,551,838	02/04/2020
8322-268	LARGE VOLUME DUAL AIRBAG SYSTEM	US	15/806,624	11/08/2017		
8322-270	ADAPTIVE BACKUP STRUCTURE FOR AIRBAG SUPPORT	US	15/703,422	09/13/2017	10,507,783	12/17/2019
8322-270-DIV	ADAPTIVE BACKUP STRUCTURE FOR AIRBAG SUPPORT	US	16/717,900	12/17/2019		
8322-275	RETRACTABLE TELESCOPIC MECHANISM FOR STEERING COLUMN WITH FEEDBACK ACTUATOR	US	15/633,469	06/26/2017	10,457,314	10/29/2019
8322-276	BODY MOUNTED SLIDING STEERING COLUMN WITH OFFSET FEEDBACK ACTUATOR	US	15/647,055	07/11/2017	10,556,614	02/11/2020
8322-276-DIV	BODY MOUNTED SLIDING STEERING COLUMN WITH OFFSET FEEDBACK ACTUATOR	US	16/719,389	12/18/2019		
8322-277	CHARGING SYSTEMS AND METHODS FOR ELECTRIC VEHICLES	US	15/825,888	11/29/2017	10,625,626	04/21/2020
8322-278	REAL-TIME NONLINEAR RECEDING HORIZON CONTROL OF BATTERIES FOR POWER SYSTEMS	US	15/721,173	09/29/2017	10,538,174	01/21/2020
8322-280	SEALABLE MULTI-SURFACE ELECTRONICS THERMAL CONDUCTION PACKAGE	US	15/937,521	03/27/2018	10,383,253	08/13/2019
8322-280-CON	SEALABLE MULTI-SURFACE ELECTRONICS THERMAL CONDUCTION PACKAGE	US	16/538,183	08/12/2019	10,779,438	09/15/2020

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8322-285	METHOD AND SYSTEM FOR PROVIDING SECURE OVER-THE-AIR VEHICLE UPDATES	US	15/849,131	12/20/2017	10,871,952	12/22/2020
8322-286	SECURE VEHICLE COMMUNICATION INTERFACE DEVICE	US	15/940,415	03/29/2018	10,812,469	10/20/2020
8322-291	METHODS AND SYSTEMS FOR HIGH VOLTAGE COMPONENT COOLING IN ELECTRIC VEHICLE FOR FAST CHARGE	US	15/689,766	08/29/2017	10,217,693	02/26/2019
8322-292	INTEGRATED POWER SYSTEMS FOR ELECTRIC VEHICLES	US	15/654,583	07/19/2017	10,442,307	10/15/2019
8322-293	SYSTEMS AND METHODS FOR DIAGNOSING SEAL INTEGRITY IN A BATTERY	US	15/664,761	07/31/2017	10,775,263	09/15/2020
8322-294	METHODS AND SYSTEMS FOR NOISE MITIGATION IN MULTIPLE MOTOR GEARBOX DRIVE UNITS	US	15/842,362	12/14/2017	10,436,306	10/08/2019
8322-298	AUTOMOTIVE SEATBACK AIR VENT	US	15/704,948	09/14/2017	10,479,241	11/19/2019
8322-299	EXTERNAL ALERT SYSTEM FOR VEHICLE DOOR OPENING	US	15/804,913	11/06/2017	10,657,818	05/19/2020
8322-304	METHOD AND APPARATUS FOR SIMULTANEOUS PROCESSING AND LOGGING OF AUTOMOTIVE VISION SYSTEM WITH CONTROLS AND FAULT MONITORING	US	15/826,330	11/29/2017	10,845,803	11/24/2020
8322-304-PCT	METHOD AND APPARATUS FOR SIMULTANEOUS PROCESSING AND LOGGING OF AUTOMOTIVE VISION SYSTEM WITH CONTROLS AND FAULT MONITORING	WO	PCT/US18/62507	11/27/2018		
8322-307	POWER SYSTEMS AND METHODS FOR ELECTRIC VEHICLES	US	15/721,428	09/29/2017	10,688,882	06/23/2020
8322-308	HIGHLY-INTEGRATED FAIL OPERATIONAL E-POWERTRAIN FOR AUTONOMOUS DRIVING APPLICATION	US	15/725,119	10/04/2017	10,857,889	12/08/2020
8322-314	SYSTEMS AND METHODS OF CONTROLLING SYNCHRONICITY OF COMMUNICATION WITHIN A NETWORK OF DEVICES	US	15/994,370	05/31/2018	10,560,253	02/11/2020
8322-315	OPEN LINE DETECTION DURING PRE-CHARGE	US	15/830,783	12/04/2017		
8322-317	FUSIBLE LINK IN BATTERY MODULE VOLTAGE SENSING CIRCUIT	US	15/843,566	12/15/2017	10,796,873	10/06/2020
8322-320	RESILIENT HIGH-VOLTAGE INTERLOCK LOOP	US	15/797,506	10/30/2017	10,274,532	04/30/2019
8322-331	METHODS AND SYSTEMS FOR PROVIDING A MIXED AUTONOMY VEHICLE TRIP SUMMARY	US	15/947,232	04/06/2018	10,818,110	10/27/2020
8322-332	AUTONOMOUS VEHICLE SENSOR DATA AND MAP INTEGRATION	US	16/011,197	06/18/2018	10,551,207	02/04/2020
8322-338	FOUR-WAY HYDRAULIC VALVE FLOW CONTROL BODY	US	15/802,651	11/03/2017	10,865,668	12/15/2020
8322-341	SYSTEM AND METHOD FOR PROVIDING ASIL D FAIL OPERATIONAL POWER SYSTEMS IN AUTOMATED VEHICLE APPLICATIONS	US	15/705,555	09/15/2017	10,800,264	10/13/2020
8322-341-CON	SYSTEM AND METHOD FOR PROVIDING ASIL D FAIL OPERATIONAL POWER SYSTEMS IN AUTOMATED VEHICLE APPLICATIONS	US	17/030,976	09/24/2020		

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8322-342	HOUSING DRIVE CONNECTION FOR A CONSTANT VELOCITY JOINT	US	15/855,003	12/27/2017		
8322-344	THERMAL MANAGEMENT SYSTEM WITH TWO PUMPS AND THREE LOOPS	US	16/107,885	08/21/2018	10,843,550	11/24/2020
8322-347	ULTRA-FAST CHARGE PROFILE FOR AN ELECTRIC VEHICLE	US	15/847,168	12/19/2017	10,682,920	06/16/2020
8322-348	VARIABLE PITCH HELICAL COOLING JACKET	US	16/779,822	02/03/2020		
8322-350	UNIFORM CURRENT DENSITY TAPERED BUSBAR	US	15/900,079	02/20/2018	10,784,486	09/22/2020
8322-351	SINGLE SIDE CELL-TO-CELL BATTERY MODULE INTERCONNECTION	US	15/928,707	03/22/2018	10,707,471	07/07/2020
8322-352	BATTERY CELL COVER INCLUDING TERMINAL SHORT ISOLATION FEATURE	US	15/928,738	03/22/2018		
8322-354	VEHICLE PATH-PLANNER MONITOR AND CONTROLLER	US	15/786,373	10/17/2017	10,635,109	04/28/2020
8322-354-CON	VEHICLE PATH-PLANNER MONITOR AND CONTROLLER	US	16/826,873	03/23/2020		
8322-356	STAGGERED BATTERY CELL ARRAY WITH TWO-DIMENSIONAL INLINE TERMINAL EDGES	US	15/878,312	01/23/2018	10,644,282	05/05/2020
8322-357	MULTIPLE-ZONE THERMOCOUPLE BATTERY MODULE TEMPERATURE MONITORING SYSTEM	US	15/928,780	03/22/2018	10,741,889	08/11/2020
8322-363	UNIFIED BATTERY MODULE WITH INTEGRATED BATTERY CELL STRUCTURAL SUPPORT	US	15/922,455	03/15/2018	10,741,808	08/11/2020
8322-366	SYSTEM AND METHOD FOR CONTROLLING A VEHICLE USING SECONDARY ACCESS METHODS	US	15/810,746	11/13/2017	10,717,412	07/21/2020
8322-367	VISUAL PLACE RECOGNITION BASED SELF-LOCALIZATION FOR AUTONOMOUS VEHICLES	US	15/798,016	10/30/2017	10,606,274	03/31/2020
8322-367-CIP	VEHICLE SELF-LOCALIZATION USING PARTICLE FILTERS AND VISUAL ODOMETRY	US	16/246,810	01/14/2019		
8322-368	AUTONOMOUS SYSTEM OPERATOR COGNITIVE STATE DETECTION AND ALERTING	US	16/108,327	08/22/2018	10,576,994	03/03/2020
8322-369	POWERED ACCESSORY PORT CLOSURE LID	US	15/794,391	10/26/2017	10,392,853	08/27/2019
8322-372	THERMAL MANAGEMENT COOLANT VALVES AND PUMPS MODULAR COMBINATION	US	15/909,281	03/01/2018		
8322-374	ACTIVE AERODYNAMIC WHEEL CAP DEVICES AND SYSTEMS	US	16/109,314	08/22/2018		
8322-376	NAVIGATION OF AUTONOMOUS VEHICLES TO ENHANCE SAFETY UNDER ONE OR MORE FAULT CONDITIONS	US	15/457,926	03/13/2017	10,338,594	07/02/2019
8322-377	AUTONOMOUS VEHICLE LOGIC TO IDENTIFY PERMISSIONED PARKING RELATIVE TO MULTIPLE CLASSES OF RESTRICTED PARKING	US	15/589,840	05/08/2017	10,423,162	09/24/2019
8322-378	CONTROL OF COMPLEX PARKING MANEUVERS AND AUTONOMOUS FUEL REPLENISHMENT OF DRIVERLESS VEHICLES	US	15/650,761	07/14/2017	10,710,633	07/14/2020

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8322-380	CONTROL AND COORDINATION OF DRIVERLESS FUEL REPLENISHMENT FOR AUTONOMOUS VEHICLES	US	15/650,766	07/14/2017	10,369,974	08/06/2019
8322-383	METHODS AND DEVICES FOR AUTONOMOUS VEHICLE OPERATION	US	15/938,850	03/28/2018		
8322-387	METHODS AND SYSTEMS FOR PROVIDING A PROTECT OCCUPANTS MODE WITH AN AUTONOMOUS VEHICLE	US	15/964,836	04/27/2018	10,836,346	11/17/2020
8322-389	LIGHTWEIGHT THERMAL ADSORPTION STRUCTURE FOR LITHIUM-ION MODULE	US	16/145,446	09/28/2018		
8322-397	EVENT DATA RECORDATION TO IDENTIFY AND RESOLVE ANOMALIES ASSOCIATED WITH CONTROL OF DRIVERLESS VEHICLES	US	15/872,555	01/16/2018		
8322-400	SYSTEMS AND METHODS OF BATTERY THERMAL MANAGEMENT	US	15/954,286	04/16/2018	10,870,368	12/22/2020
8322-401	METHOD AND SYSTEM FOR SECONDARY INTERNAL CURRENT MECHANISMS FOR A LITHIUM-ION CELL	US	16/168,497	10/23/2018	10,756,391	08/25/2020
8322-406	METHOD AND APPARATUS FOR SEAT AND BOLSTER ADJUSTMENT	US	15/427,743	02/08/2017	10,457,181	10/29/2019
8322-407	METHOD AND APPARATUS FOR ADAPTIVE HVAC CONTROL	US	15/584,441	05/02/2017	10,675,943	06/09/2020
8322-410	INTEGRATED SENSOR ARRANGEMENT FOR AUTOMATED AUXILIARY COMPONENT ADJUSTMENTS	US	15/441,451	02/24/2017	10,286,810	05/14/2019
8322-411	AUTO-LEVELING SUSPENSION AND METHOD FOR THE SAME	US	15/473,155	03/29/2017	10,611,205	04/07/2020
8322-415	LITHIUM-ION CELL USING ALUMINUM CAN	US	16/107,579	08/21/2018		
8322-415-PCT	LITHIUM-ION CELL USING ALUMINUM CAN	WO	PCT/US19/47522	08/21/2019		
8322-417	METHODS AND DEVICES FOR THERMAL CONTROL DURING CHARGING OF ELECTRIC VEHICLES	US	15/940,638	03/29/2018		
8322-418	THERMAL SPRING FRAME AND SHIELD FOR SEALED PROCESSING SYSTEMS	US	15/937,546	03/27/2018	10,342,119	07/02/2019
8322-421	VEHICLE POWER DEVICES, SYSTEMS, AND METHODS FOR SLEEP MODE	US	16/563,630	09/06/2019		
8322-422	VEHICLE POWER DEVICES, SYSTEMS, AND METHODS FOR UNINTERRUPTED POWER SUPPLY	US	16/563,693	09/06/2019		
8322-423	VEHICLE POWER DEVICES, SYSTEMS, AND METHODS WITH MULTIPLE MODES	US	16/563,718	09/06/2019		
8322-426	SYSTEMS AND METHODS FOR A DIGITAL KEY	US	16/117,936	08/30/2018		
8322-427	SYSTEMS AND METHODS FOR REGULATING CHARGING OF ELECTRIC VEHICLES	US	16/005,808	06/12/2018	10,363,828	07/30/2019
8322-427-CON	SYSTEMS AND METHODS FOR REGULATING CHARGING OF ELECTRIC VEHICLES	US	16/521,296	07/24/2019	10,632,863	04/28/2020

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8322-429	CONTROLLING ACCESS TO A VEHICLE USING WIRELESS ACCESS DEVICES	US	15/986,940	05/23/2018	10,369,966	08/06/2019
8322-430	JOG DIAL USER INTERFACE DEVICE	US	16/166,997	10/22/2018	10,671,271	06/02/2020
8322-432	SYSTEM AND METHOD FOR PROVIDING MOMENTUM SCROLLING VIA A ROTARY USER INTERFACE DEVICE	US	16/167,003	10/22/2018		
8322-436	METHOD AND SYSTEM FOR USER INTERFACE LAYER INVOCATION	US	16/039,465	07/19/2018		
8322-437	ABUSE TOLERANCE IN BATTERY MODULES	US	15/994,570	05/31/2018		
8322-443	TWO-PHASE SEMI-IMMERSION THERMAL SYSTEM FOR ENERGY STORAGE AND OTHER ELECTRICAL/ELECTRONIC DEVICES	US	16/165,401	10/19/2018		
8322-448	VEHICLE CONTROL SYSTEM USING NONLINEAR DYNAMIC MODEL STATES AND STEERING OFFSET ESTIMATION	US	16/050,637	07/31/2018		
8322-450	PRECAUTIONARY VISUAL PERCEPTION BY DETECTION OF REAR STOP LIGHT OF VEHICLE THAT IS TWO VEHICLES AHEAD	US	16/025,692	07/02/2018		
8322-452	METHOD, SYSTEM AND DEVICE FOR NETWORK COMMUNICATIONS WITHIN A VEHICLE	US	16/380,612	04/10/2019		
8322-453	METHOD AND SYSTEM FOR JOINING CELLS TO TRANSPARENT COLD PLATE WITH UV-CURABLE ADHESIVE	US	16/210,150	12/05/2018		
8322-454	UNIVERSAL SEAT-MOUNTED AIRBAG	US	16/533,557	08/06/2019		
8322-456	SYSTEMS AND METHODS OF AUTONOMOUSLY CONTROLLING VEHICLE LANE CHANGE MANEUVER	US	16/213,392	12/07/2018		
8322-457	SCALABLE DOUBLE-SIDED BATTERY MODULE	US	16/424,106	05/28/2019		
8322-459	LAMINATE BUSBARS FOR BATTERY MODULE DESIGN	US	16/230,499	12/21/2018	10,784,668	09/22/2020
8322-463	METHOD, SYSTEM, AND APPARATUS FOR INTERACTIVE CLIMATE CONTROL	US	16/378,831	04/09/2019		
8322-467	ANTI-ROLL BAR WITH HEAVE SPRING OR ACTUATOR	US	16/244,801	01/10/2019		
8322-469	ALUMINUM CAN WITH MULTI-THICKNESS WALL FOR LITHIUM-ION CELL	US	16/459,355	07/01/2019		
8322-471	ZERO FLAMMABILITY ELECTROLYTE FOR LITHIUM-ION CELL	US	16/561,412	09/05/2019		
8322-473	ARTIFICIAL INTELLIGENCE IN CONDITIONING OR THERMAL MANAGEMENT OF ELECTRIFIED POWERTRAIN	US	16/428,432	05/31/2019		
8322-477	METHOD AND SYSTEM TO ACHIEVE FULLY REDUNDANT FAIL-SAFE SWITCH OFF PATHS FOR INVERTER SYSTEM	US	16/384,479	04/15/2019		

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8322-480	POWER TRANSISTOR JUNCTION TEMPERATURE DETERMINATION USING A DESATURATION VOLTAGE SENSING CIRCUIT	US	16/557,746	08/30/2019		
8322-482	SYSTEMS AND METHODS OF AUTONOMOUSLY CONTROLLING VEHICLE STATES	US	16/450,691	06/24/2019		
8322-483	METHODS, DEVICES, AND SYSTEMS FOR PROCESSING SENSOR DATA OF VEHICLES	US	16/241,845	01/07/2019		
8322-484	METHODS TO IMPROVE LOCATION/LOCALIZATION ACCURACY IN AUTONOMOUS MACHINES WITH GNSS, LIDAR, RADAR, CAMERA, AND VISUAL SENSORS	US	16/453,617	06/26/2019		
8322-485	DYNAMIC SEAM ADJUSTMENT OF IMAGE OVERLAP ZONES FROM MULTI-CAMERA SOURCE IMAGES	US	16/370,620	03/29/2019		
8322-487	LIDAR PERMEABLE WINDSHIELD	US	16/449,077	06/21/2019		
8322-490	ACTIVE AIR CURTAIN	US	16/420,589	05/23/2019		
8322-494	VEHICLE POWER DEVICES, SYSTEMS, AND METHODS FOR FAIL OPERATIONAL ELECTRONIC CONTROL UNIT POWER MANAGEMENT	US	16/575,819	09/19/2019		
8322-495	METHOD, SYSTEM, AND DEVICE FOR SEAMLESS FAULT TOLERANT CLOCK SYNCHRONIZATION IN A VEHICLE COMMUNICATION SYSTEM	US	16/459,013	07/01/2019		
8322-497	DEVICES, SYSTEMS, AND METHODS FOR CHARGING ELECTRIC VEHICLES	US	16/506,581	07/09/2019		
8322-498	SIX-WAY HYDRAULIC PROPORTIONAL VALVE	US	16/569,347	09/12/2019		
8322-499	SYSTEMS AND METHODS OF VEHICULAR BRAKING	US	16/781,736	02/04/2020		
8322-506	BRAKING SYSTEM FOR A VEHICLE	US	16/532,102	08/05/2019		
8322-508	RADIO FREQUENCY TAG RELAY ATTACK PREVENTION AND NOTIFICATION	US	16/458,926	07/01/2019		
8322-509	OPTIMIZATION OF BATTERY PACK SIZE USING SWAPPING	US	16/732,691	01/02/2020		
8322-516	PRECISE POINT CLOUD GENERATION USING GRAPH STRUCTURE-BASED SLAM WITH UNSYNCHRONIZED DATA	US	16/682,575	11/13/2019		
8322-517	SERVICEABLE FLEX CIRCUIT FOR BATTERY MODULE	US	16/800,964	02/25/2020		
8322-518	AUTOMATIC AUTONOMOUS VEHICLE AND ROBOT LIDAR-CAMERA EXTRINSIC CALIBRATION	US	16/726,581	12/24/2019		
8322-519	REDUNDANT BRAKING SYSTEM FOR A MOTOR VEHICLE	US	16/781,539	02/04/2020		
8322-520	EARLY DETECTION OF THERMAL INCIDENT IN BATTERY PACK	US	16/742,626	01/14/2020		
8322-522	FIRE PROPAGATION PREVENTION SYSTEM FOR BATTERY MODULES IN A BATTERY PACK	US	16/748,078	01/21/2020		
8322-523	THERMAL MANAGEMENT SYSTEM TOPOLOGY WITH CASCADED REFRIGERANT AND COOLANT CIRCUITS	US	16/725,223	12/23/2019		

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8322-530	LANE PREDICTION AND SMOOTHING FOR EXTENDED MOTION PLANNING HORIZON	US	16/741,125	01/13/2020		
8322-531	SINGLE FRAME 4D DETECTION USING DEEP FUSION OF CAMERA IMAGE, IMAGING RADAR AND LIDAR POINT CLOUD	US	16/781,672	02/04/2020		
8322-532	METHODS AND SYSTEMS TO ENHANCE SAFETY OF BI-DIRECTIONAL TRANSITION BETWEEN AUTONOMOUS AND MANUAL DRIVING MODES	US	16/734,738	01/06/2020		
8322-534	VEHICLE CLIMATE CONTROL SYSTEM WITH FILTERED CONDENSATE MISTING	US	16/734,140	01/03/2020		
8322-535	METHOD AND SYSTEM FOR PREVENTING MOISTURE ACCUMULATION IN BATTERY PACKS	US	16/878,085	05/19/2020		
8322-537	HIGH PRECISION MULTI-SENSOR EXTRINSIC CALIBRATION VIA PRODUCTION LINE AND MOBILE STATION	US	16/780,122	02/03/2020		
8322-538	REAL-TIME ONLINE CALIBRATION OF COHERENT DOPPLER LIDAR SYSTEMS ON VEHICLES	US	16/708,032	12/09/2019		
8322-539	SCENE PERCEPTION USING COHERENT DOPPLER LIDAR	US	16/677,439	11/07/2019		
8322-541	METHOD AND SYSTEM FOR ADJUSTING VEHICLE NOISE OUTPUT IN PEDESTRIAN AND VEHICULAR TRAFFIC ENVIRONMENTS	US	16/712,012	12/12/2019		
8322-543	METHOD AND APPARATUS FOR IMPROVING OPERATION OF A MOTOR VEHICLE	US	16/677,396	11/07/2019		
8322-544	VEHICLE CHARGING SCHEDULER	US	16/731,498	12/31/2019		
8322-545	FAULTY POWER SOURCE EJECTION IN A SAFE ZONE	US	16/777,054	01/30/2020		
8322-546	REAL-TIME GROUND SURFACE SEGMENTATION ALGORITHM FOR SPARSE POINT CLOUDS	US	16/781,708	02/04/2020		
8322-547	OBJECT DETECTION USING LOCAL (GROUND-AWARE) ADAPTIVE REGION PROPOSALS ON POINT CLOUDS	US	16/781,747	02/04/2020		
8322-549	AUTONOMOUS VEHICLE EMERGENCY ROUTE GUIDANCE	US	16/737,695	01/08/2020		
8322-550	ADAPTIVE FEATURE MAP ANCHOR PRUNING	US	16/781,220	02/04/2020		
8322-551	METHOD FOR DETECTING DAMAGE TO BATTERY PACK ENCLOSURE DURING A CRASH EVENT	US	16/719,423	12/18/2019		
8322-554	PEDAL ASSEMBLY FOR A MOTOR VEHICLE	US	16/739,932	01/10/2020		
8322-556	DEVICES, SYSTEMS, AND METHODS FOR SELF-HEATING BATTERIES	US	16/866,632	05/05/2020		
8322-557	THERMAL COMFORT MODEL (TCM) BASED CLIMATE CONTROL STRATEGY USING EQUIVALENT TEMPERATURE	US	16/822,414	03/18/2020		
8322-558	PRE-CONDITIONING CLIMATE CONTROL BASED ON USER'S CALENDAR AND DAILY ROUTINE	US	16/822,435	03/18/2020		

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8322-559	AUTOMATICALLY ADJUST HVAC, WINDOW AND SEAT BASED ON HISTORICAL USER'S BEHAVIOR	US	16/844,766	04/09/2020		