

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT7767987

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
UBER TECHNOLOGIES, INC.	07/01/2019
RECEIVING PARTY DATA	
Name:	UATC, LLC
Street Address:	1455 MARKET ST.
Internal Address:	4TH FLOOR
City:	SAN FRANCISCO
State/Country:	CALIFORNIA
Postal Code:	94103
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	17893829
CORRESPONDENCE DATA	
Fax Number:	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
Email:	docketing@dority-manning.com, scarpenter-rice@dority-manning.com
Correspondent Name:	DORITY & MANNING, P.A. AND UATC, LLC
Address Line 1:	P.O. BOX 1449
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ATTORNEY DOCKET NUMBER:	AURAT-130-CON
NAME OF SUBMITTER:	JENNIFER L. ULSH
SIGNATURE:	/Jennifer L. Ulsch/
DATE SIGNED:	01/30/2023
Total Attachments: 45	
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PATENT ASSIGNMENT

This Patent Assignment (this "*Assignment*"), dated and effective as of July 1, 2019 (the "*Effective Date*"), is entered into by and among Uber Technologies, Inc., a Delaware corporation ("*Uber*"), Auto Horizon, LLC, a Delaware limited liability company ("*Auto Horizon*"), and UATC, LLC, a Delaware limited liability company ("*UATC*"). Uber, Auto Horizon and UATC are sometimes referred to herein individually as a "*Party*" and collectively as the "*Parties*."

WHEREAS, prior to the Effective Date, Uber, Renspferd, LLC, a Delaware limited liability company and the sole Auto Horizon equity holder ("*Renspferd*") and Auto Horizon entered into that certain Patent Distribution Agreement, dated as of June 29, 2019 (the "*Distribution Agreement*"), pursuant to which Auto Horizon distributed, transferred and assigned all right, title and interest in and to the patents and patent applications listed on the attached Exhibit A (the "*All Patents*") owned by Auto Horizon to Renspferd, and then Renspferd immediately distributed, transferred and assigned all right, title and interest in and to the All Patents to Uber (the "*All Transfer*");

WHEREAS, prior to the Effective Date but following the completion of the All Transfer, Uber, certain of Uber's subsidiaries and UATC entered into that certain Business Asset Contribution Agreement, dated as of June 30, 2019 (the "*Contribution Agreement*"), pursuant to which, among other things, Uber contributed, transferred and assigned to UATC all of Uber's right, title and interest in and to (i) the All Patents and (ii) the patents and patent applications listed on the attached Exhibit B (the "*UTI Patents*"), and, together with the All Patents, the "*Transferred Patents*").

NOW THEREFORE, for good and valuable consideration, the receipt of which is acknowledged, Auto Horizon (on behalf of Uber as the registered owner of the All Patents) and Uber (collectively, the "*Registered Patent Holders*") hereby assign and transfer to UATC all right, title and interest in and to the Transferred Patents owned by the Registered Patent Holders including in and to any and all divisionals, continuations, continuations-in-part, substitutes, reexaminations, renewals, reissues and patents which have or which may be filed thereon or may be granted therefor, including any and all counterparts worldwide, including all right, title and interest in and to all income, royalties, damages and payments now or hereafter due or payable with respect to the Transferred Patents, and all causes of action (whether in law or equity) and the right to sue, counterclaim, and recover for the past, present and future infringement of the Transferred Patents.

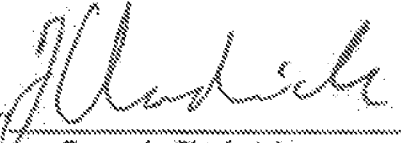
Each of the Registered Patent Holders agree that if requested by UATC, without charge to either of them but at the cost and expense of UATC, each of the Registered Patent Holders will perform any reasonable action which may be necessary to secure and to vest in UATC the full and entire right, title and interest in, to and under the Transferred Patents, including promptly communicating and providing any and all known and accessible facts, data or any other pertinent information thereof and promptly executing and delivering any and all papers, documents, forms, declarations, oaths, affidavits and other legal instruments.

The Registered Patent Holders authorize and request any official of any country or countries, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to UATC, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

[Counterpart Signature Pages Follow]

IN WITNESS WHEREOF, the Parties have caused this Patent Assignment to be signed by a duly authorized representative to be effective as of July 1, 2019.

UBER TECHNOLOGIES, INC.

By 

Name: Francois Chadwick
Title: VP, Tax & Accounting

Please see attached

State of _____)
County of _____) *ss.*

On _____, before me, _____, Notary Public, personally appeared _____, personally known to me or 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.

WITNESS my hand and official seal.

Signature of Notary Public

Place Notary Seal Above

My Commission Expires: _____

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 San Francisco

On 7/1/2019 before me, James Wiley Molito, Notary Public
(insert name and title of the officer)

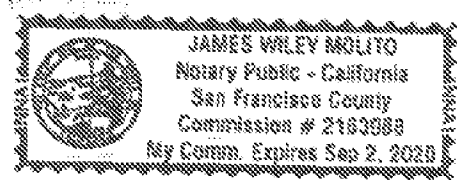
personally appeared Fernando Chaudin
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) 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 [Handwritten Signature]

(Seal)



IN WITNESS WHEREOF, the Parties have caused this Patent Assignment to be signed by a duly authorized representative to be effective as of July 1, 2019.

AUTO HORIZON, LLC

By: 
Name: Francois Chadwick
Title: Manager

*Please
make
a photocopy*

State of _____)
County of _____) ss.

On _____, before me, _____, Notary Public,
personally appeared _____, personally knows to me or
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.

WITNESS my hand and official seal.

Signature of Notary Public

Place Notary Seal Above

My Commission Expires: _____

Signature Page to Patent Assignment

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 San Francisco

On 7/1/19 before me, James Wiley Molito, Notary Public
(insert name and title of the officer)

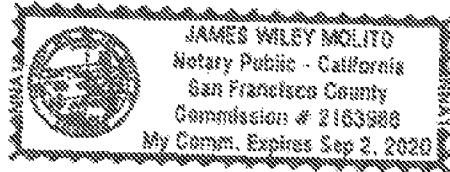
personally appeared Francis Chadwick
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) are subscribed to the within instrument and acknowledged to me that ~~he/she/it~~ they executed the same in ~~his/her/their~~ authorized capacity(ies), and that by ~~his/her/their~~ 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 [Handwritten Signature]

(Seal)



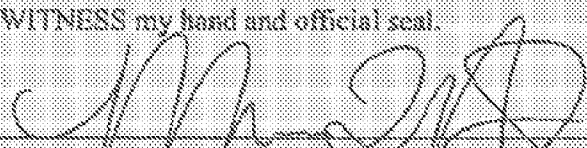
IN WITNESS WHEREOF, the Parties have caused this Patent Assignment to be signed by a duly authorized representative to be effective as of July 1, 2019.

UATC, LLC

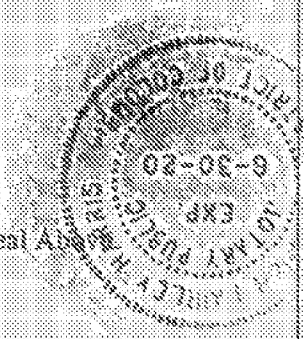
By: 
Name: Keir Gumbis
Title: Manager

State of) District of Columbia
County of) ss.
On July 2nd, 2019, before me, Morgan Harris Notary Public,
personally appeared Keir Gumbis, personally known to me or
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.

WITNESS my hand and official seal.


Signature of Notary Public

Place Notary Seal Here



MORGAN FAIRLEY HARRIS
NOTARY PUBLIC DISTRICT OF COLUMBIA
My Commission Expires June 28, 2021

My Commission Expires: _____

Signature Page to Patent Assignment

Exhibit B

UTI Patents

IP Right ID	Title	Filing Date	Application Number	Earliest Priority Date	Publication Number	Publication Date	Issue Date	IP Right Number	Provisional	Country Code	Country Name	IP Right Status
CP-0034795-3	FORMATTING SENSOR DATA FOR USE IN AUTONOMOUS VEHICLE COMMUNICATIONS PLATFORM	12/11/2015	14/867,205		12/11/2015	201502089694	6/15/2017	10/30/2017	8788380	US	United States	In Force
CP-0034795-2	SYSTEM FOR PROCESSING ASYNCHRONOUS SENSOR DATA SYSTEM FOR ACQUIRING TIME-SYNCHRONIZED SENSOR DATA	12/11/2015	14/967,138		12/11/2015	8996666	3/19/2017	3/19/2017	8996666	US	United States	In Force
CP-0034795-1	AUTONOMOUS VEHICLE DIAGNOSTIC SYSTEM AND METHOD OF SENSOR TRIGGERING FOR SYNCHRONIZED OPERATION	12/11/2015	14/987,154		12/11/2015	9887956	1/31/2017	1/31/2017	9887956	US	United States	In Force
CP-0036845	FORMATTING SENSOR DATA FOR USE IN AUTONOMOUS VEHICLE COMMUNICATIONS PLATFORM	3/12/2017	15/464,767		3/12/2016	201602089601	9/27/2017	10/30/2018	20164803	US	United States	In Force
CP-0034795-3CP	FORMATTING SENSOR DATA FOR USE IN AUTONOMOUS VEHICLE COMMUNICATIONS PLATFORM	10/9/2017	15/726,050		12/11/2015	20180088584	3/29/2018	10/26/2018	22103747	US	United States	In Force
CP-0034795-3CP2CL	CONVOLUTIONAL NEURONAL NETWORKS AND METHODS FOR DETECTING SYSTEM AND METHOD OF SENSOR TRIGGERING FOR SYNCHRONIZED OPERATION	8/21/2018	16/136,336		12/11/2015	20180088580	1/3/2019			US	United States	Pending
CP-0041110	SYSTEMS AND METHODS FOR FEEDBACK IN RESPONSE TO AUTONOMOUS VEHICLE FAILURE EVENTS	6/15/2018	16/713,201	8/03/2017	6/16/2017					WO	WORLD [PCT]	Pending
CP-0036845P	Autonomy Monitoring Systems and Methods for a Vehicle	3/22/2016	62/791,367		3/22/2016					US	United States	Lapsed
CP-0032445P	Systems and Methods for Obtaining Feedback in Response to Autonomous Vehicle Failure Events	4/20/2017	62/487,735		4/20/2017					US	United States	Lapsed
CP-0041115	Systems and Methods for a Vehicle	6/26/2017	15/625,255		6/26/2017	20180305913	12/19/2018			US	United States	Pending
CP-0036845P	Application Programming Interface Systems and Methods for a Vehicle	10/11/2017	62/570,955		10/11/2017					US	United States	Lapsed
CP-0036845W	Application Programming Interface Systems and Methods for a Vehicle	10/10/2018	16/713,201	8/03/2017	10/11/2017					WO	WORLD [PCT]	Pending
CP-0036845	Application Programming Interface System and Method of Sensor Triggering for Synchronization	2/24/2018	15/896,216		10/11/2017					US	United States	Pending
CP-0036845CL	OPERATION	7/5/2018	16/027,706		3/22/2016	20180213928	11/7/2018			US	United States	Pending
CP-0039005	VEHICLE SENSOR CALIBRATION SYSTEM Calibration of onboard sensor suite	5/27/2016	15/106,538		5/27/2016	201603949654	11/30/2017	4/24/2018	9985317	US	United States	In Force
CP-0061515	VEHICLE SENSOR CALIBRATION SYSTEM	4/27/2016	09/824,543		3/13/2016	20160100310	8/7/2016	5/14/2016	6729376	US	United States	In Force
CP-0029915CL	VEHICLE SENSOR CALIBRATION SYSTEM	12/14/2017	15/822,572		5/27/2016	20180067298	3/16/2018			US	United States	Pending
CP-0021315	Autonomous Vehicle Sensor Calibration System	3/13/2017	15/475,914		3/13/2017	201802084048	10/16/2018			US	United States	Pending
CP-00305152	VEHICLE DATA MODEL CALIBRATION FOR AUTONOMOUS VEHICLE DATA MODEL	8/17/2017	15/679,338		8/17/2017	20180056484	2/22/2019			US	United States	Pending
CP-00305151	VEHICLE DATA MODEL CALIBRATION	8/17/2017	15/679,349		8/17/2017	20180056483	2/22/2019			US	United States	Pending

CP-006721US INCREMENTAL MOUNTING COMPONENT AND SENSOR SYSTEM FOR A MASSFIELD BARDE A CARRO TRAILER 1/30/2018 15/083,889 1/30/2018 0 US United States Pending

CP-00564US1 GPS/IMU/Video/Audio Absolute/Relative Positioning/Communication/Computation Sensor Platform for Automotive Safety Applications 11/27/2013 14/089,271 7/15/2010 20140100713 4/10/2014 8/4/2015 9039003 0 US United States In Force

CP-00564US GPS/IMU/Video/Audio Absolute/Relative Positioning/Communication/Computation Sensor Platform for Automotive Safety Applications 7/15/2011 13/125,862 7/15/2010 20120300246 11/10/2012 1/28/2014 8103926 0 US United States In Force

CP-00588US Microwave Vehicle-to-Vehicle Warning System 12/29/2003 10/746,692 1/8/2003 10060145694 7/29/2004 9/5/2006 7101536 0 US United States In Force

CP-00708US Telecommunications Network for Vehicles 1/30/2018 15/788,715 1/12/2018 0 0 US United States Pending

CP-00398US Cellular Device Location/Discovery Systems and Methods for Autonomous Vehicles 10/10/2017 15/728,311 9/27/2017 0 0 US United States Pending

CP-00588US Microwave Absolute System for Vehicles GPS/IMU/Video/Audio Absolute/Relative Positioning/Communication Sensor Platform for Automotive Safety Applications 1/8/2003 60/438,546 1/8/2003 0 0 US United States Expired

CP-00564US Applications for Autonomous Safety Telecommunications Network for Autonomous Vehicles 7/15/2010 62/399,613 7/15/2010 1 1 US United States Expired

CP-00596US Cellular Device Location/Discovery Systems and Methods for Autonomous Vehicles 9/27/2017 62/561,697 9/27/2017 1 1 US United States Expired

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CP-003292US-1	VIRTUAL REALITY EXPERIENCE FOR A VEHICLE	8/5/2016	US293923	8/5/2016	2016004062	2/6/2018	6/7/2018	201803316	0	US	United States	In Force
CP-003290US-3	OPTIMIZING TURNING FOR COMMERCIAL AND AUTONOMOUS VEHICLE	4/14/2016	US0989456	4/14/2016	20160285642	10/5/2017	7/3/2018	201803990	0	US	United States	In Force
CP-003293WO	SYSTEM FOR SAFE PASSING/REPARTURE FROM AUTONOMOUS VEHICLE	3/27/2018	WO/US2018/024489	3/31/2017	2018183267	10/4/2018			0	WO	WIPO (PCT)	Pending
CP-00409WO	SYSTEMS AND METHODS TO OBTAIN PASSING/REPARTURE RESPONSE TO AUTONOMOUS VEHICLE DRIVING EVENTS	6/25/2018	WO/US2018/037750	6/16/2017					0	WO	WIPO (PCT)	Pending
CP-00720US	Autonomous Vehicle Interface System WITH MULTIMEDIA INTERFACE ELEMENTS FOR Redundant Vehicle Commands	2/21/2018	US0991424	2/21/2018					0	US	United States	Pending
CP-00832WO	Systems and Methods for Communicating Intent of an Autonomous Vehicle	8/26/2018	WO/US2018/047044	8/28/2017					0	WO	WIPO (PCT)	Pending
CP-00208CN	DETECTING OBJECTS WITHIN A VEHICLE IN COMMUNICATION WITH A SERVICE State Based Autonomous-Vehicle Operations	5/11/2016	20160040536.2	5/11/2015	107873098	4/3/2018			0	CN	China	Pending
CP-00721WO	Operations	2/18/2016	WO/US2016/021837	2/14/2018					0	WO	WIPO (PCT)	Pending
CP-00396WO	SYSTEM AND METHODS TO ENABLE EFFICIENT CONTROL OF AN AUTONOMOUS VEHICLE: Systems and Methods for Determining when to Release Control of an Autonomous Vehicle	6/6/2018	WO/US2018/096246	6/7/2017					0	WO	WIPO (PCT)	Pending
CP-00369WO	Autonomous Vehicle FUEL/ELECTRIC RUDER MIX-UP FOR A SELF-DRIVING VEHICLE	8/27/2018	WO/US2018/1348098	8/31/2017					0	WO	WIPO (PCT)	Pending
CP-00466USP	COORDINATING OR DEVIATING TRAFFIC USING REQUESTOR LOCALIZATION TRAFFIC/FRAGLITATION SYSTEM FOR CONSIDERING A SERVICE VEHICLE FOR A USER	9/28/2017	US20170256451	9/28/2017					1	US	United States	Issued
CP-00420US-1C1	Systems and Methods for Changing Autonomous Vehicle Operations Based on User Profiles	6/15/2018	US2018029558	4/7/2018	20180290610	10/11/2018			0	US	United States	Pending
CP-00393USP	Systems and Methods for Changing Autonomous Vehicle Operations Based on User Profiles	6/20/2017	US20170251207	6/30/2017					1	US	United States	Issued

TRANSPORT FACILITY/ATION SYSTEM FOR

CP-00321W0	CONNECTIONING A SERVICE VEHICLE FOR A USER	3/27/2017	HC71US2017023411	4/27/2016	2067172415	10/5/2017	0	WO	WIPO (PCT)	Pending
CP-00603US	Systems and Methods for Presenting Virtual Content in a Vehicle System for Safe Passenger Departure from Autonomous Vehicle	11/29/2017	LS7807952	10/31/2017			0	US	United States	Pending
CP-00320US	Autonomous Vehicle	3/13/2017	LS7495882	3/13/2017	203802847593	10/4/2018	0	US	United States	Pending
CP-00363USP	FACTORYING RIDER PICK-UP FOR A SELF-DRIVING VEHICLE	5/27/2016	627342797	5/27/2016			1	US	United States	Lapsed
CP-00320USP	Autonomous Vehicle System for Blending Sensors	3/13/2017	627479639	3/13/2017			1	US	United States	Lapsed
CP-00320US	Autonomous Vehicle System for Blending Sensors	6/5/2017	LS7643636	3/13/2017	20380284779	10/4/2018	0	US	United States	Pending
CP-00223US	PERSONALIZING RIDE EXPERIENCE BASED ON CONTEXTUAL RIDE USAGE DATA	11/13/2016	LS7349648	11/13/2016	20380197593	5/17/2018	0	US	United States	Pending
CP-00393USP	Smartest Vehicle Entry	11/17/2017	627503432	11/17/2017			1	US	United States	Lapsed
CP-00222W0	CONROLLING AUTONOMOUS VEHICLES IN CONNECTION WITH TRANSPORT SERVICES	11/27/2016	6271152016063103	11/20/2015	2037487984	5/26/2017	0	WO	WIPO (PCT)	Lapsed
CP-00122USP	CONROLLING AUTONOMOUS VEHICLES IN CONNECTION WITH TRANSPORT SERVICES	11/20/2015	627258066	11/20/2015			1	US	United States	Lapsed
CP-00423US	Systems and Methods for Providing User Access to an Autonomous Vehicle	7/27/2017	LS7661608	7/27/2017	20380031344	1/31/2019	0	US	United States	Pending
CP-00556USP	Systems and Methods for Determining Intentions to Riders	10/18/2017	627573762	10/18/2017			1	US	United States	Lapsed
CP-00423USP	Systems and Methods for Controlling Autonomous Vehicles that Provide a Vehicle Service to Users	5/24/2017	627501535	5/24/2017			1	US	United States	Lapsed
CP-00323US2	Systems and Methods for Controlling Autonomous Vehicles that Provide a Vehicle Service to Users	7/28/2017	LS7672337	5/28/2017	20380342157	11/29/2018	0	US	United States	Pending
CP-00300US	VEHICLE WORK ENVIRONMENT	11/14/2016	LS7351209	11/14/2016	20380137470	5/17/2018	0	US	United States	Pending
CP-00398USP	Systems and Methods for Determining Whether an Autonomous Vehicle Can Provide a Requested Service for a Rider	9/28/2017	627564336	9/28/2017			1	US	United States	Lapsed
CP-00497USP	Systems and Methods for Determining When to Release Control of an Autonomous Vehicle	8/13/2017	627552558	8/13/2017			1	US	United States	Lapsed
CP-00497US	Systems and Methods for Determining When to Release Control of an Autonomous Vehicle	10/4/2017	LS7724728	8/13/2017	203800648936	2/28/2019	0	US	United States	Pending
CP-00423US1	Autonomous Vehicle that Provides a Vehicle Service to Users	7/28/2017	LS7662334	5/24/2017	20380342174	11/29/2018	0	US	United States	Pending
CP-00373US	PERSONALIZED CONTENT CREATION FOR AUTONOMOUS VEHICLES	3/9/2017	LS7494941	3/9/2017	20380285958	9/13/2018	0	US	United States	Pending
CP-00374US	TRANSFORMATION WITH AUTONOMOUS VEHICLES	5/25/2017	LS7645060	5/25/2017	20380042035	11/29/2018	0	US	United States	Pending

CP-00417489	Vehicle Door Seizure Prevention for Autonomous Vehicle	7/22/2017	627531-508	7/12/2017		0	US	United States	Lapsed
CP-00487205	Systems and Methods for Communicating Intent of an Autonomous Vehicle	9/11/2017	1577201-211	8/28/2017	7059008-8624	0	US	United States	Pending
CP-10641515	Supervised Movement of Autonomous Vehicle	11/21/2017	137092019-4	7/14/2017	70390101-8413	0	US	United States	Pending
CP-00398305	RIDER VEHICLE PLATFORM	4/8/2016	1510941-889	4/8/2016	3057029-230	0	US	United States	Pending
CP-00208190	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	5/11/2016	9277352016131929	5/11/2016	2236182241	0	WO	WIPO (PCT)	Lapsed
CP-00340905	Systems and Methods for Online Passenger Feedbacks: Response to Autonomous Vehicle Driving Events	6/26/2017	157625-145	6/26/2017	20380385740	0	US	United States	Pending
CP-10639615	System and Methods to Enable User Control of an Autonomous Vehicle	6/7/2017	137015-870	6/7/2017	70380366817	0	US	United States	Pending
CP-003641501	FORWARD VEHICLE COMMUNICATION FOR IMPROVED RISK	2/29/2013	167282066-3	4/27/2016		0	US	United States	Pending
CP-10648205	Systems and Methods for Communicating Intent of an Autonomous Vehicle	8/28/2017	6275501796	8/28/2017		1	US	United States	Lapsed
CP-00721105	Stable, Based Autonomous-Vehicle Operations	3/29/2018	157924-865	2/14/2018		0	US	United States	Pending
CP-00582305	Seamless Vehicle Entry	1/27/2018	157877-689	1/27/2017		0	US	United States	Pending
CP-0057210502	SPASHER SENSATION SYSTEM FOR AN AUTONOMOUS VEHICLE	8/17/2018	167051-910	8/29/2018	20380389715	0	US	United States	Pending
CP-10663190	Systems and Methods for Presenting Virtual Content in a Vehicle	10/30/2018	PCT/US2018/058163	10/31/2017		0	WO	WIPO (PCT)	Pending
CP-00359500	Systems and Methods for Sensing Interiors to Riders	10/26/2018	PCT/US2018/056028	10/18/2017		0	WO	WIPO (PCT)	Pending
CP-00208190	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	4/4/2018	157946-365	5/11/2016	2038023684	0	US	United States	Pending

TRANSPORT FACILITY ACTION SYSTEM FOR
 TRANSPORTING A SERVICE VEHICLE FOR A
 USER 3/27/2017 102780021339.8 4/7/2016 108074621 12/27/2018 0 CN China Pending

CP-00603435P Systems and Methods for Presenting
 Virtual Content in a Vehicle 10/31/2017 827079505 10/31/2017 1 US United States Issued
 CP-005564S Systems and Methods for Signalized
 Intersections to Riders 11/6/2017 157894428 10/28/2017 0 US United States Pending

CP-003223P ECONROLLING AUTONOMOUS VEHICLES BY
 CONNECTING WITH TRANSPORT SERVICES 11/24/2016 16867353.8 11/20/2015 3378032 9/28/2018 0 EP European Patent Office Pending

CP-002081P DETECTING OBJECTS WITHIN A VEHICLE IN
 CONNECTION WITH A SERVICE 5/21/2016 18799475.2 5/17/2015 3299421 3/27/2018 0 EP European Patent Office Pending

CP-002501S-1E2 VEHICLE MANAGEMENT SYSTEMS 10/11/2017 157730134 11/14/2016 10280169814 6/14/2018 3/5/2019 13223847 0 US United States In Force

CP-001130US Autonomous Vehicle Positioning System 3/31/2017 157475785 3/31/2017 20380386807 10/4/2018 10/9/2018 20095239 0 US United States In Force

CP-002490US-1 Vehicle Servicing Systems 10/16/2017 157784594 12/14/2016 20280164815 6/14/2018 7/27/2018 20205310 0 US United States In Force

CP-002463VO Charge Control System for Mobile Energy
 Storage Fleet 1/4/2018 PC/US2018/022233 1/19/2017 1028132293 9/20/2018 0 WO WIPO (PCT) Pending

CP-007100EP Systems and Methods for On-Site Recovery
 of Autonomous Vehicles 1/29/2018 627623155 1/29/2018 1 US United States Issued

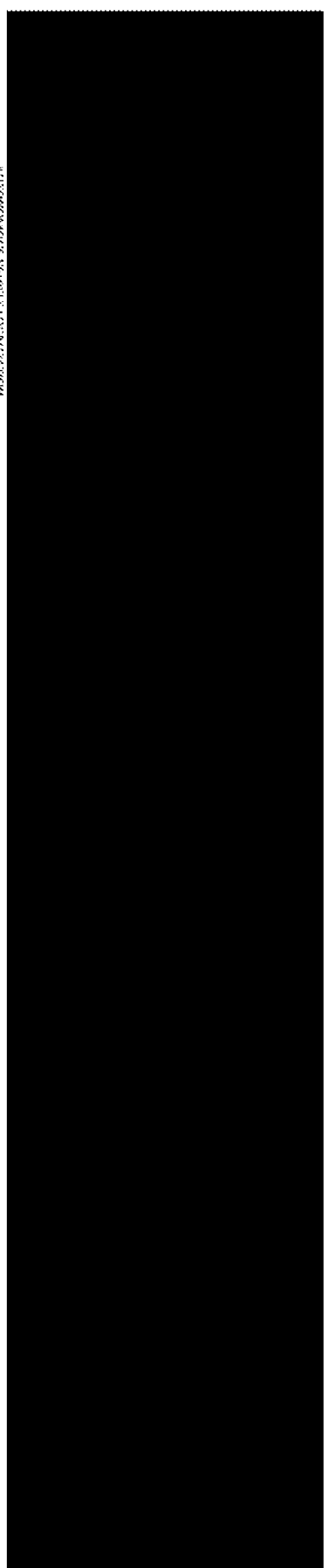
CP-007100US Systems and Methods for On-Site Recovery
 of Autonomous Vehicles 1/31/2018 157894452 1/29/2018 0 US United States Pending

CP-006211US SYSTEMS AND METHODS FOR REMOTE
 INSPECTION OF A VEHICLE 3/27/2018 157933489 1/24/2018 0 US United States Pending

CP-006400US Methods, Devices, and Systems For
 Communicating Autonomous Vehicle
 Status 1/29/2018 157802372 1/17/2018 0 US United States Pending

CP-00871LUS	Task Management Platform for Autonomous Vehicle Systems and Methods for Implementing Vehicle Assignments using Vehicle State Information	2/28/2018	US/907,923	1/19/2018		0	US	United States	Pending
CP-00870US	Systems and Methods for Remote Inspection of a Vehicle	2/28/2018	US/998,960	1/17/2018		0	US	United States	Pending
CP-00821USP	Systems and Methods for Providing a Vehicle Service Via a Transportation Network for Autonomous Vehicles	2/23/2018	US/690,656	1/23/2018		1	US	United States	Issued
CP-00820USP	Self-Driving Delivery of Deliverable-Driven Vehicles	2/23/2017	US/584,168	11/30/2017		1	US	United States	Issued
CP-00312US	Self-Driving Delivery of Deliverable-Driven Vehicles	5/16/2017	US/596,046	5/16/2017	20180335783	0	US	United States	Pending
CP-00375US-13	FLIGHT TRANSITION EFFICIENCY FOR ON-DEMAND TRANSPORTATION SERVICES	5/23/2017	US/623,998	5/23/2017	20180343895	0	US	United States	Pending
CP-00431US	Systems and Methods for Deploying an Autonomous Vehicle to Complete Autonomous Navigation	7/17/2017	US/551,362	7/17/2017	20190104116	0	US	United States	Pending
CP-00375US-6	POST TRIP OPTIMIZATION FOR AUTONOMOUS VEHICLES	5/23/2017	US/623,277	5/23/2017	20180343841	0	US	United States	Pending
CP-00350US-2	Vehicle Management System	12/14/2016	US/739,420	12/14/2016	20180158935	0	US	United States	Pending
CP-00248US	Vehicle Management System	10/11/2017	US/730,211	12/14/2016	20180166813	0	US	United States	Pending
CP-00346US	Vehicle Control Device	12/14/2016	US/738,553	12/14/2016	20180164798	0	US	United States	Pending
CP-00640USP	Storage Fleet	4/13/2017	US/945,864	4/13/2017	20180201248	0	US	United States	Pending
CP-00621USP	Methods, Devices, and Systems for Communicating Autonomous Vehicle Status	4/12/2018	US/626,367	4/12/2018		1	US	United States	Issued
CP-00621USP	Systems and Methods for a Task Management Platform	4/19/2018	US/633,147	4/19/2018		1	US	United States	Issued
CP-00620USP	Systems and Methods for Implementing Vehicle Assignments Using Vehicle State Information	2/27/2018	US/628,883	1/17/2018		1	US	United States	Issued
CP-00620W0	SYSTEMS AND METHODS FOR PROVIDING A VEHICLE SERVICE VIA A TRANSPORTATION NETWORK FOR AUTONOMOUS VEHICLES	11/29/2018	PC/US2018/059934	11/10/2017		0	WO	WIPO (PCT)	Pending
CP-00359W0	Vehicle Management System	12/12/2017	PC/US2017/065818	12/14/2016	2018111877	0	WO	WIPO (PCT)	Pending
CP-00687USP	Dispatching a Third Party Autonomous Vehicle	10/20/2017	US/757,208	10/20/2017		1	US	United States	Issued
CP-00371W0	Systems and Methods for On-Site Recovery of Autonomous Vehicles	2/28/2018	PC/US2018/025336	1/29/2018		0	WO	WIPO (PCT)	Pending
CP-00139US-E1	Autonomous Vehicle Protection System	9/29/2018	US/235,760	3/31/2017	20190203880	0	US	United States	Pending
CP-00249US-E2	Vehicle Servicing System	7/6/2018	US/629,075	12/14/2016	20180314256	0	US	United States	Pending
CP-00249W0	Vehicle Servicing System	12/12/2017	PC/US2017/065814	12/14/2016	2018111874	0	WO	WIPO (PCT)	Pending
CP-00620W0	Systems and Methods for Implementing Vehicle Assignments Using Vehicle State Information	1/13/2018	PC/US2018/0023904	1/17/2018		0	WO	WIPO (PCT)	Pending
CP-00620US	Vehicle Service Via a Transportation Network for Autonomous Vehicles	12/12/2017	US/650,388	11/10/2017		0	US	United States	Pending

CP-003690US	INTENTIONAL SIGNALING FOR AXX AUTONOMOUS VEHICLE	2/22/2016	15/080,257	2/22/2016	203,702,0036	8/24/2017	5/25/2018	9868306	0	US	United States	In Force
CP-003691US	Light Display Systems and Methods	4/10/2017	13,484,073	4/10/2017	9894175	2/27/2018	2/27/2018	9894375	0	US	United States	In Force
CP-003692US	LIGHTING DEVICE FOR A VEHICLE	8/22/2016	13,242,198	2/22/2016	202,702,0098	8/24/2017	2/27/2018	9900311	0	US	United States	In Force
CP-004693US	Systems and Methods for Communicating Autonomous Vehicle Scenario Evaluation and Intended Vehicle Actions	8/16/2017	13,978,675	8/16/2017	203,990,66741	2/27/2019	2/29/2019	20209716	0	US	United States	In Force
CP-003694US	LIGHT OUTPUT SYSTEM FOR A SELF-DRIVING VEHICLE	2/13/2017	13,089,184	2/22/2016	203,800,2218	3/13/2018	12/29/2018	20100378	0	US	United States	In Force
CP-004695US	Systems and Methods for Communicating Autonomous Vehicle Scenario Evaluation and Intended Vehicle Actions	2/15/2019	16,276,761	8/16/2017					0	US	United States	Pending
CP-004696US	Systems and Methods for Communicating Autonomous Vehicle Scenario Evaluation and Intended Vehicle Actions	8/16/2018	16,125,010/00215	8/16/2017					0	WO	WIPO (PCT)	Pending
CP-003245US	Light Display Systems and Methods	2/26/2018	13,925,384	4/10/2017	203,802,39716	10/11/2018			0	US	United States	Pending
CP-003697US	INTENTIONAL SIGNALING FOR AXX AUTONOMOUS VEHICLE	2/22/2016	15,050,046/068503	2/22/2016	203,702,00815	8/31/2017			0	WO	WIPO (PCT)	Pending
CP-004911US	Systems and Methods for Communicating Autonomous Vehicle Confidence Levels	7/12/2017	15,650,018	7/12/2017	203,900,9411	1/17/2019			0	US	United States	Pending
CP-003401US	Systems and Methods for Communicating Future Vehicle Actions to be Performed by an Autonomous Vehicle	7/19/2017	14,650,004	7/12/2017	203,900,9976	1/17/2019			0	US	United States	Pending
CP-003698US	INTENTIONAL SIGNALING FOR AXX											
CP-002692CN	INTENTIONAL SIGNALING FOR AXX AUTONOMOUS VEHICLE	12/22/2016	202,680,084,995.8	2/22/2016	1080708921	12/27/2018			0	CN	China	Pending
CP-003239WO	LIAR DISPLAY SYSTEMS AND METHODS	1/16/2018	16,315,031,473,3843	4/10/2017	203,815,00879	10/18/2018			0	WO	WIPO (PCT)	Pending



AUTONOMOUS VEHICLE LOCALIZATION
 USING RANGE ANALYSIS AND
 MANIPULATION 6/30/2017 15/660340 7/3/2016 2028005050 2/4/2018 0 US United States Pending

AUTONOMOUS VEHICLE LOCALIZATION
 USING PASSIVE RANGE DATA 6/30/2017 15/660334 7/3/2016 2028005057 2/4/2018 0 US United States Pending

AUTONOMOUS VEHICLE LOCALIZATION
 USING SLIM/SPS 6/30/2017 15/660333 7/3/2016 1078003811 2/4/2018 0 US United States Pending

Light-Weight Highway Localization for
 Autonomous Vehicles 11/15/2017 62/596759 11/15/2017 1 US United States Lapsed

Lightweight Vehicle Localization Systems
 and Methods 11/15/2017 62/596759 11/15/2017 1 WO United States Pending

Lightweight Vehicle Localization Systems
 and Methods 9/16/2018 16/323289 11/15/2017 0 US United States Pending



EP-003-591E	VEHICLE REACTION MAP FOR AUTONOMOUS VEHICLES	12/17/2016	18874074.8	12/10/2018	3386828	10/17/2018	0	EP	European Patent Office	Pending
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EP-003-40US-1	AUTONOMOUS VEHICLE CONTROL USING SUBMAPS	6/30/2017	15780289	7/17/2018	203800425	1/4/2018	0	US	United States	Pending
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EP-003-40US-2P	SUBMAP SYSTEM FOR USE IN AUTONOMOUSLY OPERATING VEHICLES	10/24/2016	629442044	10/24/2016			1	US	United States	Issued
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EP-003-40US-1P	SUBMAP SYSTEM FOR USE IN AUTONOMOUSLY OPERATING VEHICLES	7/17/2016	62937903	7/17/2016			1	US	United States	Issued
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EP-003-53WQ	AUTONOMOUS VEHICLES VEHICLE REACTION MAP FOR VEHICLE REACTION MAP FOR AUTONOMOUS VEHICLES	12/17/2016	9070501606625	12/10/2015	2037100797	6/15/2017	0	WO	WIPO (PCT)	Pending
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EP-003-53US-2	VEHICLE REACTION MAP FOR AUTONOMOUS VEHICLES	12/17/2016	157816514	12/10/2015	20371167881	6/15/2017	0	US	United States	Pending
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EP-003-40-1WO	AUTONOMOUS VEHICLE CONTROL USING SUBMAPS	7/17/2017	907455017048052	7/17/2016	2038004002	1/4/2018	0	WO	WIPO (PCT)	Pending
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EP-003-40US-2	SYSTEM AND METHOD FOR MANAGING SUBMAPS FOR CONTROLLING AUTONOMOUS VEHICLES	6/30/2017	157660786	7/17/2016	2038004276	1/4/2018	0	US	United States	Pending
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CP-00378WV0	SYSTEMS AND METHODS FOR DETERMINING WHETHER AN AUTONOMOUS VEHICLE CAN PROVIDE A RECALLED SERVICE FOR A RIDER	9/23/2018	PCI/US2018/058079	9/28/2017	20180341571	11/29/2018	0	US	WIPO (PCT)	Pending
CP-00399WV0	SYSTEMS AND METHODS FOR MATCHING AN AUTONOMOUS VEHICLE TO A RIDER	9/23/2018	PCI/US2018/058083	9/28/2017	20180341881	11/29/2018	0	US	WIPO (PCT)	Pending
CP-00376US-5	SOFTWARE VERSION VERIFICATION FOR AUTONOMOUS VEHICLES	5/23/2017	15/602,244	5/23/2017	20180341571	11/29/2018	0	US	United States	Pending
CP-00376US-4	SOFTWARE VERSION AND MILEAGE SWITCHING FOR AUTONOMOUS VEHICLES	5/23/2017	15/602,234	5/23/2017	20180341881	11/29/2018	0	US	United States	Pending
CP-00376US-3	VEHICLE SELECTION FOR ON-DEMAND TRANSPORTATION SERVICES	5/23/2017	15/602,223	5/23/2017	20180341881	11/29/2018	0	US	United States	Pending
CP-00399USP	Systems and methods for matching an Autonomous vehicle to a rider	9/28/2017	62/964,333	9/28/2017			1	US	United States	Issued
CP-00376US-2	TRIP CLASSIFICATION SYSTEM FOR ON- DEMAND TRANSPORTATION SERVICES	5/23/2017	15/602,204	5/23/2017	20180342039	11/29/2018	0	US	United States	Pending
CP-00376US-1	FAULT SEVERITY RISK REGULATION SYSTEM FOR ON-DEMAND TRANSPORTATION SERVICES	5/23/2017	15/602,197	5/23/2017	20180341261	11/29/2018	0	US	United States	Pending
CP-00378WV0	Systems and methods for determining whether an Autonomous vehicle can provide a requested service for a rider	5/17/2018	PCI/US2018/058102	5/23/2017	1098217536	11/29/2018	0	WO	WIPO (PCT)	Pending
CP-00489US	Whether an Autonomous Vehicle Can Provide a Requested Service for a Rider	10/23/2017	15/792,964	9/28/2017			0	US	United States	Pending
CP-00399US	Systems and methods for matching an Autonomous vehicle to a rider	10/31/2017	15/799,323	9/28/2017			0	US	United States	Pending

CP-002861US	Adaptive Vehicle Location Control System	2/2/2017	18/423,213	2/2/2017	996AUS2	5/8/2018	5/8/2018	996AUS2	0	US	United States	In Force
CP-003981US	AUTONOMOUS VEHICLE PERFORMANCE OPTIMIZATION SYSTEM	7/5/2016	15/292,432	7/5/2016	889AUS0	2/6/2018	2/6/2018	889AUS0	0	US	United States	In Force
CP-006271US	FOR A COLLISION WARNING SYSTEM TWO-LEVEL GROUPING OF PERICULUS FOR A COLLISION WARNING SYSTEM Automatic Tuning of Autonomous Vehicle Cost Functions Based on Human Driving Data	6/11/2007	13/918,177	6/11/2007	703801A283A1	12/18/2008	1/8/2013	8350373	0	US	United States	In Force
CP-008271JP	Cost Functions Based on Human Driving Data	5/2/2008	3008-120881	6/12/2007	20883A0808	12/22/2008	2/4/2015	5560284	0	JP	Japan	In Force
CP-003141USCP	Human Supervision of an Automated Driving System	9/11/2017	13/750,863	9/8/2017	7028029282A	10/17/2018	2/1/2019	22108705	0	US	United States	In Force
CP-003311US	VEHICLE CONTROLS BASED ON THE MEASURED WEIGHT OF FREIGHT	6/30/2017	15/638,739	6/30/2017	20330004622	3/3/2019	12/19/2018	22155849	0	US	United States	In Force
CP-006811US	Autonomous Vehicles Featuring Machine Learned Yield Model	12/20/2016	13/385,613	12/20/2016	703801A0386	6/13/2018	11/6/2018	22118837	0	US	United States	In Force
CP-003201US	COLLISION-AVOIDANCE SYSTEMS FOR AUTONOMOUS-CAPABLE VEHICLES	10/24/2017	13/710,646	10/9/2017	102119011	7/10/2018	7/10/2018	13019011	0	US	United States	In Force
CP-002861US	Human Supervision of an Automated Driving System	6/23/2017	13/631,950	6/23/2017	102007269	6/26/2018	6/26/2018	22007269	0	US	United States	In Force
CP-004311USC1	HUMAN SUPERVISION OF AN AUTOMATED DRIVING SYSTEM	11/28/2018	16/222,488	6/30/2017		6/30/2017			0	US	United States	Pending
CP-004311USC1	HUMAN SUPERVISION OF AN AUTOMATED DRIVING SYSTEM	6/18/2018	15/152,018/038010	6/30/2017					0	WO	WIPO (PCT)	Pending
CP-004181WO	METHODS AND SYSTEMS FOR VEHICLES	9/11/2018	14/135,201/020442	9/15/2017					0	WO	WIPO (PCT)	Pending
CP-005391WO	AUTONOMOUS VEHICLES FOR VEHICLE POSITION SYSTEM	8/27/2018	14/155,018/048162	8/13/2017					0	WO	WIPO (PCT)	Pending
CP-008201USP	Autonomous Vehicles Featuring Machine-Learned Yield Model	10/9/2017	12/569,718	10/9/2017					1	US	United States	Expired
CP-007111US	Autonomous Vehicle Safe Stop SYSTEMS AND METHODS FOR SPREAD CONTEXT AWARENESS	6/1/2018	13/995,285	1/30/2018					0	US	United States	Pending
CP-004131WO	CONTEXT AWARENESS	7/18/2018	14/155,018/022608	7/18/2017					0	WO	WIPO (PCT)	Pending
CP-002861CN	COLLISION AVOIDANCE SYSTEM FOR AUTONOMOUS-CAPABLE VEHICLE	6/22/2018	20281065333.3	6/22/2017	109117709	2/2/2019			0	CN	China	Pending
CP-008951US	Methods, Devices, and Systems For Analyzing Motion Plans of Autonomous Vehicles	3/15/2018	13/592A,844	1/26/2018					0	US	United States	Pending
CP-006011US1	Systems and Methods for Steering Processing for Autonomous Vehicles	5/18/2018	13/998A01A1	1/12/2018					0	US	United States	Pending
CP-005021USC1	Autonomous Vehicles Featuring Machine-Learned Yield Model	6/8/2018	16/023,543	10/9/2017					0	US	United States	Pending

CP-003694US1	Discrete Decision Architecture for Nonlinear Planning System of an Autonomous Vehicle	8/8/2018	167058364	1/15/2018		0	US	United States	Pending
CP-003694W2	ADJUNCTIVE VEHICLE COLLISION MITIGATION SYSTEMS AND METHODS FOR HEURISTIC AND/OR PLANNING FOR AUTONOMOUS VEHICLES	6/22/2018	1671152014/138996	6/29/2017		0	WO	WIPO (PCT)	Pending
CP-003694US	ADJUNCTIVE VEHICLE COLLISION MITIGATION SYSTEMS AND METHODS FOR HEURISTIC AND/OR PLANNING FOR AUTONOMOUS VEHICLES	3/24/2017	157458740	3/24/2017	20180287537	0	US	United States	Pending
CP-003694US2	Systems and Methods for Streamlined Autonomy Processing for Autonomous Vehicles	6/29/2017	157457539	6/29/2017	20180206838	0	US	United States	Pending
CP-003694US7	Systems and Methods to Adjust Autonomous Vehicle Parameters in Response to Passenger Feedback	2/22/2018	527626542	1/12/2018		1	US	United States	Approved
CP-003694US8	Systems and Methods to Control Autonomous Vehicle Motion	8/11/2017	527544432	8/11/2017		1	US	United States	Approved
CP-003694US	Systems and Methods for Performing Lane Changes Around Static Vehicles	3/20/2017	157473686	3/20/2017	20180284768	0	US	United States	Pending
CP-004484US7	Systems and Methods for Performing Lane Changes Around Obstacles	11/13/2017	157830296	8/11/2017	10150047584	0	US	United States	Pending
CP-004484US8	Systems and Methods for Performing Lane Changes Around Obstacles	8/23/2017	527549056	8/23/2017		1	US	United States	Lapsed
CP-004484US	Systems and Methods of Entering an Autonomous Vehicle Using an Enhanced Trajectory Following Configuration	10/17/2016	157295088	8/29/2017	20180164813	0	US	United States	Pending
CP-004484US	Systems and Methods for Entering an Autonomous Vehicle Using an Enhanced Trajectory Following Configuration	10/17/2016	157295088	10/17/2016	20180172115	0	US	United States	Pending
CP-003531US7	Machine Learning to Automatically Tune Autonomous Vehicle Cost Function Gains	4/6/2017	527482280	4/6/2017		1	US	United States	Lapsed
CP-003531US7	Machine Learning to Automatically Tune Autonomous Vehicle Cost Function Gains	12/10/2015	527265960	12/10/2015		1	US	United States	Lapsed
CP-003531US7	Systems and Methods for a Vehicle Controller Robust to Time Delays	10/19/2017	527574347	10/19/2017		1	US	United States	Lapsed
CP-003531US7	Systems and Methods for a Vehicle Controller Safety Monitor	10/6/2017	527569054	10/6/2017		1	US	United States	Lapsed
CP-003531US7	Systems and Methods for Road Surface Dependent Motion Planning	12/7/2017	527595663	12/7/2017		1	US	United States	Lapsed
CP-003531US7	Automatic Tuning of Autonomous Vehicle Cost Functions Based on Human Driving Data	5/30/2017	157661994	4/6/2017	20180292830	0	US	United States	Lapsed
CP-003531US7	Machine Learning for a Vehicle Using Trajectory Information	12/12/2016	157376583	12/10/2015	20170166116	0	US	United States	Pending
CP-003531US7	Machine Learning for a Vehicle Using Trajectory Information	12/12/2016	157376583	12/10/2015	20170166215	0	US	United States	Pending
CP-003531US7	Machine Learning for a Vehicle Using Trajectory Information	8/16/2017	138789904	8/16/2017	201801053738	0	US	United States	Pending
CP-003531US7	Machine Learning for a Vehicle Using Trajectory Information	8/31/2017	527552574	8/31/2017		1	US	United States	Lapsed

US-2018-01466	Autonomous Vehicles Featuring Vehicle Intention System	9/11/2017	15/760,466	6/31/2017	2019006806	2/26/2019	0	US	United States	Pending
US-2018-01467	Systems and Methods for Autonomous Vehicle Lane Change Control	11/6/2017	62,962,005	11/6/2017			1	US	United States	Issued
US-2018-01468	Context Specific Tolerance for Motion Control in Autonomous Vehicles	9/15/2017	15,795,507	9/15/2017	2019006924	3/27/2019	0	US	United States	Pending
US-2018-01469	Systems and Methods for Low-Latency Braking Action for an Autonomous Vehicle	8/23/2017	52,549,355	8/23/2017			1	US	United States	Issued
US-2018-01470	Systems and Methods for Low-Latency Braking Action for an Autonomous Vehicle	10/16/2017	13,764,664	8/23/2017	2019006712	2/26/2019	0	US	United States	Pending
US-2018-01471	Systems and Methods for Speed Limit Context Awareness	7/18/2017	14,652,654	7/18/2017	2019005843	1/27/2019	0	US	United States	Pending
US-2018-01472	COLLISION AVOIDANCE SYSTEM FOR AUTONOMOUS CAPABLE VEHICLES	5/23/2018	15,990,480	6/23/2017	20180373263	12/17/2018	0	US	United States	Pending
US-2018-01473	Autonomous Vehicle Safe Stop Discrete Design Architecture For Abandon Planning System of an Autonomous Vehicle	1/30/2018	62,932,835	1/30/2018			1	US	United States	Issued
US-2018-01474	Methods, Devices, and Systems For Analyzing Motion Plans of Autonomous Vehicles	1/25/2018	62,657,417	1/15/2018			1	US	United States	Issued
US-2018-01475	Systems and Methods for Streamline Processing for Autonomous Vehicles	1/26/2018	62,622,133	1/26/2018			1	US	United States	Issued
US-2018-01476	Systems and Methods for Streamline Processing for Autonomous Vehicles	5/18/2018	15,993,499	1/12/2018			0	US	United States	Pending
US-2018-01477	Processing for Autonomous Vehicles Discrete Decision Architecture for Motion Planning System of an Autonomous Vehicle	5/16/2018	15,983,504	1/12/2018			0	US	United States	Pending
US-2018-01478	Vehicle	8/26/2018	16,028,430	1/15/2018			0	US	United States	Pending
US-2018-01479	Addressing Vehicle Motion Control System Vehicle Control Based on Time	4/26/2018	15,963,662	2/27/2017	20180246517	8/30/2018	0	US	United States	Pending
US-2018-01480	PRE-ASSIGNED WEIGHTS OF PRIORITY DESCRIBE DESIGN ARCHITECTURE FOR MOTION-PLANNING SYSTEM OF AN AUTONOMOUS VEHICLE	8/17/2018	16,051,659	12/20/2016	20180339711	11/29/2018	0	US	United States	Pending
US-2018-01481	AUTONOMOUS VEHICLE	1/24/2019	16,152,015/03,3464	1/13/2018			0	WO	WIPO (PCT)	Pending
US-2018-01482	NEURAL NETWORK SYSTEM FOR AUTONOMOUS VEHICLE CONTROL	10/12/2017	16,115,061/056277	10/17/2016	2018075325	4/26/2018	0	WO	WIPO (PCT)	Pending
US-2018-01483	Systems and Methods for Road Surface Dependent Motion Planning	12/7/2018	16,713,201/054133	11/7/2017			0	WO	WIPO (PCT)	Pending

CP-0029845C1	SYSTEMS AND METHODS FOR STREAMING PROCESSING FOR AUTONOMOUS VEHICLES	12/29/2017	15/858,872	7/5/2016	10280142584	5/24/2018	0	US	United States	Pending
CP-0029845C1 <td>OPTIMIZATION SYSTEMS</td> <td>12/29/2017</td> <td>15/858,872</td> <td>7/5/2016</td> <td>10280142584</td> <td>5/24/2018</td> <td>0 <td>US <td>United States</td> <td>Pending</td> </td></td>	OPTIMIZATION SYSTEMS	12/29/2017	15/858,872	7/5/2016	10280142584	5/24/2018	0 <td>US <td>United States</td> <td>Pending</td> </td>	US <td>United States</td> <td>Pending</td>	United States	Pending
CP-0029845C1 <td>SYSTEMS AND METHODS FOR ROAD SURFACE DEGENERATION MONITORING</td> <td>8/3/2018</td> <td>16/054,499</td> <td>12/7/2017</td> <td></td> <td></td> <td>0 <td>US <td>United States</td> <td>Pending</td> </td></td>	SYSTEMS AND METHODS FOR ROAD SURFACE DEGENERATION MONITORING	8/3/2018	16/054,499	12/7/2017			0 <td>US <td>United States</td> <td>Pending</td> </td>	US <td>United States</td> <td>Pending</td>	United States	Pending
CP-0029845C1 <td>VEHICLE CONTROL BASED ON THE MEASURED WEIGHT OF FREIGHT</td> <td>12/14/2017</td> <td>16/135,217/166,417</td> <td>12/20/2016</td> <td>2028118649</td> <td>6/28/2018</td> <td>0 <td>WO <td>WIPO (PCT)</td> <td>Pending</td> </td></td>	VEHICLE CONTROL BASED ON THE MEASURED WEIGHT OF FREIGHT	12/14/2017	16/135,217/166,417	12/20/2016	2028118649	6/28/2018	0 <td>WO <td>WIPO (PCT)</td> <td>Pending</td> </td>	WO <td>WIPO (PCT)</td> <td>Pending</td>	WIPO (PCT)	Pending
CP-0029845C1 <td>SYSTEMS AND METHODS FOR A VEHICLE CONTROL SAFETY MONITOR</td> <td>11/13/2017</td> <td>15/810,495</td> <td>10/6/2017</td> <td></td> <td></td> <td>0 <td>US <td>United States</td> <td>Pending</td> </td></td>	SYSTEMS AND METHODS FOR A VEHICLE CONTROL SAFETY MONITOR	11/13/2017	15/810,495	10/6/2017			0 <td>US <td>United States</td> <td>Pending</td> </td>	US <td>United States</td> <td>Pending</td>	United States	Pending
CP-0029845C1 <td>SYSTEMS AND METHODS FOR A VEHICLE CONTROL ROBUST TO TIME DELAYS</td> <td>11/13/2017</td> <td>15/782,524</td> <td>10/19/2017</td> <td></td> <td></td> <td>0 <td>US <td>United States</td> <td>Pending</td> </td></td>	SYSTEMS AND METHODS FOR A VEHICLE CONTROL ROBUST TO TIME DELAYS	11/13/2017	15/782,524	10/19/2017			0 <td>US <td>United States</td> <td>Pending</td> </td>	US <td>United States</td> <td>Pending</td>	United States	Pending
CP-0029845C1 <td>SYSTEMS AND METHODS FOR AUTONOMOUS VEHICLE LAKE CHANGE CONTROL</td> <td>1/5/2018</td> <td>15/952,797</td> <td>12/6/2017</td> <td></td> <td></td> <td>0 <td>US <td>United States</td> <td>Pending</td> </td></td>	SYSTEMS AND METHODS FOR AUTONOMOUS VEHICLE LAKE CHANGE CONTROL	1/5/2018	15/952,797	12/6/2017			0 <td>US <td>United States</td> <td>Pending</td> </td>	US <td>United States</td> <td>Pending</td>	United States	Pending

CP-0029845C1 SIMSON CLEANING SYSTEM FOR VEHICLES 7/28/2016 15/723,149 7/18/2016 20282015282 1/18/2018 3/5/2019 15220817 0 US United States In Force

CP-003204US-1	SUNSON CLEANING SYSTEM FOR VEHICLES	7/28/2016	15/2/23,110	7/18/2016	202480015987	1/16/2018	5/29/2019	201298450	0	US	United States	In Force
CP-006206US	Sequential Sensor Cleaning System for Autonomous Vehicle	7/7/2017	18/563,598	7/7/2017	203900090572	1/10/2019	3/8/2019	201728206	0	US	United States	In Force
CP-003624US	SENSOR/SYSTEM FOR AN INTELLIGENT CLEANING SYSTEM FOR A VEHICLE	3/24/2016	15/059,428	3/14/2016	20270259753	5/14/2017	5/29/2018	20177207	0	US	United States	In Force
CP-003243US	AN AUTONOMOUS VEHICLE	3/22/2015	13/979,352	1/12/2015	20570127820	6/27/2017	8/26/2018	202008926	0	US	United States	In Force
CP-003207US	CHARGE TRAILER BEARING ASSEMBLY	10/23/2017	15/790,379	10/23/2017		10/18/2018			0	US	United States	Pending
CP-002454US-1	LENS MASKING SYSTEM FOR A VEHICLE	6/21/2018	18/028,246	12/22/2015	20380299923	10/18/2018			0	US	United States	Pending
CP-002454EP	AN AUTONOMOUS VEHICLE	12/22/2016	16879893.1	12/22/2015	33949594	10/17/2018			0	EP	European Patent Office	Pending
CP-002508-3WO	SENSOR CLEANING SYSTEM FOR VEHICLES	7/23/2017	16/159,017/042065	7/18/2016	2038017395	1/25/2018			0	WO	WIPO (PCT)	Pending
CP-002508-1	INTELLIGENT LENS MASKING SYSTEM FOR AN AUTONOMOUS VEHICLE	12/22/2016	16879893.1	12/22/2015	33949594	10/17/2018			0	EP	European Patent Office	Pending
CP-003303WO	AUTONOMOUS VEHICLE SENSOR CLEANING SYSTEM	3/27/2018	16/1152018/024556	4/7/2017	2048187089	10/11/2018			0	WO	WIPO (PCT)	Pending
CP-003303US-2	Autonomous Vehicle Sensor Cleaning System	4/7/2017	15/742,251	4/7/2017	20380290631	10/11/2018			0	US	United States	Pending
CP-003303US-1	Autonomous Vehicle Sensor Cleaning System	4/7/2017	15/482,219	4/7/2017	20380290632	10/11/2018			0	US	United States	Pending
CP-003885USP	Nozzles and Systems for Cleaning Sensors of an Autonomous Vehicle	11/8/2017	62/583,143	11/8/2017					1	US	United States	Lapsed
CP-002531USP	Color Filter Array for Image Capture Device	12/29/2016	62/439,910	12/29/2016					1	US	United States	Lapsed
CP-00343WO	INTELLIGENT LENS MASKING SYSTEM FOR AN AUTONOMOUS VEHICLE	12/20/2016	16/152016/067823	12/22/2015	2027112898	6/29/2017			0	WO	WIPO (PCT)	Pending
CP-002531US	Color Filter Array for Image Capture Device	12/21/2017	15/050,452	12/29/2016	20380188427	7/5/2018			0	US	United States	Pending
CP-002531US	Image Capture Device with Customizable Region of Interest	12/29/2016	15/393,306	12/29/2016	20280189574	7/5/2018			0	US	United States	Pending
CP-00637WO	VEHICLE SENSOR CLEANING SYSTEM	4/15/2018	16/159,017/042065	14/8/2017					0	WO	WIPO (PCT)	Pending
CP-00637USP	Cleaning Patterns for Autonomous Vehicle Sensor Cleaning System	11/8/2017	62/583,153	11/8/2017					1	US	United States	Lapsed
CP-00637US	FUSED SENSOR VIEW FOR SELF-DRIVING TRUCK	1/30/2018	18/883,941	1/30/2018					0	US	United States	Pending
CP-00623USP	VEHICLE DYNAMICS MONITOR FOR AUTONOMOUS VEHICLES	11/21/2017	62/589,702	11/21/2017					1	US	United States	Lapsed

Netlles and Systems for Cleaning Vehicle

CP-00393USC1 Sensors 5/26/2018 167342485 12/01/2017 0 US United States Pending

CP-00637US Vehicle Sensor Cleaning System 12/17/2017 187839117 12/01/2017 0 US United States Pending

CP-00632US Vehicle Dynamics Invariant For Autonomous Vehicle 3/29/2018 151842794 11/21/2017 0 US United States Pending

Machine-Learning Based Autonomous

CP-003810US Vehicle Management System 3/11/2017 151475328 3/11/2017 203801264761 10/2/2018 2/9/2019 20248121 0 US United States Pending

ENCODED ROAD STRIPING FOR

CP-00604US 401309090435 VC 84CLIS 3/28/2017 187472076 3/28/2017 203801262955 10/2/2018 0 US United States Pending

CP-003990US Noise Testing in an Autonomous Vehicle 3/27/2018 187993170 6/13/2017 203801267895 12/01/2018 0 US United States Pending

CP-003994US Noise Testing in an Autonomous Vehicle 6/25/2017 527549324 6/15/2017 0 1 US United States Lapsed

CP-00372US	TRAFFIC SIGNAL, SAFETY SYSTEM	3/9/2016 15:05:56Z	3/9/2016 20:20:57Z	9/14/2017 6/5/2018 9850548	0	US	United States	In Force
OBJECT ELECTRON FOR AN								
AUTONOMOUS VEHICLE								
Systems and Methods to Track Vehicles								
Proprietary Received by an Autonomous Vehicle								
CP-00377USC1	Image-Based Pedestrian Detection	7/19/2018 16:03:04Z	3/10/2017 20:40:37Z	12/8/2018 3/12/2019 3323810	0	US	United States	In Force
CP-00315US	Systems and Methods to Track Vehicles	5/8/2017 15:58:08Z	4/25/2017 20:50:07Z	10/24/2018 10/23/2018 2910867	0	US	United States	In Force
Proprietary Received by an Autonomous Vehicle								
CP-00277US	SYSTEM AND METHOD TO DETERMINE TRACK OF DISCRETE LOCATIONS OF A ROAD SEGMENT	8/28/2017 15:04:04Z	3/20/2017 10:09:01Z	7/17/2018 7/17/2018 23017612	0	US	United States	In Force
CP-00530US 5		12/12/2016 15:37:55Z	12/19/2015 20:20:48Z	6/15/2017 7/10/2018 20118472	0	US	United States	In Force

CP-00714USP	Efficient Convolution for Real Time Semantic Segmentation of 3D Point Clouds	11/15/2017 62/586.777	11/15/2017		1	US	United States	Issued
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CP-00333US	Range View Laser Based Object Detection	5/31/2017 15:59:25Z	5/31/2017 20:28:48Z	12/6/2018	0	US	United States	Pending
CP-00337US	Top View Laser Based Object Detection	5/31/2017 15:59:14Z	5/31/2017 20:28:34Z	12/8/2018	0	US	United States	Pending
CP-00366CN	REPRODUCTION OF OBJECTS FOR AN AUTONOMOUS VEHICLE	5/5/2017 10:21:33Z	5/6/2016 10:45:02Z	12/8/2017	0	CN	China	Pending

CP-003664US1	OBJECT TRACKING FOR AN AUTONOMOUS VEHICLE SYSTEMS AND METHODS FOR CONTROLLING AN AUTONOMOUS VEHICLE INCLUDING OVERLAPPED SENSOR ZONES	3/3/2017	US/949,502	5/6/2016	2017033279	11/9/2017	0	US	United States	Pending
CP-004634USP	Sensors and Methods for Controlling an Autonomous Vehicle with Overlapped Sensor Zones	8/31/2017	82752,515	8/31/2017			1	US	United States	Issued
CP-004534US	Autonomous Vehicle with Overlapped Sensor Zones	5/22/2018	US/985,810	8/31/2017	2018006640	2/28/2018	0	US	United States	Pending
CP-003844USP	Multiple Stage Image Based Object Detection and Recognition Systems and Methods for Image Based Fine Space Detection	2/3/2017	US/1,594,632	11/15/2017			1	US	United States	Issued
CP-005784USP	Image Based Pedestrian Detection	1/5/2018	62761,345	2/5/2018			1	US	United States	Issued
CP-003134USP	Machine Learning for Event Detection and Classification in Autonomous Vehicles	4/25/2017	62748,514	4/25/2017			1	US	United States	Issued
CP-003144US	Systems and Methods to Track Vehicles Proximate to an Autonomous Vehicle	3/27/2017	US/969,981	3/27/2017	2018027567	9/27/2018	0	US	United States	Pending
CP-002774USP	3D Graph Neural Networks for RGBD Semantic Segmentation	3/29/2017	82478,663	3/29/2017			1	US	United States	Issued
CP-004954USP	PERCEPTION SYSTEMS FOR AUTONOMOUS VEHICLE STATIC OBJECT DETECTION FOR OPERATING AUTONOMOUS VEHICLE	6/7/2017	62751,531	6/7/2017			1	US	United States	Issued
CP-002414US-2	Systems and Methods for Determining Trajectory Angles and Distances Systems and Methods for Object Detection at Various Ranges Using Multiple Range Imagery	6/30/2017	US/940,384	7/2/2018	2018005053	2/2/2018	0	US	United States	Pending
CP-003944US-1	Systems and Methods for Determining Trajectory Angles and Distances Systems and Methods for Object Detection at Various Ranges Using Multiple Range Imagery	6/30/2017	US/940,384	7/2/2018	2018005052	2/4/2018	0	US	United States	Pending
CP-004734USP	Free Space Detection Orientation Determination in Object Detector and Tracking for Autonomous Vehicles	10/26/2017	82717,426	10/26/2017			1	US	United States	Issued
CP-002704USP	Deep Parametric Continuous Convolutional Neural Networks	12/12/2017	62737,450	12/12/2017			1	US	United States	Issued
CP-002704US	Hierarchical Recurrent Attention Networks for Structured Output Maps	2/1/2018	US/986,424	2/5/2018			0	US	United States	Pending
CP-004854USP	Deep Parametric Continuous Convolutional Neural Networks	5/8/2017	62735,816	9/8/2017			1	US	United States	Issued
CP-006804USP	Deep Convolutional Neural Networks for On-Road Object Detection from Point Clouds	11/15/2017	62738,717	11/15/2017			1	US	United States	Issued
CP-006634USP	Sparse Convolutional Neural Networks	11/15/2017	62738,668	11/15/2017			1	US	United States	Issued
CP-006614USP	Deep Convolutional Neural Networks for On-Road Object Detection	11/15/2017	62738,741	11/15/2017			1	US	United States	Issued
CP-006604USP	Deep Convolutional Neural Networks for On-Road Object Detection	11/15/2017	62738,725	11/15/2017			1	US	United States	Issued
CP-006574USP	Semantic and Instance Segmentation for Autonomous Vehicle Lane Boundary Detection Systems and Methods	11/15/2017	62738,631	11/15/2017			1	US	United States	Issued
CP-006554USP	Semantic and Instance Segmentation for Autonomous Vehicle Lane Boundary Detection Systems and Methods	11/15/2017	62738,566	11/15/2017			1	US	United States	Issued
CP-006604US-2	Semantic and Instance Segmentation for Autonomous Vehicle Lane Boundary Detection Systems and Methods	11/15/2018	62738,136	11/13/2017			0	WO	WIPO (PCT)	Pending

US-008693W0 Systems and Methods for Generating Sparse Geographic Data for Autonomous Vehicles 11/15/2018 PCT/US2018/061234 11/15/2017 0 W/O WIPO (PCT) Pending

[REDACTED]

US-004725W0 Systems and Methods for Determining Interior Trailer Angles and Distances 10/26/2018 PCT/US2018/057713 10/26/2017 0 W/O WIPO (PCT) Pending

[REDACTED]

US-005849D Multiple State Image Based Object Detection and Recognition 12/4/2018 PCT/US2018/063839 12/5/2017 0 W/O WIPO (PCT) Pending

US-00313JSCI Image Based Pedestrian Detector 10/8/2018 18/144,348 4/29/2017 2018042805 2/7/2019 0 US United States Pending

US-001720JSCI TRAFFIC SIGNAGE RECOGNITION SYSTEMS 3/27/2018 18/956,243 3/27/2018 2018018228 8/21/2018 0 US United States Pending

[REDACTED]

Systems and Methods for Object Detection

at Variable Ranges Using Multiple Range

CP-003201US

5/30/2018 15/992,498

12/12/2017

0

US

United States

Pending

CP-003410US

SYSTEM AND METHODS FOR PRESENTING AUTONOMY SWITCHING DIRECTIONS ON A DISPLAY DEVICE IN OBJECT DETECTION AND TRACKING FOR AUTONOMOUS VEHICLES

CP-003410US

10/27/2017 15/795,612

9/18/2017 203,900,928,26

0

US

United States

Pending

CP-003371USP

Hybrid View Lidar-based Object Detection Multiple Stage Image Based Object Detector and Recognition

CP-003371USP

10/31/2017 15/579,538

10/31/2017

1

US

United States

Issued

CP-00384US

Autonomous Vehicle Lane Boundary Detection Systems and Methods

CP-00384US

9/19/2018 16/222,267

11/15/2017

0

US

United States

Pending

CP-00475US

Systems and Methods for Determining Tractor-Trailer Angles and Distances

CP-00475US

5/20/2018 15/992,346

10/26/2017

0

US

United States

Pending

CP-00659US

Space Convolutional Neural Networks

CP-00659US

2/7/2018 15/890,886

11/15/2017

0

US

United States

Pending

CP-00657US

Three Dimensional Object Detection Continuous Convolution and Fusion in Neural Networks

CP-00657US

9/17/2018 16/233,046

11/15/2017

0

US

United States

Pending

CP-00680US

Systems and Methods for Generating Sparse Geographic Data for Autonomous Vehicles

CP-00680US

10/30/2018 16/275,161

11/15/2017

0

US

United States

Pending

CP-00685US

Autonomous Vehicle Lane Boundary Detection Systems and Methods

CP-00685US

9/19/2018 16/222,433

11/15/2017

0

US

United States

Pending

CP-00332USCIP1

Hybrid View Lidar-based Object Detection

CP-00332USCIP1

2/28/2018 15/992,966

5/22/2017 203,892,948,446

0

US

United States

Pending

CP-006234US	DRIVE ASSESSMENT FOR EARLY COLLISION WARNING	6/12/2007	12/28/2008	187	6/12/2007	20980312832	12/18/2008	2/1/2011	7881828	0	US	United States	In Force
CP-006234US	USING SEGMENTED CONES FOR FAST, CONSERVATIVE ASSESSMENT OF COLLISION RISK	6/12/2007	12/28/2008	187	6/12/2007	20980312833	12/18/2008	32/07/2010	7431391	0	US	United States	In Force
CP-006234US	USING LONG RANGE DYNAMICS AND MECHANICAL STATE MODELS TO ASSESS COLLISION RISK FOR EARLY WARNING	6/12/2007	12/28/2008	187	6/12/2007	20980312830	12/18/2008	9/7/2010	7790641	0	US	United States	In Force
CP-006234US	HUMAN MACHINE INTERFACE (HMI) CUSTOMIZATION BASED ON COLLISION ASSESSMENTS	6/12/2007	12/28/2008	186	6/12/2007	20980309468	12/18/2008	5/4/2010	7710248	0	US	United States	In Force
CP-006234US	USING SEGMENTED CONES FOR FAST, CONSERVATIVE ASSESSMENT OF COLLISION RISK	5/22/2008	10/28/2008	120580	6/12/2007	2098312833	12/18/2008	4/5/2015	5590836	0	JP	Japan	In Force
CP-006234JP	HUMAN MACHINE INTERFACE (HMI) CUSTOMIZATION BASED ON COLLISION ASSESSMENTS	5/22/2008	10/28/2008	120582	6/12/2007	2098312807	12/29/2008	4/2/2014	5460973	0	JP	Japan	In Force
CP-006670US	Systems and Methods for Prioritizing Object Prediction for Autonomous Vehicles	12/14/2012	13/02/2015	12865	8/22/2012	20930068415	2/28/2019	2/26/2019	22218289	0	US	United States	In Force
CP-006581US2	Object Detection, Tracking, and Location Prediction	2/27/2018	5/2/2018	882	2/27/2018					1	US	United States	Lapsed
CP-006670WO	SYSTEMS AND METHODS FOR PRIORITIZING OBJECT PREDICTION FOR AUTONOMOUS VEHICLES	8/20/2018	9/11/2018	647032	8/23/2017					0	WO	World (PCT)	Pending
CP-006581US1	Object Motion Prediction and Autonomous Vehicle Control	9/5/2018	16/12/2018	455	8/8/2017	20930049970	2/14/2019			0	US	United States	Pending
CP-006234JP	DRIVE ASSESSMENT FOR EARLY COLLISION WARNING	5/27/2008	10/28/2008	120555	6/12/2007	2098312803	12/29/2008			0	JP	Japan	Lapsed
CP-006670US2	Systems and Methods for Prioritizing Object Prediction for Autonomous Vehicles	8/23/2017	5/25/2017	407	8/23/2017					1	US	United States	Lapsed

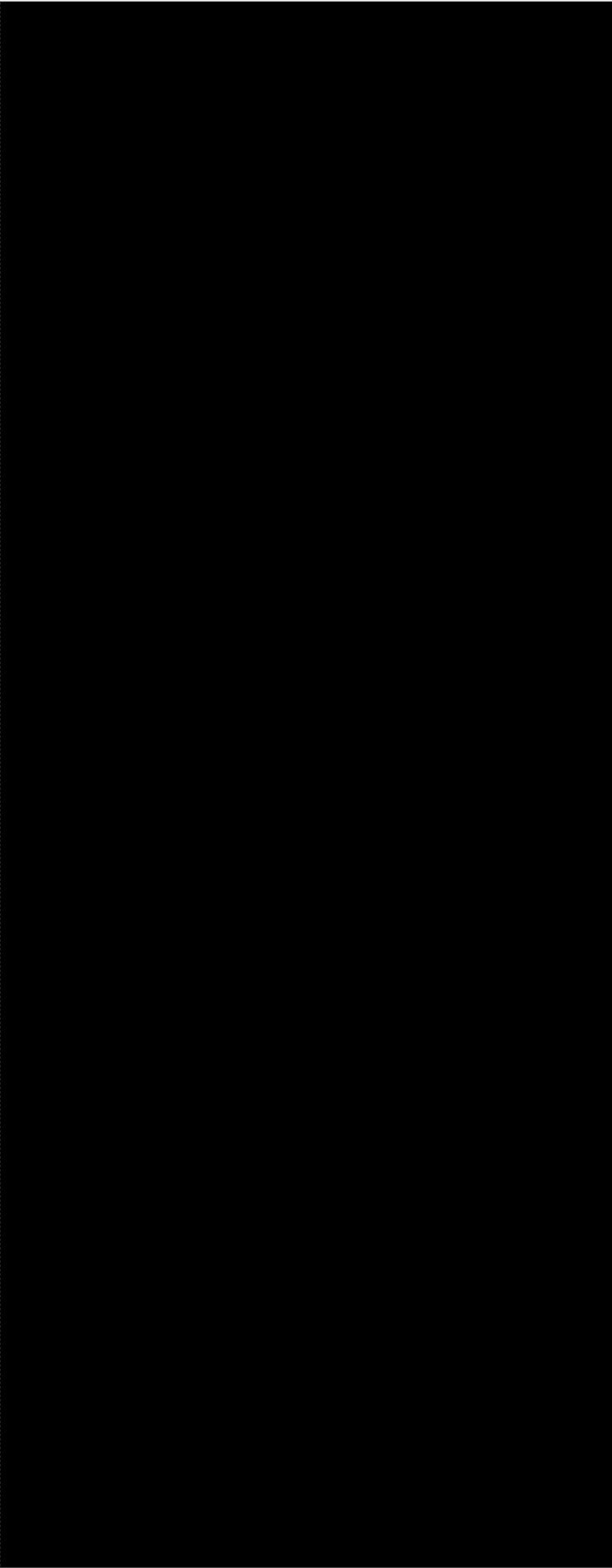
US-2017-0266485	Approxly Detection Systems and Methods for Autonomous Vehicles	10/3/2017	02/06/2018	10/3/2017	0	US	United States	Pending
US-2017-0266486	Object Motion Prediction and Autonomous Vehicle Control	8/18/2017	02/04/2018	8/18/2017	1	US	United States	Lapsed
US-2017-0266487	Object Motion Prediction and Autonomous Vehicle Control	10/13/2017	10/13/2017	08/08/2017	0	US	United States	Pending
US-2017-0266488	Machine Learning for Predicting Locations of Objects Perceived by Autonomous Vehicles	7/22/2017	02/03/2018	7/22/2017	1	US	United States	Lapsed
US-2017-0266489	Machine Learning for Predicting Locations of Objects Perceived by Autonomous Vehicles	8/23/2017	10/04/2018	7/22/2017	0	US	United States	Pending
US-2017-0266490	CONTROL SYSTEM TO ASSIST OPERATION OF AN AUTONOMOUS VEHICLE BASED ON A PROBABILITY OF INTERFERENCE DYNAMIC OBJECT	5/10/2016	10/25/2017	5/10/2016	0	US	United States	Pending
US-2017-0266491	Object Interaction Prediction Systems and Methods for Autonomous Vehicles	11/22/2017	02/08/2018	11/22/2017	1	US	United States	Lapsed
US-2017-0266492	Object Motion Prediction and Vehicle Control Systems and Methods for Autonomous Vehicles	12/18/2017	02/06/2018	12/18/2017	1	US	United States	Lapsed
US-2017-0266493	End-to-End Tracking of Objects	11/15/2017	02/06/2018	11/15/2017	1	US	United States	Lapsed
US-2017-0266494	Systems and Methods for Prioritizing Object Prediction for Autonomous Vehicles	01/28/2017	10/12/2017	01/28/2017	0	US	United States	Pending
US-2017-0266495	Autonomous Vehicle Motion Control Systems and Methods	11/29/2017	02/02/2018	11/29/2017	1	US	United States	Lapsed
US-2017-0266496	OBJECT MOTION PREDICTION AND VEHICLE CONTROL SYSTEMS AND METHODS FOR AUTONOMOUS VEHICLES	10/18/2017	02/06/2018	10/18/2017	0	US	United States	Pending
US-2017-0266497	ADAPTIVE DETECTION SYSTEMS AND METHODS FOR AUTONOMOUS VEHICLES	10/13/2017	02/06/2018	10/13/2017	0	US	United States	Pending
US-2017-0266498	Object Interaction Prediction Systems and Methods for Autonomous Vehicles	11/22/2017	02/06/2018	11/22/2017	0	US	United States	Pending
US-2017-0266499	Systems and Methods for Object Detection, Tracking, and Motion Prediction	11/13/2017	02/06/2018	11/13/2017	0	US	United States	Pending
US-2017-0266500	Approxly Detection Systems and Methods for Autonomous Vehicles	10/3/2017	02/06/2018	10/3/2017	0	US	United States	Pending

CP-0071445	Autonomous Vehicle Motion Control Systems and Methods	1/9/2018	15/865,790	11/29/2017	0	US	United States	Pending
CP-00658451	End-to-End Tracking of Objects	5/5/2018	15/222,203	11/15/2017	0	US	United States	Pending
CP-0063845	Object Interpolation Prediction Systems and Methods for Autonomous Vehicles	12/20/2017	15/848,564	11/22/2017	0	US	United States	Pending
CP-0071445	Sensoric Segmentation of Three-Dimensional Data	5/6/2018	15/223,233	11/15/2017	0	US	United States	Pending

PLANNING: INFO ON A ROAD NETWORK USING REACTION INFORMATION FOR THE ROAD NETWORK

12/17/2016 15/376,587 12/10/2015 20270167098 6/15/2017 11/6/2018 32119827 0 US United States In Force

CP-002969WQ	SYSTEMS AND METHODS FOR CHANGING A DESTINATION OF AN AUTONOMOUS VEHICLE IN REAL-TIME	8/27/2018	PC1152018/048091	9/2/2017		0	WO	WIPO (PCT)	Pending
CP-003630US	ACCELERATING RULER PICK-UP FOR A SELF-DRIVING VEHICLE	5/28/2017	15/6606-492	5/27/2016	702,739,407D0	0	US	United States	Pending
CP-003760US-12	NON-3RD RISK BRANCHING AND ROUTING FOR NON-BEHAVIOR TRANSFORMATION SERVICES	5/23/2017	15/6602-387	5/23/2017	202,803,420B4	0	US	United States	Pending
CP-003760US-12	INDIVIDUALIZED RISK ROUTING FOR HUMAN DRIVERS	5/23/2017	15/6602-375	5/23/2017	202,803,407B0	0	US	United States	Pending
CP-003760US-10	GENERALIZED RISK ROUTING FOR HUMAN DRIVERS	5/23/2017	15/6602-377	5/23/2017	202,803,412B8B	0	US	United States	Pending
CP-003695USP	Systems and Methods for Changing a Destination of an Autonomous Vehicle in Real Time	9/1/2017	92/5532-240	9/1/2017		1	US	United States	Issued
CP-004160USP	Turn Based Autonomous Vehicle Guidance Systems and Methods for Changing a Destination of an Autonomous Vehicle in Real Time	10/12/2017	92/5714-228	10/12/2017		1	US	United States	Lapsed
CP-003950US	Turn Based Autonomous Vehicle Guidance	10/26/2017	15/7291-587	9/27/2017	202,800,298A4	0	US	United States	Pending
CP-004160US	Turn Based Autonomous Vehicle Guidance	11/17/2017	15/8166-282	10/12/2017		0	US	United States	Pending



CP-00373US-2	SECURE START SYSTEM FOR RV AUTONOMOUS VEHICLE	3/28/2016	15/074,934	3/18/2016	20270272943	9/22/2017	4/17/2018	9846890	0	US	United States	In Force
CP-00301US-1	GUIDE ASSISTANCE OF PASSENGER DRIVER VEHICLES AUTONOMOUS VEHICLES OPERATED WITH GUIDE ASSISTANCE OF PASSENGER DRIVER VEHICLES	9/13/2016	15/284,314	5/13/2015	20170003681	2/5/2017	4/3/2018	9933779	0	US	United States	In Force
CP-00301US	VEHICLE SECURITY SYSTEM SECURE START SYSTEM FOR RV	5/13/2015	14/711,506	5/13/2015	20160334229	11/17/2016	11/25/2016	5834439	0	US	United States	In Force
CP-00321US-2-1	AUTONOMOUS VEHICLE	2/28/2016	15/337,363	10/28/2016	20280124713	5/9/2018	3/28/2019	22213987	0	US	United States	Pending
CP-00321US	AUTONOMOUS VEHICLE OPERATIONAL METHOD	2/18/2016	15/804,549	3/18/2016	20180137962	6/7/2018	11/27/2018	20140268	0	US	United States	In Force
CP-00321US	VEHICLE SECURITY SYSTEM SECURE START SYSTEM FOR RV	9/28/2016	15/726,322	9/28/2016	20173000280	3/30/2017	11/27/2018	20139928	0	US	United States	In Force

CP-003015S01	Autonomous Vehicle Operated with Guide Assistance of Human Driver	11/21/2016	157349793	5/13/2015	20370060229	3/2/2017	11723/2018	15126792	0	US	United States	In Force
CP-003034US	Control System for Autonomous Capable Vehicles	8/30/2016	151252152	8/30/2016	20270057580	3/2/2017	10456/2018	12099205	0	US	United States	In Force
CP-00373US-1	Secure Start System for an Autonomous Vehicle	3/28/2016	151074892	3/28/2016	20370269940	9/22/2017	1672/2018	11029816	0	US	United States	In Force
CP-00337US	Autonomous Vehicle with Independent Auxiliary Control Units	9/28/2016	151279155	9/28/2015	20270000476	3/30/2017	8/28/2018	12063213	0	US	United States	In Force
CP-002594US	Customerable Vehicle Security System	10/31/2017	1517791499	10/31/2016	20280118184	9/2/2018			0	US	United States	Pending
CP-00337US	Autonomous Vehicle with Independent Auxiliary Control Units	9/28/2016	1589252228	9/28/2015	20386939	8/8/2018			0	EP	European Patent Office	Pending
CP-00630US	Systems and Methods for Deploying Warning Devices from an Autonomous Vehicle	2/7/2018	151890383	1/15/2018					0	US	United States	Pending
CP-00339US	Autonomous Vehicle Operated with Safety Augmentation	9/24/2015	627232425	9/24/2015					1	US	United States	Lapsed
CP-00337WQ	Autonomous Vehicle with Independent Auxiliary Control Units	9/28/2016	161155018064230	9/28/2015	2037059961	4/6/2017			0	WO	WIPO PCT	Lapsed
CP-00337US	Autonomous Vehicle with Independent Auxiliary Control Units	9/28/2015	627233910	9/28/2015					1	US	United States	Lapsed
CP-00630US	Systems and Methods for Deploying a Warning Device from an Autonomous Vehicle	1/13/2018	628572009	1/13/2018					1	US	United States	Lapsed
CP-00311US	Machine Learning for Triaging Failures in Autonomous Vehicles	3/29/2017	151467504	3/29/2017	20280276912	9/27/2018			0	US	United States	Pending
CP-00376US-9	Individualized Risk Mapping for an Autonomous Vehicle	5/23/2017	151662318	5/23/2017	20280341887	11/29/2018			0	US	United States	Pending
CP-00376US-8	Autonomous Vehicle Detection Level Monitoring	5/23/2017	151662303	5/23/2017	20280341312	11/29/2018			0	US	United States	Pending
CP-00376US-7	Practical Risk Performance Evaluation for Autonomous Vehicles	5/23/2017	151662192	5/23/2017	20280341376	11/29/2018			0	US	United States	Pending

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CP-00340US 6	DETECTING DEVIATIONS IN SHIMMING BRAYNON FOR AUTONOMOUS VEHICLES	6/30/2017	15160385	7/1/2016	202800427	1/4/2018	0	US	United States	Pending
CP-00337US C1	AUTONOMOUS VEHICLES WITH INDEPENDENT ACTUATOR CONTROL UNITS Systems and Methods for Communication via Hybrid Road	7/26/2018	187031188	9/28/2015	20280321677	11/8/2018	0	US	United States	Pending
CP-00369US	[REDACTED]	7/29/2018	151882335	1/10/2018	[REDACTED]	[REDACTED]	0	US	United States	Pending

[REDACTED]

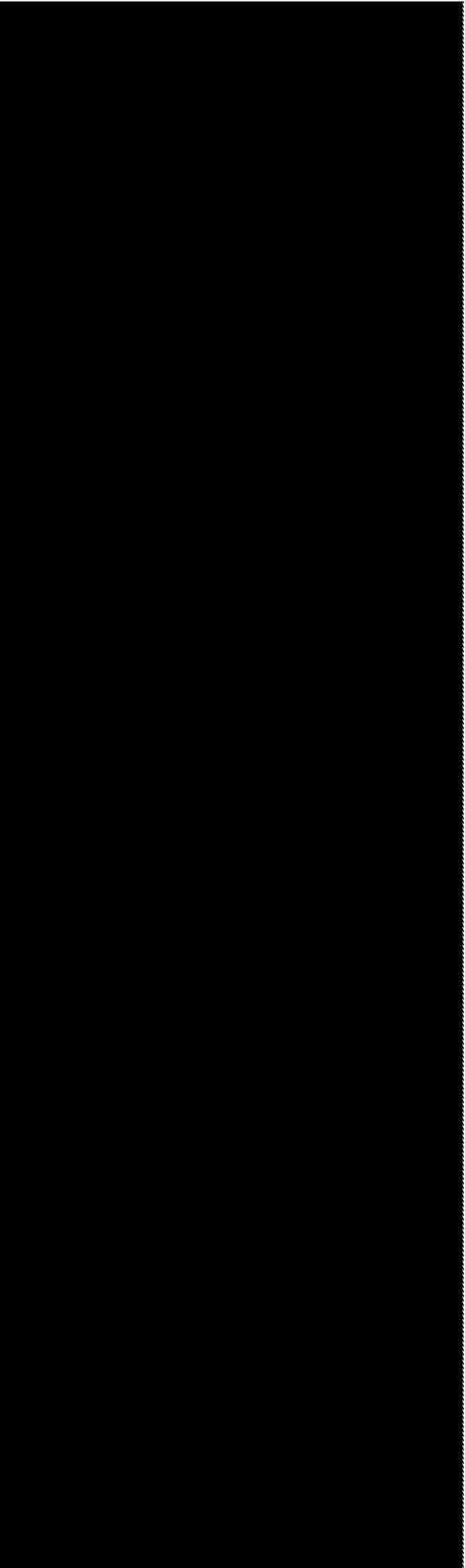
CP-00339US C1	AUTONOMOUS VEHICLE OPERATED WITH SAFETY AUGMENTATION AUTONOMOUS VEHICLE OPERATED WITH GUIDE ASSISTANCE OF HUMAN DRIVEN VEHICLES	10/19/2018	187455693	5/24/2015	2028006742	2/21/2019	0	US	United States	Pending
CP-00301US B1 C1	[REDACTED]	10/21/2018	187459283	5/19/2015	2028019846	2/14/2019	0	US	United States	Pending

[REDACTED]

CP-00323US C1	SECURE START SYSTEM FOR AN AUTONOMOUS VEHICLE	7/26/2018	187048835	3/18/2016	20280338040	11/22/2018	0	US	United States	Pending
CP-00388US P	Systems and Methods for Managing Devices of an Autonomous Vehicle	9/15/2017	152451506	9/15/2017	[REDACTED]	[REDACTED]	1	US	United States	Issued

[REDACTED]

CP-00391US P	Autonomous Vehicle Application Programming Interface and Communications Systems and Methods	1/29/2018	182623172	1/29/2018	[REDACTED]	[REDACTED]	1	US	United States	Issued
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US 10790962

Autonomous Vehicle Application Programming Interface And Communications Systems And Methods

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US 10790963

Autonomous Vehicle Application Programming Interface And Communications Systems And Methods

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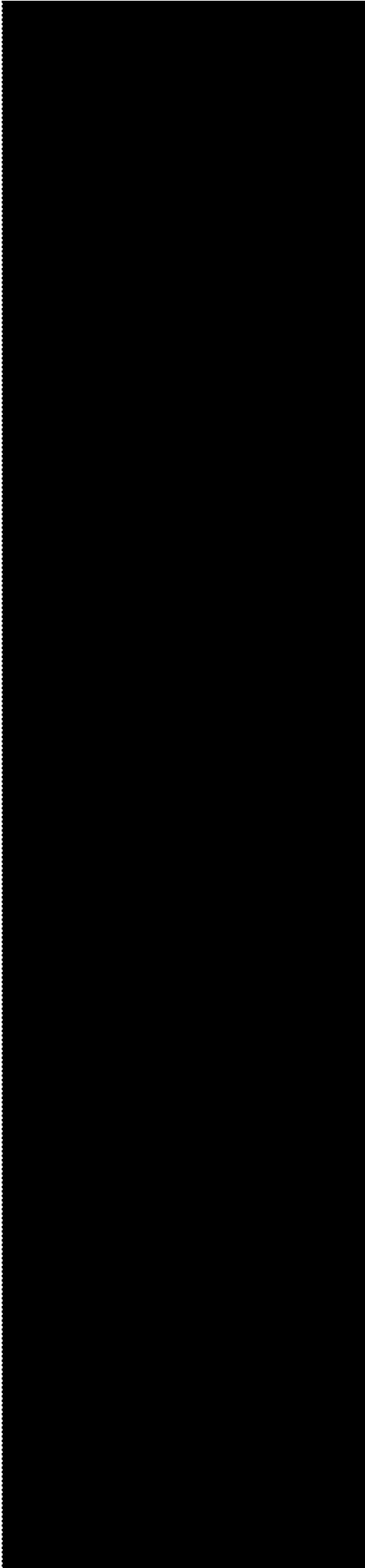
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US 10790960

Autonomous Vehicle Application Programming Interface And Communications Systems And Methods

1/29/2018 PCT/US2016/025465

1/29/2018

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WIPO (PCT)

Pending

CP-002536US	ACTIVE LIGHT SENSORS FOR DETERMINING EXPECTED TRAFFIC VALUE OF A ROAD SEGMENT	12/12/2016	157376592	12/10/2015	2037016895	6/15/2017	0	US	United States	Pending
CP-002713US	SENSOR CONFIGURATION FOR PROVIDING FIELD OF VIEW FOR AUTONOMOUSLY OPERATING SENSORS	6/27/2017	607525192	6/27/2017			1	US	United States	Approved
CP-004711US	FIELD OF VIEW CONFIGURATION OPTIONS	6/29/2017	627517836	6/29/2017			1	US	United States	Approved
CP-002884US	EXTENSIVE SENSOR ASSEMBLY FOR VEHICLES	5/31/2016	297563210	5/31/2016			0	US	United States	Pending
CP-002873US	EXTERNAL SENSOR ASSEMBLY FOR VEHICLES	4/22/2016	131266876	4/22/2016	2037030960	10/16/2017	0	US	United States	Pending
CP-003894US	DYNAMIC RANGE SETTINGS FOR VEHICLE RADARS	3/4/2016	821384131	3/4/2016			1	US	United States	Approved
CP-002854US	DYNAMIC RANGE SETTINGS FOR VEHICLE RADARS	3/4/2016	157451206	3/4/2016	20370254880	9/7/2017	0	US	United States	Pending
CP-008381US	Autonomous Vehicle Sensor Compensation By Monitoring Sensor	12/21/2017	157895364	11/30/2017			0	US	United States	Pending
CP-006361US	Autonomous Vehicle Sensor Compensation Using Displacement Sensor	11/30/2017	627592529	11/30/2017			1	US	United States	Lapsed
CP-006381US	Autonomous Vehicle Sensor Compensation By Monitoring Acceleration	11/30/2017	627592517	11/30/2017			1	US	United States	Lapsed
CP-006381US	Autonomous Vehicle Sensor Compensation By Monitoring Acceleration	12/27/2017	157895313	11/30/2017			0	US	United States	Pending
CP-003411US	FUNCTIONAL SENSOR ARRAY CONFIGURATION SYSTEM FOR AN AUTONOMOUS VEHICLE	12/30/2018	167286660	12/16/2015			0	US	United States	Pending
CP-002201WQ	DYNAMIC SENSOR SELECTION FOR SELF-DRIVING VEHICLES	3/22/2018	8071551018102385	3/23/2017	2038175808	9/17/2018	0	WO	WIPO [CT]	Pending
CP-004634US	Sensor Control System for Autonomous Vehicle	10/30/2017	157797365	9/26/2017			0	US	United States	Pending
CP-008965US	Passenger Experience and Biometric Monitoring In an Autonomous Vehicle	2/23/2018	157895382	1/23/2018			0	US	United States	Pending
CP-006014US	Simulated Sensor Testing	12/13/2017	627598125	12/13/2017			1	US	United States	Lapsed
CP-005774US	Autonomous Vehicle Simulation Testing Systems and Methods	10/12/2017	627577079	10/12/2017			1	US	United States	Lapsed
CP-004442US	Systems and Methods to Test an Autonomous Vehicle	6/21/2017	627548061	6/21/2017			1	US	United States	Lapsed
CP-004434US	Testing Environment for Autonomous Vehicles	8/29/2017	157689196	8/29/2017	203900436	2/28/2019	0	US	United States	Pending
CP-006414US	Systems and Methods for Using a Linear Actuator in Truck Testing	8/24/2017	627563514	8/24/2017			1	US	United States	Approved

CP-00354639	Deterministic Simulation Framework for Autonomous Vehicle Testing	11/29/2017	02/500,703	11/29/2017		1	US	United States	Issued
CP-00480439	Autonomous Vehicle Hybrid Simulation Testing	8/29/2017	02/549,613	8/29/2017		1	US	United States	Issued
CP-00696439	Monitoring In an Autonomous Vehicle Using Simultaneous Sensing and Deep Learning	1/23/2018	02/620,755	1/23/2018		1	US	United States	Issued
CP-00601439	Autonomous Vehicle Testing Systems and Methods	10/29/2017	02/576,844	10/29/2017		1	US	United States	Issued
CP-00682439	Simulated Sensor Testing Deterministic Simulation Framework for Autonomous Vehicle Testing	2/12/2018	15/093,729	12/13/2017		0	US	United States	Pending
CP-00355439	Autonomous Vehicle Testing Autonomous Vehicle Simulation Testing Systems and Methods	12/17/2017	15/094,696	11/29/2017		0	US	United States	Pending
CP-00577439	THEMATIC REDUCTION SYSTEM FOR AN AUTOMATED VEHICLE	12/14/2017	15/087,343	10/27/2017		0	US	United States	Pending
CP-00348439	Decreasing Vehicle Power Consumption	12/22/2017	15/155,017/049104	12/21/2015	104/391,403?	0	US	United States	In Force
CP-00247439	Power and Thermal Management Systems and Methods for Autonomous Vehicles	9/09/2017	02/575,895	9/09/2017		1	US	United States	Issued
CP-00243439	THEMATIC REDUCTION SYSTEM FOR AN AUTOMATED VEHICLE	12/19/2016	02/582,888	12/02/2015	03/050,588.3	0	JP	Japan	Pending
CP-00343439	THEMATIC REDUCTION SYSTEM FOR AN AUTOMATED VEHICLE	12/09/2016	104/080,777.0	12/21/2015	108136166	0	CN	China	Pending
CP-00343439	THEMATIC REDUCTION SYSTEM FOR AN AUTOMATED VEHICLE	12/09/2016	104/080,777.0	12/22/2015	108951.32	0	EP	European Patent Office	Pending
CP-00600439	Computing System of an Autonomous Vehicle	12/14/2017	02/593,454	12/14/2017		1	US	United States	Issued
CP-00370439	Systems and Methods for Cooling Vehicle Systems of an Autonomous Vehicle	10/09/2017	02/568,899	10/09/2017		1	US	United States	Issued
CP-00357439	Power and Thermal Management Systems and Methods for Autonomous Vehicles	10/27/2017	15/172,346	9/09/2017	104/900,060.2	0	US	United States	Pending
CP-00243439	THEMATIC REDUCTION SYSTEM FOR AN AUTOMATED VEHICLE	12/09/2016	104/050,160/61718	12/22/2015	03/118,648	0	WO	WIPO (PCT)	Pending
CP-00343439	THEMATIC REDUCTION SYSTEM FOR AN AUTOMATED VEHICLE	6/14/2017	15/103,329	12/22/2015	03/102,826.75	0	US	United States	Pending
CP-00247439	Decreasing an Autonomous Vehicle Power Consumption	12/28/2016	15/392,274	12/28/2016	204801,79.41	0	US	United States	Pending

CP-008204US	Modular Vehicle Computing System	2/9/2018	US/892,506	12/1/2017	0	US	United States	Pending	
CP-006004W3	Modular Vehicle Computing System Cooling Systems	11/18/2018	921,152014/16,1152	12/1/2017	0	WO	WIPO (PCT)	Pending	
CP-005204US	Systems and Methods for Cooling Vehicle Systems of an Autonomous Vehicle	11/6/2017	1,57894,386	10/6/2017	0	US	United States	Pending	
SYSTEM FOR SWITCHING CONTROL OF AN AUTONOMOUS VEHICLE									
CP-003464S 2	DRIVE BY-WIRE CONTROL SYSTEM	3/15/2016	15,070,195	3/15/2016	9648996	0	US	United States	In Force
CP-003464S 1	DRIVE BY-WIRE CONTROL SYSTEM	3/15/2016	15,070,194	3/15/2016	9580080	0	US	United States	In Force
CP-002444S	INTEGRATED CLUSTER STEERING SYSTEM Lamp ignition system and lamp ignition method	12/21/2015	14,979,187	12/21/2015	9481393	0	US	United States	In Force
CP-006304US	Vehicle Control System	9/13/2012	1,316,21678	7/16/2012	3044901,5434	0	US	United States	In Force
VEHICLE CONTROL SYSTEM									
CP-003874US	INTEGRATED CLUSTER STEERING SYSTEM Multi-Road Switching on a Collision Mitigation System	8/17/2016	15,235,056	12/21/2015	203,701,74259	0	US	United States	In Force
CP-002824W3	Vehicle Control System System for actively Respondering the Steering Angle of a Vehicle Using a Rough Sensor	2/19/2018	921,152018/16,18600	2/23/2017	303,81,56451	0	WO	WIPO (PCT)	Pending
CP-006744US	VEHICLE INTERFACE FOR AUTONOMOUS VEHICLE	10/18/2017	15,716,778	9/17/2017	3039007,1124	0	US	United States	Pending
CP-006594W3	VEHICLE	7/16/2018	921,152018/16,2127	8/23/2017		0	WO	WIPO (PCT)	Pending

CP-00324WD	CONTROL SYSTEM FOR AUTONOMOUS-DRIVABLE VEHICLES	8/31/2016	921,155,201.61/648736	8/31/2015	203,202,068.9	3/9/2017	0	WO	WO/0 (FC)	Lapsed
CP-00622LSP	Systems and Methods for Controlling Autonomous Vehicle	1/9/2018	627,625,206	2/9/2018			1	US	United States	Lapsed
CP-00660LSP	Systems and Methods for Controlling an Autonomous Vehicle with Multiple Control Lanes	9/14/2017	627,596,528	9/14/2017			1	US	United States	Lapsed
CP-00339LSP	Vehicle Interface for Autonomous Vehicle	8/23/2017	627,599,484	8/23/2017			1	US	United States	Lapsed
CP-00659US	Vehicle Interface for Autonomous Vehicle	9/28/2017	137,718,004	8/23/2017	203,900,642.5	2/8/2019	0	US	United States	Pending
CP-00378LUS	Diagnosing Diagnostic Input Devices in an Autonomous Vehicle	6/27/2017	151,684,067	6/27/2017	204,803,708.43	12/27/2018	0	US	United States	Pending
CP-00234USP	CONTROL SYSTEM FOR AUTONOMOUS-DRIVABLE VEHICLES	8/31/2015	627,222,577	8/31/2015			1	US	United States	Lapsed
CP-003324US-7	SYSTEM AND METHOD FOR DETERMINING TRAFFIC ON ABILITY OF VEHICLES IN OPERATIONAL DRIVE-WIRE CONTROL SYSTEM	12/22/2016	150,376,604	12/20/2015	204,751,888.20	6/13/2017	0	US	United States	Pending
CP-00348US-1C1	DRIVE-WIRE CONTROL SYSTEM	12/28/2017	157,468,659	3/15/2016	204,703,665.53	9/22/2017	0	US	United States	Pending
CP-00619LSP	Control Method for Autonomous Vehicles	7/14/2017	627,532,454	7/14/2017			1	US	United States	Lapsed
CP-00344WO	INTEGRATED CLUSTER-SERVICES SYSTEM	12/20/2016	921,155,201.61/648736	12/20/2015	204,711,876	6/28/2017	0	WO	WO/0 (FC)	Pending
CP-00613US	Control Method for Autonomous Vehicles	9/16/2017	137,607,368	7/14/2017	203,900,841.2	1/17/2019	0	US	United States	Pending
CP-00415LSP	Supervised Movement of Autonomous Vehicles	7/18/2017	627,532,476	7/18/2017			1	US	United States	Lapsed
CP-00612LSP	Systems and Methods for Controlling an Input Device of an Autonomous Vehicle	6/16/2017	627,520,639	6/16/2017			1	US	United States	Lapsed
CP-00612LUS	Systems and Methods for Controlling an Input Device of an Autonomous Vehicle	10/21/2017	137,780,177	6/16/2017	204,803,620.70	12/20/2018	0	US	United States	Pending
CP-00374LUSP	System for Actively Monitoring the Steering Angle of a Vehicle Using a Strain Sensor	9/7/2017	627,535,336	9/7/2017			1	US	United States	Lapsed
CP-00622LUS	Systems and Methods for Controlling an Autonomous Vehicle	5/25/2018	137,980,328	2/9/2018			0	US	United States	Pending
CP-00639LUSP	Location Based Vehicle Headlight Control	12/7/2017	627,595,906	12/7/2017			1	US	United States	Lapsed
CP-00686LUSP	Systems and Methods for Communication via Hydraulic Fluid	12/20/2018	627,615,740	1/10/2018			1	US	United States	Lapsed
CP-00679LUSP	Systems and Methods for Brake Redundancy for an Autonomous Vehicle	12/16/2017	627,595,193	12/16/2017			1	US	United States	Lapsed
CP-00282LUSL	Vehicle Control System	2/5/2019	167,267,468	2/29/2017			0	US	United States	Pending

[REDACTED]

1:0-008393XQ Location Based Vehicle Headlight Control 12/5/2018 9:17:15:0018:05:39:58 12/7/2017 0 WI WIPEC:PCCT Pending

[REDACTED]

CP:003941:51:2 Multi Road Switching on a Collision 8/27/2018 18:05:28:99 8/27/2017 20:30:03:90:29 2/7/2019 0 US United States Pending

[REDACTED]

CP-00660WQ	Fault Tolerant Control of an Autonomous Vehicle with Multiple Control Lanes	9/22/2018	PC/FJ/S2018/056542	9/14/2017	0	WO	WIPO (PCT)	Pending	
CP-003784E	Disabling Onboard/In-Vehicle Autonomous Vehicle	6/21/2018	EP/2017/38015-5	6/27/2017	393422116	0	EP	European Patent Office	Pending
CP-00622WQ	SYSTEMS AND METHODS FOR CONTROLLING AN AUTONOMOUS VEHICLE	1/9/2019	PC/FJ/S2019/023857	3/9/2018		0	WO	WIPO (PCT)	Pending
CP-00679159Z	Systems and Methods for Brake Redundancy for an Autonomous Vehicle	1/9/2018	527/13-4,545	3/8/2018		1	US	United States	Issued

CP-003346P	CONTROL SYSTEM FOR AUTONOMOUS-OPERABLE VEHICLES	8/31/2016	168429015-6	8/31/2015	3344507	0	EP	European Patent Office	Pending
CP-00234CN	CONTROL SYSTEM FOR AUTONOMOUS-OPERABLE VEHICLES	8/31/2016	203680249672-9	8/31/2015	107924181	0	CN	China	Pending
CP-002744E	INTEGRATED SURVEILLANCE SYSTEM	22/20/2016	16879994-5	12/22/2015	3393887	0	EP	European Patent Office	Pending

CP-006391J5	Location Based Vehicle Headlight Control Systems and Methods for Communication via Hydraulic Fluid	2/28/2018	151967-906	12/7/2017		0	US	United States	Pending
CP-00688WQ	Systems and Methods for Brake Redundancy for an Autonomous Vehicle	3/20/2019	PC/FJ/S2019/023020	1/10/2018		0	WO	WIPO (PCT)	Pending
CP-006791J5	Systems and Methods for Brake Redundancy for an Autonomous Vehicle	3/29/2018	151875-000	12/6/2017		0	US	United States	Pending
CP-00260JUS	Fault Tolerant Control of an Autonomous Vehicle with Multiple Control Lanes	9/22/2018	187226-533	9/14/2017	2039079513	0	US	United States	Pending