

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT7633749

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:	17515932
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
Address Line 4:	GREENVILLE, SOUTH CAROLINA 29602
ATTORNEY DOCKET NUMBER:	AURAT-149-3-CON
NAME OF SUBMITTER:	JENNIFER L. ULSH
SIGNATURE:	/Jennifer L. Ulsh/
DATE SIGNED:	11/08/2022
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, Rennpferd, LLC, a Delaware limited liability company and the sole Auto Horizon equity holder ("*Rennpferd*") 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 "*AH Patents*") owned by Auto Horizon to Rennpferd, and then Rennpferd immediately distributed, transferred and assigned all right, title and interest in and to the AH Patents to Uber (the "*AH Transfer*");

WHEREAS, prior to the Effective Date but following the completion of the AH 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 AH Patents and (ii) the patents and patent applications listed on the attached Exhibit B (the "*UTI Patents*"), and, together with the AH 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 AH 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.

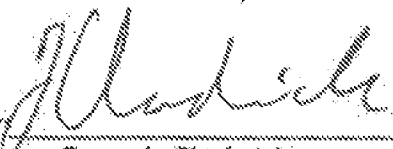
Each of the Registered Patent Holders agree that if requested by UATC, without charge to either of them but at the cost and expense of UATC, each of the Registered Patent Holders will perform any reasonable action which may be necessary to secure and to vest in UATC the full and entire right, title and 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: _____

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

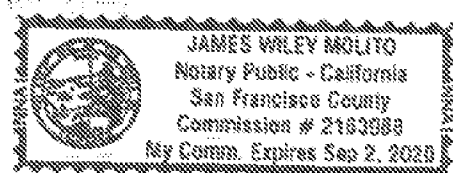
personally appeared Francis Chaudhry
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s)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

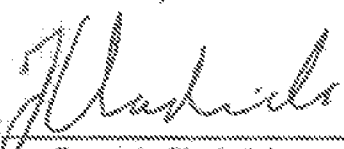
Signature [Signature]

(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
not
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: _____

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

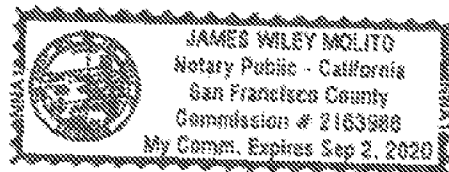
personally appeared Francis Chadwick
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) are subscribed to the within instrument and acknowledged to me that ~~he/she~~ they executed the same in ~~his/her~~ their authorized capacity(ies), and that by ~~his/her~~ their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

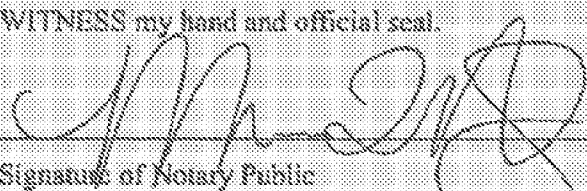
By: 

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.

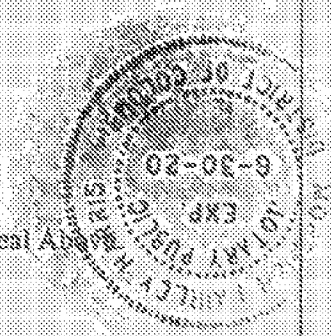
WITNESS my hand and official seal.


Signature of Notary Public

MORGAN FAIRLEY HARRIS
NOTARY PUBLIC DISTRICT OF COLUMBIA
My Commission Expires: June 26, 2021

Place Notary Seal Above

My Commission Expires:



Signature Page to Patent Assignment

Exhibit B

UTI Patents

PATENT

REEL: 061898 FRAME: 0144

IP Right ID	IP Right 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-0034735-3	FORMATTING SENSOR DATA FOR USE IN AUTONOMOUS VEHICLE COMMUNICATIONS PLATFORM SYSTEM FOR PROCESSING ASYNCHRONOUS SENSOR DATA	12/13/2015	14/867,205		12/13/2015	201501086994	6/15/2017	10/30/2017	9789330	0	US	United States	In Force
CP-0034735-2	SYSTEM FOR ACQUIRING TIME-SYNCHRONIZED SENSOR DATA	12/13/2015	14/967,128		12/13/2015	9596666	3/14/2017	3/14/2017	9596666	0	US	United States	In Force
CP-0034735-1	AUTONOMOUS VEHICLE DIAGNOSTIC SYSTEM AND METHOD OF SENSOR TRIGGERING FOR SYNCHRONIZED OPERATION	12/13/2015	14/967,124		12/13/2015	9587956	1/31/2017	1/31/2017	9587956	0	US	United States	In Force
CP-00339145	FORMATTING SENSOR DATA FOR USE IN AUTONOMOUS VEHICLE COMMUNICATIONS PLATFORM FOR MATING SENSOR DATA FOR USE IN AUTONOMOUS VEHICLE	8/26/2016	15/248,093		8/26/2016	20160000704	2/22/2018	11/27/2018	22137903	0	US	United States	In Force
CP-0036845	FORMATTING SENSOR DATA FOR USE IN AUTONOMOUS VEHICLE	3/12/2017	15/464,767		3/12/2016	20170209961	9/22/2017	10/30/2018	22114303	0	US	United States	In Force
CP-0034735-3CP	COMMUNICATIONS PLATFORM FOR MATING SENSOR DATA FOR USE IN AUTONOMOUS VEHICLE	10/9/2017	15/726,050		12/11/2015	201810088584	3/29/2018	10/26/2018	22102747	0	US	United States	In Force
CP-0034735-3CP2CL	COMMUNICATIONS PLATFORM SYSTEMS AND METHODS TO OBTAIN FEEDBACK IN RESPONSE TO AUTONOMOUS VEHICLE FAILURE EVENTS	8/21/2018	16/136,336		12/13/2015	201800000530	1/3/2019			0	US	United States	Pending
CP-00411160	SYSTEM AND METHOD OF SENSOR TRIGGERING FOR SYNCHRONIZED OPERATION	6/15/2018	16/132,018/037757		6/16/2017					0	WO	World (PCT)	Pending
CP-0036845P	Autonomy Modeling Systems and Methods for a Vehicle	3/22/2016	62/791,267		3/22/2016					1	US	United States	Lapsed
CP-00324459	Systems and Methods to Obtain Feedback in Response to Autonomous Vehicle Failure Events	4/20/2017	62/487,735		4/20/2017					1	US	United States	Lapsed
CP-00411165	Systems and Methods for a Vehicle Application Programming Interface	6/26/2017	15/605,235		6/16/2017	201801305913	12/10/2018			0	US	United States	Pending
CP-0036845P	Systems and Methods for a Vehicle Application Programming Interface	10/11/2017	62/570,955		10/11/2017					1	US	United States	Lapsed
CP-0036845W	Application Programming Interface Systems and Methods for a Vehicle	10/10/2018	16/132,018/025127		10/13/2017					0	WO	World (PCT)	Pending
CP-0036845	Application Programming Interface SYSTEM AND METHOD OF SENSOR TRIGGERING FOR SYNCHRONIZED OPERATION	2/24/2018	15/896,216		10/11/2017					0	US	United States	Pending
CP-0036845CL	OPERATION	7/5/2018	16/027,706		3/22/2016	201801305928	11/21/2018			0	US	United States	Pending
CP-0035905	VEHICLE SENSOR CALIBRATION SYSTEM Calibration of orthogonal sensor suite	5/27/2016	15/106,538		5/27/2016	201701949654	11/30/2017	4/24/2018	9963317	0	US	United States	In Force
CP-0061315	Autonomous Vehicle Sensor Calibration System	4/2/2001	09/824,543		3/13/2001	20020100310	8/7/2002	5/14/2004	6729376	0	US	United States	In Force
CP-0029915CL	VEHICLE SENSOR CALIBRATION SYSTEM	12/24/2017	15/812,572		5/27/2016	20180067298	3/16/2018			0	US	United States	Pending
CP-0021305	CALIBRATION FOR AN AUTONOMOUS VEHICLE HEAD MODULE	3/13/2017	15/475,914		3/13/2017	201802084043	10/16/2018			0	US	United States	Pending
CP-00305152	CALIBRATION FOR AN AUTONOMOUS VEHICLE STEER MODULE	8/17/2017	15/679,388		8/17/2017	20180056484	2/22/2019			0	US	United States	Pending
CP-00405151	VEHICLE STEER MODULE	8/17/2017	15/679,319		8/17/2017	20190056483	2/22/2019			0	US	United States	Pending

CP-006721US
INTERMEDIATE MOUNTING COMPONENT
AND SENSOR SYSTEM FOR A MANIPULATED
BAR OF A CARGO TRAILER

1/30/2018 18/083,869

1/30/2018

0

US

United States

Pending

CP-00564US1
GPS/IMU Positioning, Communication,
and Computation Platforms for
Automotive Safety Applications

12/6/2013 14/059,271

7/15/2010 20140100713

4/10/2014 8/4/2015 9039003

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US

United States

In Force

CP-00564US
GPS/IMU/Vehicle/Router Absolute/Relative
Positioning Communication/Computation
Sensor Platform for Automotive Safety
Applications

7/15/2011 13/125,862

7/15/2010 20120390446

11/15/2012 4/28/2014 8153946

0

US

United States

In Force

CP-00580US
MicroWave Vehicle-to-Vehicle Warning
System

12/29/2003 10/746,692

1/8/2003 10060145694

7/29/2004 9/5/2006 7107536

0

US

United States

In Force

CP-00708US
Telecommunications Network for Vehicles

1/30/2018 15/788,715

1/12/2018

0

US

United States

Pending

CP-00390US
Cellular Device Location Discovery Systems
and Methods for Autonomous Vehicles

10/10/2017 15/728,311

9/27/2017

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US

United States

Pending

CP-00580USP
Microwave Alerting System for Vehicles
GPS/IMU/Vehicle/Router Absolute/Relative
Positioning Communication Sensor
Platform for Automotive Safety
Applications

4/8/2003 09/438,546

4/8/2003

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US

United States

Lapsed

CP-00364USP
Telecommunications Network for
Autonomous Vehicles

7/15/2010 62/389,613

7/15/2010

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United States

Lapsed

CP-00708USP
Cellular Device Location Discovery Systems
and Methods for Autonomous Vehicles

9/27/2017 62/563,697

9/27/2017

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United States

Lapsed

UP-00170U5-2	UTILIZING ACCESSORIE FOR A USER TO CONFIGURE AN AUTONOMOUS VEHICLE	4/12/2016 15:08:3408	4/12/2016 20170284619	10/5/2017 6/5/2018 9989645	0	US	United States	In Force
UP-0030AU5C3	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	6/21/2017 15:00:372	5/11/2015 20170284448	10/6/2017 5/6/2018 9963996	0	US	United States	In Force
UP-00122U5	CONTROLLING AUTONOMOUS VEHICLES IN CONNECTION WITH TRANSPORT SERVICES VIA SOCIAL MEDIA BY EXCHANGING MSG. FOR A VEHICLE	11/24/2016 15:38:023	11/20/2015 201701147959	5/25/2017 4/24/2018 9953293	0	US	United States	In Force
UP-00303U5-2	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	8/5/2016 15:23:053	8/9/2016 20180010243	2/6/2018 3/20/2018 9912466	0	US	United States	In Force
UP-0010645C2	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	6/24/2017 15:46:357	5/11/2015 20170284447	10/5/2017 3/6/2018 9900349	0	US	United States	In Force
UP-00171U5CIP1	SPONSORING SIMULATION FOR AN AUTONOMOUS VEHICLE	6/17/2016 15:18:679	3/3/2016 20170283252	9/7/2017 7/27/2018 9901403	0	US	United States	In Force
UP-0010845C1	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	3/3/2017 15:44:9110	5/11/2015 20170115431	6/27/2017 10/17/2017 9790729	0	US	United States	In Force
UP-00171U5	SPONSORING SIMULATION SYSTEM FOR AN AUTONOMOUS VEHICLE	3/3/2016 15:05:3493	3/3/2016 20170283254	9/7/2017 10/27/2017 9789980	0	US	United States	In Force
UP-0010845	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	5/11/2015 14:748611	5/11/2015 2018032535	11/17/2016 4/11/2017 9616773	0	US	United States	In Force
UP-00164U5	TRANSPORTING VEHICLES CONNECTED TO A FOR IMPAIRED ROADS	4/27/2016 15:12:9612	4/27/2016 20170316596	11/2/2017 4/9/2019 10255816	0	US	United States	Pending
UP-00170U5-3C2	CONTROLLING AN AUTONOMOUS VEHICLE FOR AN IMPROVED RIDER	3/9/2018 15:09:1485	4/12/2016 20180196433	7/12/2018 11/23/2018 12016709	0	US	United States	In Force
UP-00171U5C2	SENSORY SIMULATION SYSTEM FOR AN AUTONOMOUS VEHICLE	7/11/2017 15:05:1878	3/3/2016 20170313326	11/2/2017 10/30/2018 120112623	0	US	United States	In Force
UP-00170U5-1	TRANSPORTING A SERVICE VEHICLE FOR A CONNECTION WITH A SERVICE VEHICLE FOR A USER	4/12/2016 15:00:402	4/12/2016 20170282821	10/5/2017 10/29/2018 12009252	0	US	United States	In Force

US-0039265-1	VIRTUAL REALITY EXPERIENCE FOR A VEHICLE	8/5/2016	US/2016/0923	8/5/2016	2016004062	2/6/2018	6/7/2018	201803316	0	US	United States	In Force
US-0037005-3	OPTIMIZING RESPONSE FOR CONFIGURING AN AUTONOMOUS VEHICLE	4/14/2016	US/2016/0456	4/14/2016	20160285642	10/5/2017	7/3/2018	201803990	0	US	United States	In Force
US-0032390	SYSTEM FOR SAFE PASSING/REPARTURE FROM AUTONOMOUS VEHICLE	3/27/2018	US/2018/02489	3/31/2017	2018183267	10/4/2018			0	WO	WIPO (PCT)	Pending
US-0040390	SYSTEMS AND METHODS TO OBTAIN PASSINGER FEEDBACK IN RESPONSE TO AUTONOMOUS VEHICLE DRIVING EVENTS	6/25/2018	US/2018/037750	6/16/2017					0	WO	WIPO (PCT)	Pending
US-0072005	Autonomous Vehicle Interface System WITH MULTIMEDIA INTERFACE Devices FOR Redundant Vehicle Communications	2/21/2018	US/2018/0474	2/12/2018					0	US	United States	Pending
US-0048290	Systems and Methods for Communicating Intent of an Autonomous Vehicle	8/26/2018	US/2018/047044	8/28/2017					0	WO	WIPO (PCT)	Pending
US-0030809	DETECTING OBJECTS WITHIN A VEHICLE IN COMMUNICATION WITH A SERVICE State Based Autonomous-Vehicle Operations	5/11/2016	US/2016/040536.2	5/11/2015	107873098	4/3/2018			0	CN	China	Pending
US-0072190	SYSTEM AND METHODS TO ENABLE USER CONTROL OF AN AUTONOMOUS VEHICLE Systems and Methods for Determining when to Release Control of an Autonomous Vehicle	6/6/2018	US/2018/036246	6/7/2017					0	WO	WIPO (PCT)	Pending
US-0046990	Autonomous Vehicle FUNCTIONALITY FOR A SELF-DRIVING VEHICLE	8/27/2018	US/2018/048098	8/31/2017					0	WO	WIPO (PCT)	Pending
US-0036390	COORDINATING OR DEMANDING TRANSPORT REQUESTOR LOCALIZATION TRANSPORT FACILITY/LOCATION SYSTEM FOR CONVEYING A SERVICE VEHICLE FOR A USER	9/28/2017	US/2017/02564151	9/28/2017					0	US	United States	Issued
US-0037005-1	Systems and Methods for Changing Autonomous Vehicle Operations Based on User Profiles	6/15/2018	US/2018/03558	4/12/2018	20180200610	10/11/2018			0	US	United States	Pending
US-0039265	Autonomous Vehicle Operations Based on User Profiles	6/20/2017	US/2017/02512107	6/20/2017					1	US	United States	Issued

TRANSPORT FACILITATION SYSTEM FOR CONNECTING A SERVICE VEHICLE FOR A USER									
US-00370W0	Systems and Methods for Presenting Virtual Content in a Vehicle System for Safe Passenger Departure from Autonomous Vehicle	3/23/2017	HC/US2017/023411	4/14/2016	2017172415	10/5/2017	0	WO	WIPO (PCT)
US-00603US	System for Safe Passenger Departure from Autonomous Vehicle	11/30/2017	US/2017 9552	10/31/2017			0	US	United States
US-00220US	Autonomous Vehicle	3/31/2017	US/2017 15/475,882	3/31/2017	20180284793	10/4/2018	0	US	United States
US-00463USP	FACILITATING RIDER PICK-UP FOR A SELF-DRIVING VEHICLE	5/27/2016	62/342,797	5/27/2016			1	US	United States
US-00320USP	Autonomous Vehicle System for Blending Sensor Data	3/31/2017	82/479,639	3/31/2017			1	US	United States
US-00320US	Autonomous Vehicle System for Blending Sensor Data	6/5/2017	US/2017 15/643,636	3/31/2017	20180284779	10/4/2018	0	US	United States
US-00223US	PERSONALIZING RIDE EXPERIENCE BASED ON CONTEXTUAL RIDE USAGE DATA	11/13/2016	US/2016 15/349,648	11/13/2016	20180197953	5/17/2018	0	US	United States
US-00383USP	Smartness Vehicle Entry	12/14/2017	82/533,432	12/14/2017			1	US	United States
US-00222W0	CONROLLING AUTONOMOUS VEHICLES IN CONNECTION WITH TRANSPORT SERVICES	11/21/2016	PC/US2016/063103	11/20/2015	2017187984	5/16/2017	0	WO	WIPO (PCT)
US-00222USP	CONROLLING AUTONOMOUS VEHICLES IN CONNECTION WITH TRANSPORT SERVICES	11/20/2015	62/758,066	11/20/2015			1	US	United States
US-00423US	Systems and Methods for Providing User Access to an Autonomous Vehicle	7/27/2017	US/2017 15/661,608	7/27/2017	20180031344	1/31/2019	0	US	United States
US-00556USP	Systems and Methods for Signaling Intentions to Riders	10/18/2017	62/573,762	10/18/2017			1	US	United States
US-00423USP	Systems and Methods for Controlling Autonomous Vehicles that Provide a Vehicle Service to Users	5/24/2017	62/580,535	5/24/2017			1	US	United States
US-00423US2	Systems and Methods for Controlling Autonomous Vehicles that Provide a Vehicle Service to Users	7/28/2017	US/2017 15/662,337	5/24/2017	201801342157	11/29/2018	0	US	United States
US-00200US	VEHICLE WORK COORDINATION	11/14/2016	US/2016 15/351,209	11/14/2016	201801342157	5/17/2018	0	US	United States
US-00498USP	Systems and Methods for Determining Whether an Autonomous Vehicle Can Provide a Requested Service for a Rider	9/28/2017	62/564,336	9/28/2017			1	US	United States
US-00497USP	Systems and Methods for Determining Whether to Release Control of an Autonomous Vehicle	8/31/2017	62/552,558	8/31/2017			1	US	United States
US-00497US	Systems and Methods for Determining Whether to Release Control of an Autonomous Vehicle	10/14/2017	US/2017 15/724,728	8/31/2017	20180064836	2/28/2019	0	US	United States
US-00423US1	Autonomous Vehicles that Provide a Vehicle Service to Users	7/28/2017	US/2017 15/662,334	5/24/2017	201801342174	11/29/2018	0	US	United States
US-00373US	PERSONALIZED CONTENT CREATION FOR AUTONOMOUS VEHICLES	3/30/2017	US/2017 15/454,941	3/29/2017	20180284958	9/13/2018	0	US	United States
US-00374US	TRANSPORTATION WITH AUTONOMOUS VEHICLES	5/25/2017	US/2017 15/645,060	5/25/2017	20180342335	11/29/2018	0	US	United States

US-00417499	Vehicle Door Strike Prevention for Autonomous Vehicle;	7/12/2017	62/531,508	7/12/2017		1	US	United States	Lapsed
US-00487025	Systems and Methods for Communicating Intent of an Autonomous Vehicle	9/11/2017	15/720,211	8/28/2017	705,908-8624	0	US	United States	Pending
US-00435125	Supervised Movement of Autonomous Vehicle	11/14/2017	15/090,944	7/14/2017	703,901-9413	0	US	United States	Pending
US-00389405	RIDER VEHICLE PLATFORM	4/8/2016	15/094,898	4/8/2016	703,702-9,230	0	US	United States	Pending
US-00208760	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	5/11/2016	PC7/US2016/031929	5/11/2016	203,618-2241	0	WO	WIPO (PCT)	Lapsed
US-00300045	Systems and Methods for (Dynamic) Passenger Feedback in Response to Autonomous Vehicle Driving Events	6/16/2017	15/625,145	6/16/2017	203,803-65740	0	US	United States	Pending
US-00396105	System and Methods to Enable User Control of an Autonomous Vehicle	6/7/2017	15/033,870	6/7/2017	703,803-66817	0	US	United States	Pending
US-003641501	TRANSFORMER VEHICLE CONFIGURATION FOR MAP-LESS ROADS	2/29/2019	16/250,663	4/21/2016		0	US	United States	Pending
US-00482036	Systems and Methods for Communicating Intent of an Autonomous Vehicle	8/28/2017	62/550,796	8/28/2017		1	US	United States	Lapsed
US-00721105	Stable, Based Autonomous-Vehicle Operations	3/19/2018	15/094,865	2/14/2018		0	US	United States	Pending
US-00583405	Seamless Vehicle Entry	1/23/2018	15/877,689	12/1/2017		0	US	United States	Pending
US-0057110502	SPARSITY SIMULATION SYSTEM FOR AN AUTONOMOUS VEHICLE	8/1/2018	16/051,910	3/3/2016	203,803-9715	0	US	United States	Pending
US-00613760	Systems and Methods for Presenting Virtual Content in a Vehicle	10/30/2018	PC7/US2018/058163	10/31/2017		0	WO	WIPO (PCT)	Pending
US-00559400	Systems and Methods for Signaling Intentions to Others	10/16/2018	PC7/US2018/056028	10/18/2017		0	WO	WIPO (PCT)	Pending
US-002080504	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	4/14/2018	15/594,365	5/11/2016	203,803-23584	0	US	United States	Pending

TRANSPORT FACILITATION SYSTEM FOR CONNECTING A SERVICE VEHICLE FOR A USER										
CP-003701CN	3/23/2017	102.78022139.8	4/2/2016	10280746.2	12/21/2018	0	CN	China	Pending	
Systems and Methods for Presenting Virtual Content in a Vehicle Systems and Methods for Signaling Intentions to Riders										
CP-006033JP	10/31/2017	82.0579.505	10/31/2017			1	US	United States	Issued	
CP-005564US	11/6/2017	15.7894.428	10/18/2017			0	US	United States	Pending	
CONNECTING AUTONOMOUS VEHICLES TO COMMUNICATION WITH TRANSPORT SERVICES										
CP-003222EP	11/21/2016	16867353.8	11/20/2015	3378032	9/28/2018	0	EP	European Patent Office	Pending	
DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE										
CP-002081JP	5/21/2016	18793475.2	5/12/2015	3229421	3/23/2018	0	JP	European Patent Office	Pending	
VEHICLE MANAGEMENT SYSTEM										
CP-002501US-1C2	10/11/2017	157730.134	12/12/2016	10280165814	6/14/2018	3/5/2019	13223847	US	United States	In Force
CP-001319US	3/31/2017	157475.755	3/31/2017	202803284807	10/4/2018	10/9/2018	20095239	US	United States	In Force
CP-002490US-1	10/16/2017	137784.594	12/14/2016	20280164815	6/24/2018	7/27/2018	20205310	US	United States	In Force
CP-002463WO	1/4/2018	PC/US2018/021233	1/13/2017	1028132233	9/20/2018			WO	WIPO (PCT)	Pending
CP-007100JP	1/29/2018	624523.155	1/29/2018			1	US	United States	Issued	
CP-007101US	1/31/2018	157894.852	1/29/2018			0	US	United States	Pending	
CP-006211US	3/27/2018	137933.489	1/24/2018			0	US	United States	Pending	
CP-006401US	1/29/2018	157892.372	1/17/2018			0	US	United States	Pending	

US-008714US	Task Management Platform for Autonomous Vehicle Systems and Methods for Implementing Vehicle Assignments using Vehicle State Information	2/28/2018	15/09/2023	1/19/2018		0	US	United States	Pending
US-008700US	Systems and Methods for Remote Inspection of a Vehicle	2/16/2018	15/09/2020	1/17/2018		0	US	United States	Pending
US-008713US	Systems and Methods for Providing a Vehicle Service via a Transportation Network for Autonomous Vehicles	2/16/2017	15/09/2018	1/16/2017		1	US	United States	Lapsed
US-008700US	Self Driving Delivery of Deliverably-Driven Vehicles	5/16/2017	15/09/2016	5/16/2017	20180335783	0	US	United States	Pending
US-003761US	FLIGHT UTILIZATION EFFICIENCY FOR ON-DEMAND TRANSPORTATION SERVICES	5/23/2017	15/06/2018	5/23/2017	20180343895	0	US	United States	Pending
US-004211US	Systems and Methods for Deploying an Autonomous Vehicle to Complete Autonomous Navigation	7/17/2017	15/05/2016	7/17/2017	20190104116	0	US	United States	Pending
US-003761US-6	POST TRIP OPTIMIZATION FOR AUTONOMOUS VEHICLES	5/23/2017	15/06/2017	5/23/2017	20180343841	0	US	United States	Pending
US-003501US-2	Vehicle Management System	12/14/2016	15/03/2017	12/14/2016	20180155835	0	US	United States	Pending
US-002501US-1	Vehicle Management System	10/11/2017	15/03/2011	12/14/2016	20180166413	0	US	United States	Pending
US-002481US	Vehicle Control Device	12/14/2016	15/03/2015	12/14/2016	20180164798	0	US	United States	Pending
US-003761US	Charge Control System for Mobile Energy Storage Fleet	4/13/2017	15/04/2016	4/13/2017	20180201248	0	US	United States	Pending
US-004001US	Methods, Devices, and Systems for Communicating Autonomous Vehicle Status	4/12/2018	15/04/2017	4/12/2018		1	US	United States	Lapsed
US-006711US	Systems and Methods for Task Management Platform	4/15/2018	15/06/2017	4/15/2018		1	US	United States	Lapsed
US-006701US	Systems and Methods for Implementing Vehicle Assignments using Vehicle State Information	1/13/2018	15/06/2016	1/13/2018		1	US	United States	Lapsed
US-006701US	SYSTEMS AND METHODS FOR PROVIDING A VEHICLE SERVICE VIA A TRANSPORTATION NETWORK FOR AUTONOMOUS VEHICLES	11/09/2018	15/05/2014	11/10/2017		0	WO	WIPO (PCT)	Pending
US-002511US	Vehicle Management System	12/12/2017	15/05/2017	12/14/2016	2018111877	0	WO	WIPO (PCT)	Pending
US-006711US	Dispatching a Third Party Autonomous Vehicle	10/20/2017	15/05/2016	10/20/2017		1	US	United States	Lapsed
US-003711US	Systems and Methods for On Site Recovery of Autonomous Vehicles	1/28/2019	15/05/2019	1/29/2018		0	WO	WIPO (PCT)	Pending
US-001311US-1	Autonomous Vehicle Penetration System	9/15/2018	15/05/2017	3/14/2017	20190403880	0	US	United States	Pending
US-002491US-2	Vehicle Servicing System	7/16/2018	15/05/2015	12/14/2016	20180314256	0	US	United States	Pending
US-002491US	Vehicle Servicing System	12/12/2017	15/05/2017	12/14/2016	2018111874	0	WO	WIPO (PCT)	Pending
US-006701US	Systems and Methods for Implementing Vehicle Assignments using Vehicle State Information	1/17/2019	15/05/2019	1/17/2018		0	WO	WIPO (PCT)	Pending
US-006701US	Vehicle Service Via a Transportation Network for Autonomous Vehicles	12/12/2017	15/05/2018	11/10/2017		0	US	United States	Pending

CP-003-40US-1	VEHICLE REACTION MAP FOR AUTONOMOUS VEHICLES	12/17/2016 1887074.8	12/10/2016 3386528	10/17/2018	0	US	European Patent Office	Pending
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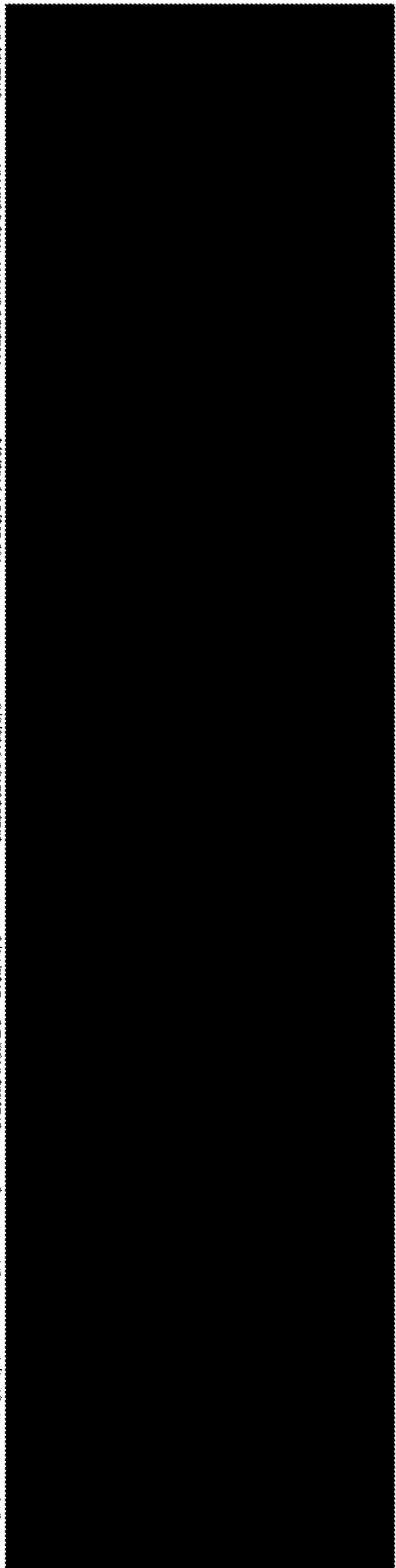
CP-003-40US-1	AUTONOMOUS VEHICLE CONTROL USING SUBMAPS	6/30/2017 157540289	7/14/2016 203800425	1/4/2018	0	US	United States	Pending
CP-003-40US-2P	SUBMAP SYSTEM FOR USE IN AUTONOMOUSLY OPERATING VEHICLES	10/24/2016 507442044	10/24/2016		1	US	United States	Issued
CP-003-40US-1P	SUBMAP SYSTEM FOR USE IN AUTONOMOUSLY OPERATING VEHICLES	7/14/2016 82357903	7/14/2016		1	US	United States	Issued
CP-003-53WQ	VEHICLE REACTION MAP FOR AUTONOMOUS VEHICLES	12/17/2016 907155016/066235	12/10/2015 2037100707	6/15/2017	0	WO	WIPO (PCT)	Pending
CP-003-53US-2	VEHICLE REACTION MAP FOR AUTONOMOUS VEHICLES	12/17/2016 157165714	12/10/2015 20370167881	6/15/2017	0	US	United States	Pending
CP-003-40-1WO	AUTONOMOUS VEHICLE CONTROL USING SUBMAPS	7/17/2017 907155017/066232	7/17/2016 2038004092	1/4/2018	0	WO	WIPO (PCT)	Pending
CP-003-40US-2	SYSTEM AND METHOD FOR MANAGING SUBMAPS FOR CONTROLLING AUTONOMOUS VEHICLES	6/30/2017 157640796	7/17/2016 2038004236	1/4/2018	0	US	United States	Pending

	SYSTEMS AND METHODS FOR DETERMINING WHETHER AN AUTONOMOUS VEHICLE CAN PROVIDE A REQUESTED SERVICE FOR A RIDER	9/23/2018	PC11US018/050879	9/28/2017		0	WO	WIPO (PCT)	Pending	
UP-00498W0	SYSTEMS AND METHODS FOR MATCHING AN AUTONOMOUS VEHICLE TO A RIDER	9/23/2018	PC11US018/050883	9/28/2017		0	WO	WIPO (PCT)	Pending	
UP-00376US-5	SOFTWARE VERSION VERIFICATION FOR AUTONOMOUS VEHICLES	5/23/2017	US602,244	5/23/2017	20180341571	11/29/2018	0	US	United States	Pending
UP-00376US-4	SOFTWARE VERSION AND MODEL SWITCHING FOR AUTONOMOUS VEHICLES	5/23/2017	US602,254	5/23/2017	20180339712	11/29/2018	0	US	United States	Pending
UP-00376US-3	VEHICLE SELECTION FOR ON-DEMAND TRANSPORTATION SERVICES	5/23/2017	US602,223	5/23/2017	20180341880	11/29/2018	0	US	United States	Pending
UP-00499USP	Systems and methods for matching an Autonomous vehicle to a rider	9/28/2017	US794,331	9/28/2017			1	US	United States	Issued
UP-00376US-2	TRIP CLASSIFICATION SYSTEM FOR ON-DEMAND TRANSPORTATION SERVICES	5/23/2017	US602,204	5/23/2017	20180342039	11/29/2018	0	US	United States	Pending
UP-00376US-1	PATH SEGMENT RISK REGULATION SYSTEM FOR ON-DEMAND TRANSPORTATION SERVICES	5/23/2017	US602,197	5/23/2017	20180341261	11/29/2018	0	US	United States	Pending
UP-00378W0	PATH SEGMENT RISK REGULATION SYSTEM FOR ON-DEMAND TRANSPORTATION SERVICES	5/17/2018	PC11US018/053092	5/23/2017	201803417516	11/29/2018	0	WO	WIPO (PCT)	Pending
UP-00498US	Systems and methods for determining whether an Autonomous vehicle can provide a requested service for a rider	10/23/2017	US792,964	9/28/2017			0	US	United States	Pending
UP-00499US	Systems and methods for matching an Autonomous vehicle to a rider	10/31/2017	US799,323	9/28/2017			0	US	United States	Pending

US-002861US	Adaptive Vehicle Motion 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
US-003584US	AUTONOMOUS VEHICLE PERFORMANCE OPTIMIZATION SYSTEM	7/5/2016	15/292,432	7/5/2016	989AUS0	2/6/2018	2/6/2018	989AUS0	0	US	United States	In Force
US-006271US	TWO-LEVEL GROUPING OF PRINCIPALS FOR A COLLISION WARNING SYSTEM	6/11/2007	13/818,177	6/11/2007	703801A1821	12/18/2008	1/8/2013	9350373	0	US	United States	In Force
US-008273P	TWO-LEVEL GROUPING OF PRINCIPALS FOR A COLLISION WARNING SYSTEM	5/12/2008	10028-110581	6/12/2007	20083118076	12/22/2008	2/4/2015	5602634	0	JP	Japan	In Force
US-003141USCIP	Automatic Tuning of Autonomous Vehicle Cost Functions Based on Human Driving Data	9/11/2017	15/750,863	2/6/2017	70285222824	10/17/2018	2/1/2019	52108705	0	US	United States	In Force
US-003313US	Human Supervision of an Automated Driving System	6/30/2017	15/638,739	6/30/2017	20130004622	2/3/2019	12/19/2018	52155849	0	US	United States	In Force
US-006841US	VEHICLE CONTROLS BASED ON HUMAN ASSAILED WEIGHT OF PRESENT	12/20/2016	13/385,613	12/20/2016	703801A18386	6/13/2018	11/6/2018	12018827	0	US	United States	In Force
US-003021US	Autonomous Vehicles Featuring Machine Learned Task Models	10/24/2017	15/710,646	10/9/2017	100219021	7/10/2018	7/14/2018	13019011	0	US	United States	In Force
US-00286US	AUTONOMOUS CAPABLE VEHICLE	6/23/2017	15/631,950	6/23/2017	100007269	6/26/2018	6/26/2018	12007269	0	US	United States	In Force
US-00431USC1	Human Supervision of an Automated Driving System	11/28/2018	16/202,488	6/30/2017					0	US	United States	Pending
US-00431WQ	HUMAN SUPERVISION OF AN AUTOMATED DRIVING SYSTEM	6/18/2018	16/152018/038010	6/30/2017					0	WQ	WIPO (PCT)	Pending
US-00418WQ	MODION CONTROL IN AUTONOMOUS VEHICLES	5/11/2018	16/1352018/026482	3/15/2017					0	WQ	WIPO (PCT)	Pending
US-00533WQ	AUTONOMOUS VEHICLES FEATURING VEHICLE POSITION SYSTEM	8/27/2018	16/1552018/048161	8/13/2017					0	WQ	WIPO (PCT)	Pending
US-00801USP	Autonomous Vehicles Featuring Machine-Learned Task Models	10/9/2017	15/569,718	10/9/2017					1	US	United States	Expired
US-00717US	Autonomous Vehicle Safe Stop SYSTEMS AND METHODS FOR SPLIT BRAKE CONTEXT AWARENESS	6/1/2018	15/995,285	1/30/2018					0	US	United States	Pending
US-00413WQ	CONTEXT AWARENESS	7/18/2018	16/1552018/026502	7/18/2017					0	WQ	WIPO (PCT)	Pending
US-00286CN	COLLISION AVOIDANCE SYSTEM FOR AUTONOMOUS CAPABLE VEHICLE	6/22/2018	20281065331.3	6/23/2017	109117709	1/2/2019			0	CN	China	Pending
US-00895US	Methods, Devices, and Systems For Analyzing Motion Plans of Autonomous Vehicles	3/15/2018	15/924,944	1/26/2018					0	US	United States	Pending
US-00604US1	Systems and Methods for Managing Processing for Autonomous Vehicles	5/18/2018	15/983,491	1/12/2018					0	US	United States	Pending
US-00502USC1	Autonomous Vehicles Featuring Machine-Learned Task Models	6/8/2018	16/023,543	10/9/2017					0	US	United States	Pending

US-0055945	Autonomous Vehicles Featuring Vehicle Intercom System	9/11/2017	US790,466	8/31/2017	2015006286	2/28/2019	0	US	United States	Pending
US-0050145P	Systems and Methods for Autonomous Vehicle Lane Change Control	11/6/2017	82,562,005	11/6/2017			1	US	United States	Issued
US-0034181S	Context Specific Tolerance for Motion Control in Autonomous Vehicles	9/25/2017	15,795,507	9/15/2017	2015006924	3/21/2019	0	US	United States	Pending
US-0038945P	Systems and Methods for Low Latency Braking Action for an Autonomous Vehicle	8/23/2017	82,549,355	8/23/2017			1	US	United States	Issued
US-0048415	Systems and Methods for Low Latency Braking Action for an Autonomous Vehicle	10/16/2017	15,784,664	8/23/2017	20150061712	2/28/2019	0	US	United States	Pending
US-0041215	Systems and Methods for Speed Limit Context Awareness	7/18/2017	15,652,654	7/18/2017	2015005843	1/27/2019	0	US	United States	Pending
US-002861USCL	COLLISION AVOIDANCE SYSTEM FOR AUTONOMOUS CARPABLE VEHICLES	5/23/2018	15,990,480	6/23/2017	20150132463	12/27/2018	0	US	United States	Pending
US-007171USP	Autonomous Vehicle Safe Stop Discrete Design Architecture For Motion Planning System of an Autonomous Vehicle	1/30/2018	82,932,815	1/30/2018			1	US	United States	Issued
US-0069815P2	Methods, Devices, and Systems For Analyzing Motion Plans of Autonomous Vehicles	1/25/2018	82,657,417	1/15/2018			1	US	United States	Issued
US-006931USP	Systems and Methods for Streamlining Processing for Autonomous Vehicles	1/26/2018	82,692,233	1/26/2018			1	US	United States	Issued
US-00601US2	Systems and Methods for Streamlining Processing for Autonomous Vehicles	5/18/2018	15,993,499	1/12/2018			0	US	United States	Pending
US-00604US3	Processing for Autonomous Vehicles Discrete Decision Architecture for Motion Planning System of an Autonomous Vehicle	5/18/2018	15,983,504	1/12/2018			0	US	United States	Pending
US-006981US2	Methods, Devices, and Systems For Analyzing Motion Plans of Autonomous Vehicles	8/16/2018	16,028,430	1/15/2018			0	US	United States	Pending
US-00281USCL	Adaptive Vehicle Motion Control System	4/26/2018	15,963,662	2/2/2017	20150246517	8/30/2018	0	US	United States	Pending
US-006941USCL	WEAVERED WEIGHT OF PRIORITY DESCRIBE DECISION ARCHITECTURE FOR MOTION PLANNING SYSTEM OF AN AUTONOMOUS VEHICLE	8/1/2018	16,051,659	12/20/2016	20180339711	11/29/2018	0	US	United States	Pending
US-006981USCL	ADAPTIVE VEHICLE MOTION CONTROL SYSTEM	1/24/2019	16,155,201,913,3464	1/13/2018			0	WO	WIPO (PCT)	Pending
US-002361USCL	NEURAL NETWORK SYSTEM FOR AUTONOMOUS VEHICLE CONTROL	10/12/2017	16,155,201,705,6277	10/17/2016	2015075325	4/26/2018	0	WO	WIPO (PCT)	Pending
US-005671WO	Systems and Methods for Road Surface Dependent Motion Planning	12/7/2018	16,715,201,805,4383	12/7/2017			0	WO	WIPO (PCT)	Pending

US-0030465-1	SUNSHINE CLEANING SYSTEM FOR VEHICLES	7/18/2016	15/213,110	7/18/2016	20180019387	1/16/2018	5/29/2019	20189450	0	US	United States	In Force
US-0042615	Sequential Sensor Cleaning System for Autonomous Vehicle	7/7/2017	18/643,508	7/7/2017	20190009752	1/10/2019	3/8/2019	20172016	0	US	United States	In Force
US-0036645	SUNSHINE CLEANING SYSTEM FOR AN AUTONOMOUS VEHICLE	3/14/2016	15/069,428	3/14/2016	20170259753	5/14/2017	5/18/2018	20177207	0	US	United States	In Force
US-0034315	INTELLIGENT CLEANING SYSTEM FOR AN AUTONOMOUS VEHICLE	12/22/2015	14/079,352	12/22/2015	20150127800	6/27/2017	8/14/2018	201808956	0	US	United States	In Force
US-0030715	CHARGE TOLERANCE SENSOR ASSEMBLY	10/23/2017	15/790,379	10/23/2017		10/18/2018			0	US	United States	Pending
US-0034561	LENS MASKING SYSTEM FOR A VEHICLE	6/26/2018	18/018,246	12/22/2015	20180299923	10/18/2018			0	US	United States	Pending
US-0030815	SENSOR CLEANING SYSTEM FOR VEHICLES	7/23/2017	15/150,170	7/18/2016	2018017395	1/25/2018			0	WO	WIPO (PCT)	Pending
US-0034515	INTELLIGENT LENS MASKING SYSTEM FOR AN AUTONOMOUS VEHICLE	12/20/2016	1687983.1	12/22/2015	3384894	10/17/2018			0	EP	European Patent Office	Pending
US-0033015	AUTONOMOUS VEHICLE SENSOR CLEANING SYSTEM	3/27/2018	16/115,201	4/7/2017	2018187089	10/17/2018			0	WO	WIPO (PCT)	Pending
US-0033015-2	Autonomous Vehicle Sensor Cleaning System	4/7/2017	15/142,251	4/7/2017	20180290631	10/17/2018			0	US	United States	Pending
US-0033015-1	Systems and Systems for Cleaning Sensors of an Autonomous Vehicle	4/7/2017	15/142,219	4/7/2017	20180290632	10/17/2018			0	US	United States	Pending
US-0038515	Color Filter Array for Image Capture Device	12/29/2016	62/439,910	12/29/2016					1	US	United States	Lapsed
US-0035315	INTELLIGENT LENS MASKING SYSTEM FOR AN AUTONOMOUS VEHICLE	12/20/2016	16/152,010	12/22/2015	2017112808	6/29/2017			0	WO	WIPO (PCT)	Pending
US-0035315	Color Filter Array for Image Capture Device	12/21/2017	15/180,452	12/29/2016	20180188427	7/5/2018			0	US	United States	Pending
US-0035315	Image Capture Device with Customizable Region of Interest	12/29/2016	15/343,306	12/29/2016	20180189574	7/5/2018			0	US	United States	Pending
US-0037115	VEHICLE SENSOR CLEANING SYSTEM	11/15/2018	16/155,615	11/16/2017					0	WO	WIPO (PCT)	Pending
US-0038715	Cleaning Patterns for Autonomous Vehicle Sensor Cleaning System	11/18/2017	62/548,153	12/18/2017					1	US	United States	Lapsed
US-0037315	FUSED SENSOR VIEW FOR SELF-DRIVING TRUCK	1/30/2018	16/188,941	1/30/2018					0	US	United States	Pending
US-0032315	VEHICLE DYNAMICS MONITOR FOR AUTONOMOUS VEHICLE	11/22/2017	62/549,702	11/22/2017					1	US	United States	Lapsed



CP-00372US TRAFFIC SIGNAL, ADAS, VSS SYSTEM 3/9/2016 15:05:56.61 3/9/2016 205:703257929 9/14/2017 6/5/2018 9950548 0 US United States In Force

OBJECT EXTECTION FOR ADAS

CP-00366US ADAS, VSS SYSTEM 5/4/2017 2:52:10.94 5/6/2018 2:52:10.94 1/23/2018 5/4/2018 2121034 0 US United States In Force

CP-00377USC1 Systems and Methods to Track Vehicles
Proximate Perceived by an Autonomous Vehicle 7/19/2018 16:03:59.864 3/10/2017 105480.3728560 1/18/2018 3/12/2019 33235610 0 US United States In Force

CP-00315US Image-based Pedestrian Detection Systems and Methods to Track Vehicles Proximate Perceived by an Autonomous Vehicle 9/18/2017 15:56:08.828 9/25/2017 205:80307921 10/24/2018 10/23/2018 19108867 0 US United States In Force

CP-00277US SYSTEM AND METHOD TO DETECT AND TRACK A VEHICLE FROM A DISCRETE LOCATION OF A ROAD SEGMENT 8/28/2017 15:56:48.704 3/10/2017 10097612 7/17/2018 7/17/2018 22017612 0 US United States In Force

CP-00714US 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

CP-00333US Range View Laser Based Object Detection 5/31/2017 15:56:09.256 5/31/2017 205:80348374 12/6/2018 12/6/2018 0 US United States Pending

CP-00337US Top View Laser Based Object Detection 5/31/2017 15:56:09.141 5/31/2017 105480.349746 12/6/2018 12/6/2018 0 US United States Pending

CP-00365CN REDUNDANT OBJECT DETECTION FOR ADAS 5/5/2017 10:710311393.2 5/6/2016 107450520 12/8/2017 0 CN China Pending

US-2016-0264501	OBJECT DETECTION FOR AN AUTONOMOUS VEHICLE: Systems and Methods for Controlling an Autonomous Vehicle Including Overlaid Sensor Zones	3/3/2017	US-949,502	5/6/2016	20170329279	11/9/2017	0	US	United States	Pending
US-2016-033459	Systems and Methods for Controlling an Autonomous Vehicle with Overlaid Sensor Zones	8/31/2017	82,552,515	8/31/2017			1	US	United States	Issued
US-2016-035345	Multiple Stage Image Based Object Detection and Recognition Systems and Methods for Image Based Free Space Detection	5/22/2018	US-985,810	8/31/2017	2018064040	2/28/2018	0	US	United States	Pending
US-2016-038459	Image Based Pedestrian Detection	12/5/2017	US-961,594,632	12/5/2017			1	US	United States	Issued
US-2016-038459	Image Based Pedestrian Detection	1/5/2018	62,613,945	2/5/2018			1	US	United States	Issued
US-2016-038459	Image Based Pedestrian Detection	4/25/2017	62,488,514	4/25/2017			1	US	United States	Issued
US-2016-038459	Multiple Learning for Event Detection and Classification in Autonomous Vehicles	3/27/2017	US-949,961	3/27/2017	2018025667	9/27/2018	0	US	United States	Pending
US-2016-038459	Systems and Methods to Track Vehicles Proximate to an Autonomous Vehicle	3/30/2017	82,478,663	3/30/2017			1	US	United States	Issued
US-2016-038459	3D Graph Neural Networks for RGBD Semantic Segmentation	6/7/2017	62,516,531	6/7/2017			1	US	United States	Issued
US-2016-038459	PERCEPTRON SYSTEM FOR AUTONOMOUS VEHICLE STATIC OBJECT DETECTION FOR OPERATING AUTONOMOUS VEHICLE	6/30/2017	US-940,370	7/1/2016	201805053	2/2/2018	0	US	United States	Pending
US-2016-038459	Systems and Methods for Determining Trajectory After Averages and Distances	10/26/2017	82,577,446	10/26/2017			1	US	United States	Issued
US-2016-038459	Systems and Methods for Object Detection at Various Ranges Using Multiple Range Imagery	12/12/2017	62,587,450	12/12/2017			1	US	United States	Issued
US-2016-038459	Systems and Methods for Image Based Free Space Detection	2/1/2018	US-986,434	2/5/2018			0	US	United States	Pending
US-2016-038459	Orientation Determination in Object Detection and Tracking for Autonomous Vehicles	5/9/2017	62,555,816	9/9/2017			1	US	United States	Issued
US-2016-038459	Deep Parametric Continuous Convolutional Neural Networks	11/15/2017	62,586,717	11/15/2017			1	US	United States	Issued
US-2016-038459	Hierarchical Recurrent Attention Networks for Structured Output Maps	12/15/2017	82,586,770	11/15/2017			1	US	United States	Issued
US-2016-038459	Sparse Convolutional Neural Networks	11/15/2017	62,586,668	11/15/2017			1	US	United States	Issued
US-2016-038459	Deep Convolutional Neural Networks for Online Multi-Sensor Lane Detection	12/5/2017	82,586,741	11/15/2017			1	US	United States	Issued
US-2016-038459	Deep Convolutional Neural Networks for Online Multi-Sensor Lane Detection	11/15/2017	62,586,725	11/15/2017			1	US	United States	Issued
US-2016-038459	Efficient 3D Object Detection from Point Clouds	11/15/2017	62,586,631	11/15/2017			1	US	United States	Issued
US-2016-038459	Semantic and Instance Segmentation	11/15/2017	62,586,564	11/15/2017			1	US	United States	Issued
US-2016-038459	Autonomous Vehicle Lane Boundary Detection Systems and Methods	11/15/2018	US-981,156,121	11/13/2017			0	WO	WIPO (PCT)	Pending

Systems and Methods for Generating
Sparse Geographic Data for Autonomous
Vehicles

11/15/2018 PCT/US2018/061233

11/15/2017

0

WO

WIPO (PCT)

Pending

Systems and Methods for Determining
Tractor Trailer Angles and Distances

10/26/2018 PCT/US2018/057713

10/26/2017

0

WO

WIPO (PCT)

Pending

Multiple Stage Image Based Object
Detection and Recognition

12/4/2018 PCT/US2018/063839

12/5/2017

0

WO

WIPO (PCT)

Pending

UP-00312USCI

Image Based Pedestrian Detection

10/8/2018 US16/141,348

4/29/2017 2019042045

2/7/2019

0

US

United States

Pending

UP-00172USCI

TRAFFIC SIGNAGE ANALYSIS SYSTEM

3/26/2018 US16/926,211

3/27/2018 2018014828

8/2/2018

0

US

United States

Pending

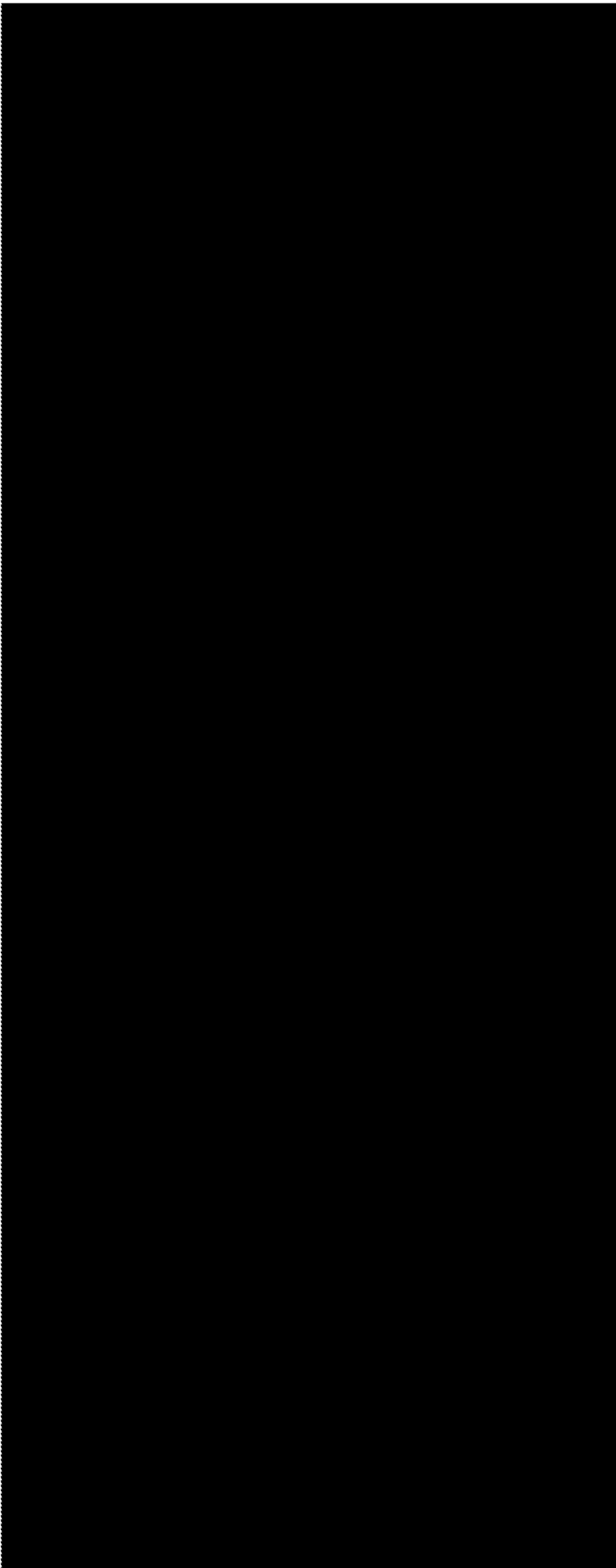
Systems and Methods for Object Detection at Various Ranges using Multiple Range Imagery									
USP-00620US	SYSTEM AND METHODS FOR PRE-SELECTING AUTONOMY SWITCHING DIRECTIONS	12/12/2017	0	US	United States	Pending			
USP-00610US	Obstacle Detection in Object Detection and Tracking for Autonomous Vehicles	12/19/2017	0	US	United States	Pending			
USP-00605US	Hybrid View Lidar-based Object Detection Multiple Stage Image Based Object Detection and Recognition	9/18/2017 20190719.26	0	US	United States	Pending			
USP-00584US	Autonomous Vehicle Lane Boundary Detection Systems and Methods	10/31/2017	1	US	United States	Issued			
USP-00680US	Systems and Methods for Determining Tractor-Trailer Angles and Distances	12/19/2017	0	US	United States	Pending			
USP-00675US	Sparse Convolutional Neural Networks	11/15/2017	0	US	United States	Pending			
USP-00659US	Three Dimensional Object Detection Continuous Convolution and Fusion in Neural Networks	10/26/2017	0	US	United States	Pending			
USP-00657US	Systems and Methods for Generating Sparse Geographic Data for Autonomous Vehicles	11/15/2017	0	US	United States	Pending			
USP-00680US	Autonomous Vehicle Lane Boundary Detection Systems and Methods	11/15/2017	0	US	United States	Pending			
USP-00332USCIP1	Hybrid View LIDAR-based Object Detection	5/31/2017 20180348346	0	US	United States	Pending			

CP-00623US	DATA ASSASSINMENT FOR EARLY COLLISION WARNING	6/12/2007 12/0818.187	6/12/2007 20980312832	12/18/2008 2/1/2011 7881868	0	US	United States	In Force
CP-00623US	USING SEGMENTED CONES FOR FAST, CONSERVATIVE ASSESSMENT OF COLLISION RISK	6/12/2007 13/0818.191	6/12/2007 20980312833	12/18/2008 32/07/2010 7831391	0	US	United States	In Force
CP-00623US	USING LONG RANGE DYNAMICS AND MECHANICAL STATE MODELS TO ASSESS COLLISION RISK FOR EARLY WARNING	6/12/2007 13/0818.122	6/12/2007 20980312830	12/18/2008 9/7/2010 7790641	0	US	United States	In Force
CP-00623US	HUMAN MACHINE INTERFACE (HMI) CUSTOMIZATION BASED ON COLLISION ASSESSMENTS	6/12/2007 12/0818.176	6/12/2007 20980309468	12/18/2008 5/4/2010 7710248	0	US	United States	In Force
CP-00623JP	USING SEGMENTED CONES FOR FAST, CONSERVATIVE ASSESSMENT OF COLLISION RISK	5/27/2008 1098.120580	6/12/2007 2098311833	12/18/2008 6/5/2010 5890836	0	JP	Japan	In Force
CP-00623JP	HUMAN MACHINE INTERFACE (HMI) CUSTOMIZATION BASED ON COLLISION ASSESSMENTS	5/27/2008 2008.120582	6/12/2007 2098310807	12/29/2008 6/2/2014 5460972	0	JP	Japan	In Force
CP-00627US	Systems and Methods for Prioritizing Object Prediction for Autonomous Vehicles	2/23/2017 15/0811.865	8/12/2017 20590068415	2/28/2019 2/28/2019 20218180	0	US	United States	In Force
CP-00658US92	Object Detection, Tracking, and Location Prediction	2/27/2018 52/635.881	2/27/2018		1	US	United States	Lapsed
CP-00667WO	SYSTEMS AND METHODS FOR PRIORITIZING OBJECT PREDICTION FOR AUTONOMOUS VEHICLES	8/20/2018 967/155618/047032	8/23/2017		0	WO	World (PCT)	Pending
CP-00658US91	Object Motion Prediction and Autonomous Vehicle Control	9/5/2018 16/122.455	8/8/2017 20590049370	2/14/2019	0	US	United States	Pending
CP-00623JP	DATA ASSASSINMENT FOR EARLY COLLISION WARNING	5/27/2008 2008.120555	6/12/2007 2098310803	12/29/2008	0	JP	Japan	Lapsed
CP-00667US9	Systems and Methods for Prioritizing Object Prediction for Autonomous Vehicles	8/23/2017 52/549.407	8/23/2017		1	US	United States	Lapsed

US-0066459	Anomaly Detection Systems and Methods for Autonomous Vehicles	10/3/2017	02/06/2017	353	10/3/2017	1	US	United States	Lapsed
US-0065859	Object Motion Prediction and Autonomous Vehicle Control	8/8/2017	02/04/2016	506	8/8/2017	1	US	United States	Lapsed
US-0065858	Object Motion Prediction and Autonomous Vehicle Control	10/13/2017	15/7/2015	305	8/8/2017	0	US	United States	Pending
US-0064859	Machine Learning for Predicting Locations of Objects Perceived by Autonomous Vehicles	7/21/2017	02/05/2015	343	7/21/2017	1	US	United States	Lapsed
US-0064858	Machine Learning for Predicting Locations of Objects Perceived by Autonomous Vehicles	8/23/2017	15/06/2015	865	7/21/2017	0	US	United States	Pending
CONTROL SYSTEM TO ASSIST OPERATION OF A44 AUTONOMOUS VEHICLE BASED ON A PROBABILITY OF INTERFERENCE BY A DYNAMIC OBJECT									
US-0062075	Object Interaction Prediction Systems and Methods for Autonomous Vehicles	11/22/2017	02/04/2016	351	5/10/2016	0	US	United States	Pending
US-0063859	Object Motion Prediction and Vehicle Control Systems and Methods for Autonomous Vehicles	12/8/2017	02/06/2016	308	11/16/2017	1	US	United States	Lapsed
US-0063858	End-to-End Tracking of Objects	11/15/2017	02/06/2016	700	11/16/2017	1	US	United States	Lapsed
US-0063758	Systems and Methods for Predicting Object Prediction for Autonomous Vehicles	8/23/2017	10/21/2016	376	8/23/2017	0	US	United States	Pending
US-0071459	Autonomous Vehicle Motion Control Systems and Methods	11/29/2017	02/02/2016	024	11/29/2017	1	US	United States	Lapsed
US-0068850	OBJECT MOTION PREDICTION AND VEHICLE CONTROL SYSTEMS AND METHODS FOR AUTONOMOUS VEHICLES	12/8/2017	02/04/2016	05628	12/8/2017	0	US	WIPO (PCT)	Pending
US-0066850	ADAPTIVE DETECTION SYSTEMS AND METHODS FOR AUTONOMOUS VEHICLES	10/3/2017	02/01/2016	05354	10/3/2017	0	US	WIPO (PCT)	Pending
US-0063850	Object Interaction Prediction Systems and Methods for Autonomous Vehicles	11/12/2017	02/01/2016	05171	11/12/2017	0	US	WIPO (PCT)	Pending
US-0065857	Systems and Methods for Object Detection, Tracking, and Motion Prediction	11/13/2017	10/12/2016	4966	11/13/2017	0	US	United States	Pending
US-0066855	Anomaly Detection Systems and Methods for Autonomous Vehicles	10/3/2017	15/7/2015	291	10/3/2017	0	US	United States	Pending

US-0071445	Autonomous Vehicle Motion Control Systems and Methods	1/9/2018	15/845,790	11/29/2017	0	US	United States	Pending				
US-00658451	End-to-End Tracking of Objects	9/5/2018	16/122,203	11/15/2017	0	US	United States	Pending				
US-0063845	Object Interpolation Prediction Systems and Methods for Autonomous Vehicles	12/20/2017	15/848,564	11/22/2017	0	US	United States	Pending				
US-0071445	Sensorin Segmentation of Three-Dimensional Data	9/6/2018	16/123,233	11/19/2017	0	US	United States	Pending				
US-0015345-4	PLANNING: IMPROVING A ROAD NETWORK USING REACTION INFORMATION FOR THE ROAD NETWORK	12/12/2016	15/376,587	12/10/2015	20170167098	6/19/2017	11/6/2018	32119827	0	US	United States	In Force

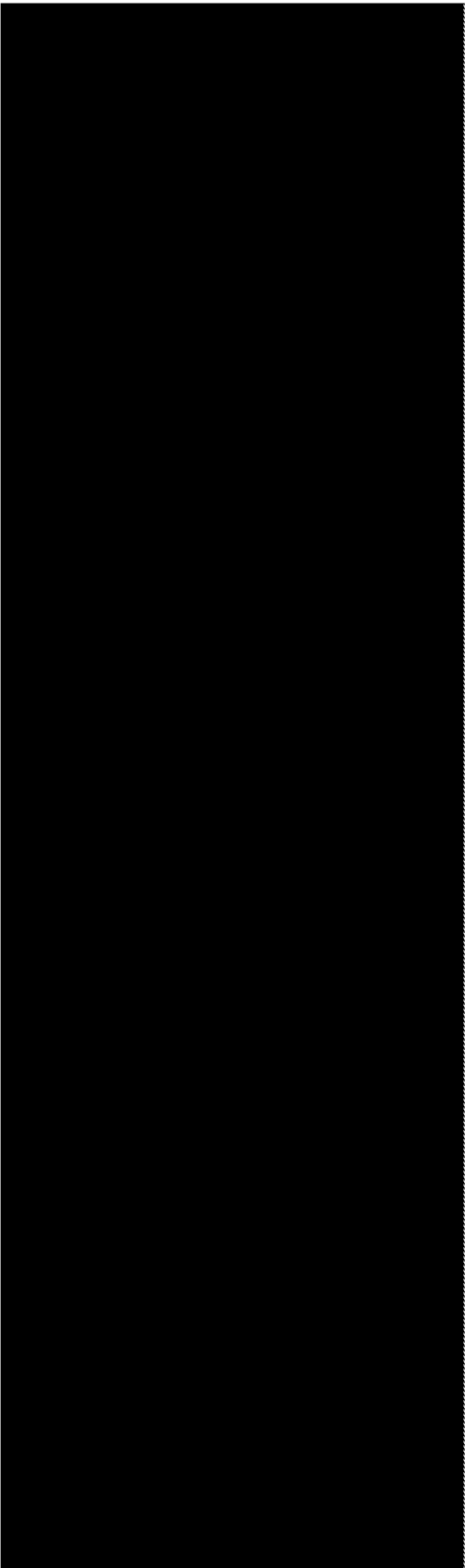
US-002969WQ	SYSTEMS AND METHODS FOR CHANGING A DESTINATION OF AN AUTONOMOUS VEHICLE IN REAL-TIME	8/27/2018	PG1/US2018/048031	9/7/2017	0	WQ	WIPO (PCT)	Pending	
US-003630US	FACE-LOCKING ROLLER PICK-UP FOR A SELF-DRIVING VEHICLE	5/26/2017	15/656,451	5/27/2016	101,734,4010	0	US	United States	Pending
US-00376US-12	NON-3RD RISK, MARCHING AND ROUTING FOR ON-DEMAND TRANSPORTATION SERVICES	5/23/2017	15/652,367	5/23/2017	20180342034	0	US	United States	Pending
US-00377US-12	INDIVIDUALIZED RISK ROUTING FOR HUMAN DRIVERS	5/23/2017	15/652,375	5/23/2017	20180340790	0	US	United States	Pending
US-00378US-10	GENERALIZED RISK ROUTING FOR HUMAN DRIVERS	5/23/2017	15/652,377	5/23/2017	20180341888	0	US	United States	Pending
US-00395USP	Systems and Methods for Changing a Destination of an Autonomous Vehicle in Real Time	9/1/2017	62/553,240	9/1/2017		1	US	United States	Lapsed
US-00416USP	Turn Based Autonomous Vehicle Guidance Systems and Methods for Changing a Destination of an Autonomous Vehicle in Real Time	10/17/2017	62/571,428	10/17/2017		1	US	United States	Lapsed
US-00395US		10/26/2017	15/734,567	9/7/2017	20180072864	0	US	United States	Pending
US-00416US	Turn Based Autonomous Vehicle Guidance	11/17/2017	15/816,242	10/12/2017		0	US	United States	Pending



CP-00373US-2	SECURE START SYSTEM FOR AN AUTOMOBILES VEHICLE	3/28/2016 15/074,324	3/18/2016 10170272943	9/22/2017 4/17/2018 9946890	0	US	United States	In Force
CP-00301USC1	GUIDE ASSISTANCE OF PERSON DRIVEN VEHICLES	9/13/2016 15/284,374	5/13/2015 10170003681	1/5/2017 4/3/2018 9933779	0	US	United States	In Force
CP-00301US	GUIDE ASSISTANCE OF PERSON DRIVEN VEHICLES	5/13/2015 14/711,506	5/13/2015 10160134229	11/17/2016 11/25/2016 9434439	0	US	United States	In Force
CP-00251US	Vehicle Security System	10/28/2016 15/337,363	10/28/2016 10180124713	5/9/2018 3/28/2019 10213967	0	US	United States	Pending
CP-00373US-2C1	SECURE START SYSTEM FOR AN AUTOMOBILES VEHICLE	1/18/2018 15/804,549	3/18/2018 10180157962	6/7/2018 11/27/2018 10140468	0	US	United States	In Force
CP-00339US	AUTOMOBILES VEHICLE OPERATING WITH SAFETY AUGMENTATION	9/12/2016 15/276,322	9/12/2015 10173090280	3/10/2017 11/27/2018 10139928	0	US	United States	In Force

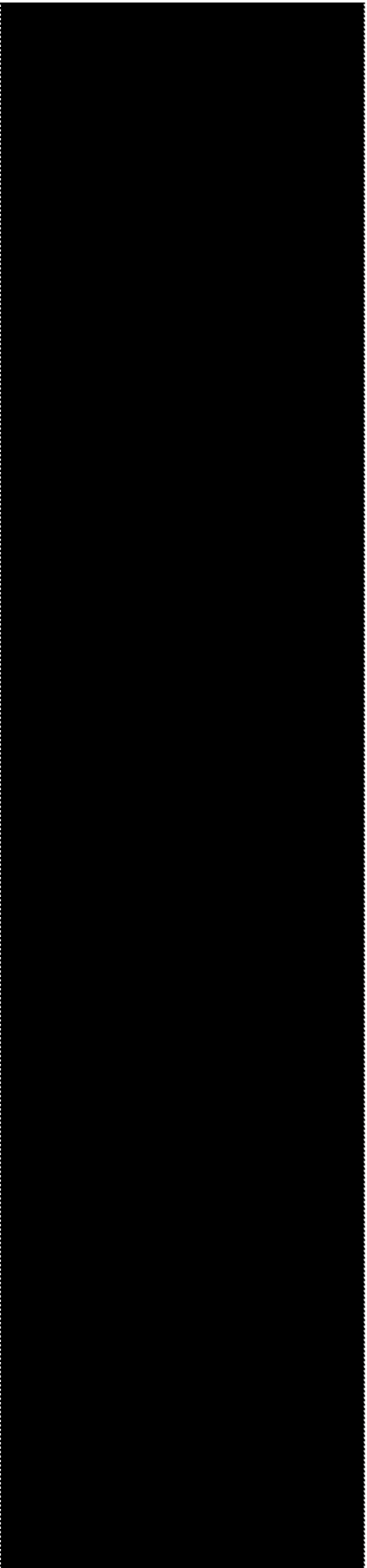
CP-00301US01	AUTONOMOUS VEHICLE OPERATED WITH GUIDE ASSISTANCE OF HUMAN DRIVER VEHICLES	11/21/2016	15/349,793	5/13/2015	20170060129	3/2/2017	11/23/2018	15126792	0	US	United States	In Force
CP-00334US	CONTROL SYSTEM FOR AUTONOMOUS CAPABLE VEHICLES	8/30/2016	15/252,152	8/31/2015	101,70057580	3/7/2017	10/16/2018	15099205	0	US	United States	In Force
CP-00373US-1	SECURE START SYSTEM FOR AN AUTONOMOUS VEHICLE	3/18/2016	15/074,892	3/18/2016	20170269940	9/21/2017	10/2/2018	15089816	0	US	United States	In Force
CP-00337US	AUTONOMOUS VEHICLE WITH INDEPENDENT AUXILIARY CONTROL UNITS	9/28/2016	15/279,165	9/18/2015	101,700006476	3/30/2017	8/28/2018	15063213	0	US	United States	In Force
CP-00259US	CUSTOMIZABLE VEHICLE SECURITY SYSTEM	10/31/2017	15/779,499	10/31/2016	101,80118184	9/7/2018			0	US	United States	Pending
CP-00337US	AUTONOMOUS VEHICLE WITH INDEPENDENT AUXILIARY CONTROL UNITS	9/28/2016	158525228	9/28/2015	15586399	8/8/2018			0	EP	European Patent Office	Pending
[REDACTED]												
Systems and Methods for Deploying a Warning Device from an Autonomous Vehicle												
CP-00630US	Warning Device from an Autonomous Vehicle	2/7/2018	15/890,363	1/15/2018					0	US	United States	Pending
[REDACTED]												
CP-00339US	AUTONOMOUS VEHICLE OPERATED WITH SAFETY AUGMENTATION	9/24/2015	62/232,435	9/24/2015					1	US	United States	Lapsed
CP-00337WO	AUTONOMOUS VEHICLE WITH INDEPENDENT AUXILIARY CONTROL UNITS	9/28/2016	15/155018/064230	9/28/2015	2017058961	4/6/2017			0	WO	WIPO PCT	Lapsed
CP-00337US	AUTONOMOUS VEHICLE WITH INDEPENDENT AUXILIARY CONTROL UNITS	9/28/2015	62/233,910	9/28/2015					1	US	United States	Lapsed
[REDACTED]												
Systems and Methods for Deploying a Warning Device from an Autonomous Vehicle												
CP-00630US	Warning Device from an Autonomous Vehicle	1/15/2018	62/657,409	1/15/2018					1	US	United States	Lapsed
CP-00311US	Machine Learning for Triaging Failures in Autonomous Vehicles	3/23/2017	15/467,504	3/23/2017	101,80216912	9/27/2018			0	US	United States	Pending
CP-00374US-9	INDIVIDUALIZED RISK MANAGING FOR AN EMERGENCY RESPONSE REPORT ACTION SERVICE	5/23/2017	15/652,318	5/23/2017	101,80341887	11/29/2018			0	US	United States	Pending
CP-00374US-8	AUTONOMOUS VEHICLE DEGRADATION LEVEL MONITORING	5/23/2017	15/652,303	5/23/2017	101,80341213	11/29/2018			0	US	United States	Pending
CP-00374US-7	PRACTICAL RISK PERFORMANCE EVALUATION FOR AUTONOMOUS VEHICLES	5/23/2017	15/652,192	5/23/2017	101,80341276	11/29/2018			0	US	United States	Pending

CP-00340US-6	DETECTING DEVIATIONS IN DRIVING BEHAVIOR FOR AUTONOMOUS VEHICLES	6/30/2017	15/650,355	7/3/2016	201800427	1/4/2018	0	US	United States	Pending
CP-00337US-1	AUTONOMOUS VEHICLE WITH INDEPENDENT ACTUATOR CONTROL UNITS	7/26/2018	16/031,168	9/28/2015	20180321677	11/8/2018	0	US	United States	Pending
CP-00388US	Systems and Methods for Communication via Hydraulic Road	1/29/2018	15/882,335	1/10/2018			0	US	United States	Pending
CP-00339US-1	AUTONOMOUS VEHICLE OPERATED WITH SAFETY ASSIGNMENT	10/19/2018	16/145,623	5/24/2015	2016006742	2/21/2019	0	US	United States	Pending
CP-00301US-1	AUTONOMOUS VEHICLE OPERATED WITH GUIDE ASSISTANCE OF HUMAN DRIVEN VEHICLES	10/21/2018	16/159,263	5/13/2015	2016004946	2/14/2019	0	US	United States	Pending
CP-00373US-1	SECURE START SYSTEM FOR AN AUTONOMOUS VEHICLE	7/26/2018	16/048,835	3/18/2016	20180334040	11/22/2018	0	US	United States	Pending
CP-00383US	Systems and Methods to Manage Devices of an Autonomous Vehicle	9/5/2017	15/551,506	9/5/2017			1	US	United States	Issued
CP-00309US	Autonomous Vehicle Application Programming Interface and Communication Systems and Methods	1/29/2018	15/623,176	1/29/2018			1	US	United States	Issued



CP-00709US2	Autonomous Vehicle Application Programming Interface And Communications Systems And Methods	3/12/2018	15/918,559	1/29/2018	0	US	United States	Pending
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CP-00709US1	Autonomous Vehicle Application Programming Interface And Communications Systems And Methods	3/12/2018	15/918,588	1/29/2018	0	US	United States	Pending
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CP-00709WC3	Autonomous Vehicle Application Programming Interface And Communications Systems And Methods	1/29/2018	PC/150319/155465	1/29/2018	0	WO	WIPO (PCT)	Pending
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US-0053345-5	ACTIVE LIGHT SENSORS FOR DETERMINING EXPECTED TRACTION VALUE OF A ROAD SEGMENT	12/12/2016	15/3/2016	592	12/10/2015	20170168495	6/15/2017	0	US	United States	Pending
US-0062713-592	SENSOR CONFIGURATION FOR PROVIDING FIELD OF VIEW FOR AUTONOMOUSLY OPERATING SENSORS	6/27/2017	60/525,192		6/27/2017			1	US	United States	Issued
US-0063713-591	FIELD OF VIEW CONFIGURATION OPTIONS	6/29/2017	62/551,781	1	6/29/2017			1	US	United States	Issued
US-0028845	EXTERNAL SENSOR ASSEMBLY FOR VEHICLES	5/31/2016	159/563,210	0	5/31/2016			0	US	United States	Pending
US-0028845	EXTERNAL SENSOR ASSEMBLY FOR VEHICLES	4/22/2016	153/126,876	0	4/22/2016	20170305360	10/16/2017	0	US	United States	Pending
US-00385459	DYNAMIC RANGE SETTINGS FOR VEHICLE RADARS	3/4/2016	62/364,131	1	3/4/2016			1	US	United States	Issued
US-0028545	DYNAMIC RANGE SETTINGS FOR VEHICLE RADARS	3/6/2017	151/451,206	0	3/4/2016	20170254680	9/7/2017	0	US	United States	Pending
US-00838415	Autonomous Vehicle Sensor Compensation Using Displacement Sensor	12/12/2017	151/855,364	0	11/30/2017			0	US	United States	Pending
US-00636159	Autonomous Vehicle Sensor Compensation Using Displacement Sensor	11/30/2017	62/592,529	1	11/30/2017			1	US	United States	Issued
US-00638159	Autonomous Vehicle Sensor Compensation By Monitoring Acceleration	11/30/2017	62/592,517	1	11/30/2017			1	US	United States	Issued
US-0063845	Autonomous Vehicle Sensor Compensation By Monitoring Acceleration	12/27/2017	151/855,313	0	11/30/2017			0	US	United States	Pending
US-0034151-12	PRELIMINARY SENSOR ARRAY CONFIGURATION SYSTEM FOR AN AUTONOMOUS VEHICLE	11/30/2018	161/206,660	0	12/16/2015			0	US	United States	Pending
US-0022040	DYNAMIC SENSOR SELECTION FOR SELF-DRIVING VEHICLES	3/22/2018	161/151018/023085	0	3/23/2017	2018175808	9/17/2018	0	WO	WORLD PATENT	Pending
US-0046345	Sensor Control System for Autonomous Vehicle	10/30/2017	151/797,365	0	9/26/2017			0	US	United States	Pending
US-0089645	Passenger Experience and Biometric Monitoring in an Autonomous Vehicle	2/23/2018	151/865,381	0	1/23/2018			0	US	United States	Pending
US-0060159	Simulated Sensor Testing	12/13/2017	62/538,125	1	12/13/2017			1	US	United States	Issued
US-0063713-59	Autonomous Vehicle Simulation Testing Systems and Methods for Test an Autonomous Vehicle	10/12/2017	62/577,079	1	10/12/2017			1	US	United States	Issued
US-0044459	Autonomous Vehicle	8/21/2017	62/548,061	1	8/22/2017			1	US	United States	Issued
US-0044345	Testing Environment for Autonomous Vehicles	8/29/2017	151/649,196	0	8/29/2017	2019006436	2/29/2019	0	US	United States	Pending
US-00443459	Systems and Methods for Using a Linear Actuator in Track Testing	8/24/2017	62/543,514	1	8/24/2017			1	US	United States	Issued

CP-008201C5	Modular Vehicle Computing System Cooling Systems	2/9/2018	15/892,506	12/2/2017	0	US	United States	Pending	
CP-006000W3	Modular Vehicle Computing System Cooling Systems	11/16/2018	PC1/US2018/06,1152	12/1/2017	0	WO	WIPO (PCT)	Pending	
CP-005201C5	Systems and Methods for Cooling Vehicle Systems of an Autonomous Vehicle	11/6/2017	15/894,386	10/6/2017	0	US	United States	Pending	
SYSTEM FOR SWITCHING CONTROL OF AN AUTONOMOUS VEHICLE									
CP-0014635_2	AUTONOMOUS VEHICLE DRIVE BY-WIRE CONTROL SYSTEM	3/15/2016	15/070,795	3/15/2016	9646996	0	US	United States In Force	
CP-0014635_1	DRIVE BY-WIRE CONTROL SYSTEM	3/15/2016	15/070,794	3/15/2016	9580080	0	US	United States In Force	
CP-0024435	INTEGRATED CLUTCH STEERING SYSTEM Lamp ignition system and lamp ignition method	12/22/2015	14/979,187	12/22/2015	9481193	0	US	United States In Force	
CP-006301C5		9/23/2012	13/624,678	7/16/2012	10149015434	0	US	United States In Force	
Vehicle Control System									
CP-00181C5	Vehicle Control System	2/23/2017	15/440,510	2/23/2017	10180237030	0	US	United States In Force	
CP-00244USC1	INTEGRATED CLUTCH STEERING SYSTEM Multi-Modal Switching on a Collision Mitigation System	8/17/2016	15/235,056	12/22/2015	203,711,74259	0	US	United States In Force	
CP-00394US2		8/3/2017	15/668,196	8/3/2017	10356638	0	US	United States In Force	
CP-00282W3	Vehicle Control System System for actively monitoring the steering angle of a vehicle using a single sensor	2/29/2018	PC1/US2018/018602	2/23/2017	2038156461	0	WO	WIPO (PCT)	Pending
CP-00374US	VEHICLE REFERENCE FOR AUTONOMOUS VEHICLE	10/18/2017	15/716,778	9/7/2017	10190071124	0	US	United States	Pending
CP-00630W3		7/16/2018	PC1/US2018/042147	8/23/2017		0	WO	WIPO (PCT)	Pending

CONTROL SYSTEM FOR AUTONOMOUS-DRIVABLE VEHICLES									
USP-003341WD	USP-003341WD	8/31/2016	PC1/US2016/0348736	8/31/2016	20170106089	3/9/2017	0	WO	WIPO (PCT)
USP-006221USP	Systems and Methods for Controlling Autonomous Vehicle	1/9/2018	52/625,206	2/9/2018			1	US	United States
USP-006601USP	Systems and Methods for Controlling an Autonomous Vehicle with Multiple Control Lanes	9/14/2017	52/558,523	9/14/2017			1	US	United States
USP-006591USP	Vehicle Interface for Autonomous Vehicle	8/23/2017	52/599,024	8/23/2017			1	US	United States
USP-006591US	Vehicle Interface for Autonomous Vehicle	9/28/2017	15/718,003	8/23/2017	20190064825	2/8/2019	0	US	United States
USP-003781US	Disabling Onboard Input Devices in an Autonomous Vehicle	6/27/2017	15/684,067	6/27/2017	20180370543	12/27/2018	0	US	United States
USP-002341USP	CONTROL SYSTEM FOR AUTONOMOUS-DRIVABLE VEHICLES	8/31/2015	52/212,577	8/31/2015			1	US	United States
USP-003324US-7	SYSTEM AND METHOD FOR DETERMINING ACTION ABILITY OF VEHICLES IN OPERATIONAL DRIVE-WIRE CONTROL SYSTEM	12/12/2016	15/376,604	12/10/2015	20170118830	6/13/2017	0	US	United States
USP-003481US-1C1	DRIVE-WIRE CONTROL SYSTEM	12/28/2017	15/468,619	3/15/2016	20170126553	9/27/2017	0	US	United States
USP-006191USP	Control Method for Autonomous Vehicles	7/14/2017	52/532,454	7/14/2017			1	US	United States
USP-003441WO	INTEGRATED CLUSTERS FOR RISK SYSTEM	12/20/2016	PC1/US2016/067783	12/20/2016	2017111676	6/28/2017	0	WO	WIPO (PCT)
USP-006131US	Control Method for Autonomous Vehicles	9/16/2017	15/607,368	7/14/2017	201901018412	1/17/2019	0	US	United States
USP-006131USP	Supervised Movement of Autonomous Vehicles	7/12/2017	52/533,476	7/12/2017			1	US	United States
USP-006121USP	Systems and Methods for Controlling an Input Device of an Autonomous Vehicle	6/16/2017	52/520,639	6/16/2017			1	US	United States
USP-006121US	Systems and Methods for Controlling an Input Device of an Autonomous Vehicle	10/21/2017	15/780,177	6/16/2017	20180362070	12/20/2018	0	US	United States
USP-006741USP	System for Actively Monitoring the Steering Angle of a Vehicle Using a Strain Sensor	9/7/2017	52/555,356	9/7/2017			1	US	United States
USP-006821US	Systems and Methods for Controlling an Autonomous Vehicle	5/23/2018	15/980,322	2/9/2018			0	US	United States
USP-006391USP	Location Based Vehicle Headlight Control	12/7/2017	52/535,906	12/7/2017			1	US	United States
USP-006861USP	Systems and Methods for Communication via Hydraulic Fluid	12/20/2018	52/615,740	1/10/2018			1	US	United States
USP-006791USP	Systems and Methods for Brake Redundancy for an Autonomous Vehicle	12/16/2017	52/595,193	12/16/2017			1	US	United States
USP-002821USC1	Vehicle Control System	2/5/2019	16/267,468	2/29/2017			0	US	United States

[REDACTED]

10-0063910Q Location Based Vehicle Headlight Control 12/5/2018 927,15701.8/063948 12/7/2017 0 WO WOPEC (PCT) Pending

[REDACTED]

10-00394151C2 Multi Road Switching on a Collision 8/7/2018 187,052,899 8/7/2017 203,903,900/29 3/7/2019 0 US United States Pending

[REDACTED]

EP-00460WQ	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	
EP-003796P	Disabling Onboard Braking Devices in an Autonomous Vehicle	6/22/2018	EP/2017/98015-5	6/27/2017	EP/2017/22116	0	EP	European Patent Office	Pending

EP-00622WO	SYSTEMS AND METHODS FOR CONTROLLING AN AUTONOMOUS VEHICLE	1/9/2019	PC/FJ/S2019/023857	3/9/2018	0	WO	WIPO (PCT)	Pending
EP-006791592	Systems and Methods for Brake Redundancy for an Autonomous Vehicle	1/9/2018	EP/2017/4545	3/9/2018	1	US	United States	Issued

EP-003346P	CONTROL SYSTEM FOR AUTONOMOUS-OPERABLE VEHICLES	8/31/2016	16842025-6	8/31/2015	3344507	0	EP	European Patent Office	Pending
EP-00334CN	CONTROL SYSTEM FOR AUTONOMOUS-OPERABLE VEHICLES	8/31/2016	201680049672.9	8/31/2015	107924181	0	CN	China	Pending
EP-00244EP	INTEGRATED LUTTER-STEERING SYSTEM	12/20/2016	1687996-5	12/22/2015	3393887	0	EP	European Patent Office	Pending

EP-00639US	Location Based Vehicle Headlight Control Systems and Methods for Communication Via Hydraulic Fluid	2/28/2018	15/967906	12/7/2017	0	US	United States	Pending	
EP-00688WO	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	
EP-00679US	Systems and Methods for Brake Redundancy for an Autonomous Vehicle	3/29/2018	15/075000	12/6/2017	0	US	United States	Pending	
EP-00460US	Fault Tolerant Control of an Autonomous Vehicle with Multiple Control Lanes	9/22/2018	16/226533	9/14/2017	20190079513	0	US	United States	Pending