

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT5768507

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
	Name	Execution Date
	UBER TECHNOLOGIES, INC.	07/02/2019
RECEIVING PARTY DATA		
Name:	UBER TECHNOLOGIES, INC.	
Street Address:	1455 MARKET STREET, 4TH FLOOR	
City:	SAN FRANCISCO	
State/Country:	CALIFORNIA	
Postal Code:	94103	
PROPERTY NUMBERS Total: 1		
	Property Type	Number
	Application Number:	16553929
CORRESPONDENCE DATA		
Fax Number:	(864)233-7342	
<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:	USDOCKETING@DORITY-MANNING.COM, jchapman@dority-manning.com	
Correspondent Name:	DORITY & MANNING, P.A. AND UBER TECHNOLOGIES, INC.	
Address Line 1:	PO BOX 1449	
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ATTORNEY DOCKET NUMBER:	UBER-418-CON	
NAME OF SUBMITTER:	ERIK K. SIVERTSON	
SIGNATURE:	/Erik K. Sivertson/	
DATE SIGNED:	10/14/2019	
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)

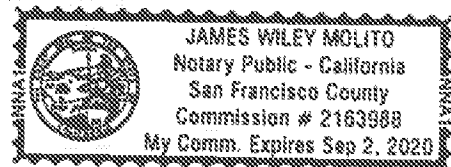
personally appeared Francis Chadwick
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s)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

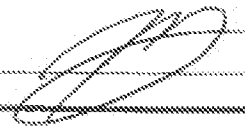
On 7/1/2019 before me, James Wiley Molito, Notary Public
(insert name and title of the officer)

personally appeared Francis 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.

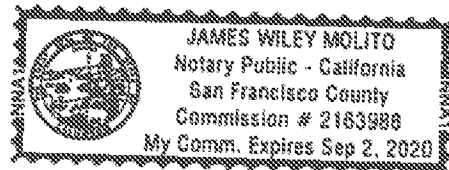
I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature



(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: [Signature]
Name: Keir Gumbos
Title: Manager

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

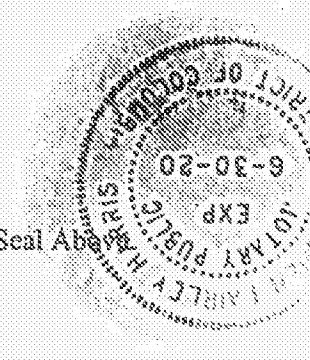
WITNESS my hand and official seal.

[Signature]
Signature of Notary Public

MORGHEN FAIRLEY HARRIS
NOTARY PUBLIC DISTRICT OF COLUMBIA
My Commission Expires June 30, 2023

Place Notary Seal Above

My Commission Expires:



Signature Page to Patent Assignment

Exhibit B

UTI Patents

PATENT

REEL: 050719 FRAME: 0381

IP Right: 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	
UP-00147US-3	FORMATTING SENSOR DATA FOR USE IN AUTONOMOUS VEHICLE COMMUNICATIONS PLATFORM	12/11/2015	14/967,205		12/11/2015	20170168494	6/15/2017	10/10/2017	9785150	0	US	United States	In Force
UP-00147US-2	SYSTEM FOR PROCESSING ASYNCHRONOUS SENSOR DATA	12/11/2015	14/967,178		12/11/2015	9596666	3/14/2017	3/14/2017	9596666	0	US	United States	In Force
UP-00147US-1	SYSTEM FOR ACQUIRING TIME-SYNCHRONIZED SENSOR DATA	12/11/2015	14/967,154		12/11/2015	9537956	1/3/2017	1/3/2017	9537956	0	US	United States	In Force
UP-00191US	AUTONOMOUS VEHICLE DIAGNOSTIC SYSTEM	8/16/2016	15/238,093		8/16/2016	20180050704	2/22/2018	11/27/2018	10137903	0	US	United States	In Force
UP-00168US	SYSTEM AND METHOD OF SENSOR TRIGGERING FOR SYNCHRONIZED OPERATION	3/21/2017	15/464,787		3/21/2016	20170269601	9/21/2017	10/30/2018	10114103	0	US	United States	In Force
UP-00147US-3CIP	FORMATTING SENSOR DATA FOR USE IN AUTONOMOUS VEHICLE COMMUNICATIONS PLATFORM	10/5/2017	15/726,050		12/11/2015	20180088584	3/29/2018	10/16/2018	10101747	0	US	United States	In Force
UP-00147US-3CIP1C1	FORMATTING SENSOR DATA FOR USE IN AUTONOMOUS VEHICLE COMMUNICATIONS PLATFORM	8/21/2018	16/106,936		12/11/2015	20190004530	1/3/2019			0	US	United States	Pending
UP-00411WO	SYSTEMS AND METHODS TO OBTAIN FEEDBACK IN RESPONSE TO AUTONOMOUS VEHICLE FAILURE EVENTS	6/15/2018	PCT/US2018/037757		6/16/2017					0	WO	WIPO (PCT)	Pending
UP-00168USP	SYSTEM AND METHOD OF SENSOR TRIGGERING FOR SYNCHRONIZED OPERATION	3/21/2016	62/311,267		3/21/2016					1	US	United States	Lapsed
UP-00324USP	Autonomy Monitoring Systems and Methods for a Vehicle	4/20/2017	62/487,735		4/20/2017					1	US	United States	Lapsed
Systems and Methods to Obtain Feedback in Response to Autonomous Vehicle Failure Events													
UP-00411US	Systems and Methods for a Vehicle Application Programming Interface	6/16/2017	15/625,255		6/16/2017	20180365913	12/20/2018			0	US	United States	Pending
UP-00468USP	Systems and Methods for a Vehicle Application Programming Interface	10/11/2017	62/570,955		10/11/2017					1	US	United States	Lapsed
UP-00468WO	Application Programming Interface Systems and Methods For a Vehicle	10/10/2018	PCT/US2018/055127		10/11/2017					0	WO	WIPO (PCT)	Pending
UP-00468US	Application Programming Interface SYSTEM AND METHOD OF SENSOR TRIGGERING FOR SYNCHRONIZED OPERATION	2/14/2018	15/896,276		10/11/2017					0	US	United States	Pending
UP-00168USC1	VEHICLE SENSOR CALIBRATION SYSTEM	7/5/2018	16/027,706		3/21/2016	20180313928	11/1/2018			0	US	United States	Pending
UP-00199US	Calibration of orthogonal sensor suite	5/27/2016	15/166,538		5/27/2016	20170343654	11/30/2017	4/24/2018	9952317	0	US	United States	In Force
UP-00615US	VEHICLE SENSOR CALIBRATION SYSTEM	4/2/2001	09/824,543		3/31/2000	20020100310	8/1/2002	5/4/2004	6729176	0	US	United States	In Force
UP-00199USC1	Autonomous Vehicle Sensor Calibration System	11/14/2017	15/812,872		5/27/2016	20180067198	3/8/2018			0	US	United States	Pending
UP-00318US	CALIBRATION FOR AN AUTONOMOUS VEHICLE LIDAR MODULE	3/31/2017	15/475,934		3/31/2017	20180284243	10/4/2018			0	US	United States	Pending
UP-00405US2	CALIBRATION FOR AN AUTONOMOUS VEHICLE LIDAR MODULE	8/17/2017	15/679,338		8/17/2017	20190056484	2/21/2019			0	US	United States	Pending
UP-00405US1	CALIBRATION FOR AN AUTONOMOUS VEHICLE LIDAR MODULE	8/17/2017	15/679,319		8/17/2017	20190056483	2/21/2019			0	US	United States	Pending

UP-00472US	INTERMEDIATE MOUNTING COMPONENT AND SENSOR SYSTEM FOR A MANSFIELD BAR OF A CARGO TRAILER	1/30/2018 15/883,889	1/30/2018			0	US	United States	Pending
UP-00564USC1	GNSS/IMU Positioning, Communication, and Computation Platforms for Automotive Safety Applications	12/6/2013 14/099,271	7/15/2010 20140100713	4/10/2014 8/4/2015 9099003		0	US	United States	In Force
UP-00564US	GPS/IMU/Video/Radar Absolute/Relative Positioning Communication/Computation Sensor Platform for Automotive Safety Applications	7/15/2011 13/135,862	7/15/2010 20120290146	11/15/2012 1/28/2014 8639426		0	US	United States	In Force
UP-00586US	Microwave Vehicle-to-Vehicle Warning System	12/29/2003 10/746,692	1/8/2003 20040145494	7/29/2004 9/5/2006 7102536		0	US	United States	In Force
UP-00708US	Telecommunications Network For Vehicles	1/30/2018 15/883,715	1/12/2018			0	US	United States	Pending
UP-00596US	Cellular Device Location Discovery Systems and Methods for Autonomous Vehicles	10/10/2017 15/728,911	9/27/2017			0	US	United States	Pending
UP-00586USP	Microwave Alerting System for Vehicles GPS/IMU/Video/Radar Absolute/Relative Positioning Communication Sensor Platform for Automotive Safety Applications	1/8/2003 60/438,536	1/8/2003			1	US	United States	Lapsed
UP-00564USP	Telecommunications Network For Autonomous Vehicles	7/15/2010 61/399,613	7/15/2010			1	US	United States	Lapsed
UP-00708USP	Cellular Device Location Discovery Systems and Methods for Autonomous Vehicles	1/12/2018 62/616,820	1/12/2018			1	US	United States	Lapsed
UP-00596USP	Cellular Device Location Discovery Systems and Methods for Autonomous Vehicles	9/27/2017 62/563,697	9/27/2017			1	US	United States	Lapsed

UP-00170US-2	UTILIZING ACCELEROMETER DATA TO CONFIGURE AN AUTONOMOUS VEHICLE FOR A USER	4/1/2016 15/089,408	4/1/2016 20170284819	10/5/2017 6/5/2018 9989645	0	US	United States	In Force
UP-00108USC3	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	6/21/2017 15/629,372	5/11/2015 20170284148	10/5/2017 5/8/2018 9963926	0	US	United States	In Force
UP-00122US	CONTROLLING AUTONOMOUS VEHICLES IN CONNECTION WITH TRANSPORT SERVICES VIRTUAL REALITY EXPERIENCE FOR A VEHICLE	11/21/2016 15/358,033	11/20/2015 20170147959	5/25/2017 4/24/2018 9953283	0	US	United States	In Force
UP-00192US-2		8/5/2016 15/230,053	8/5/2016 20180040163	2/8/2018 3/20/2018 9922466	0	US	United States	In Force
UP-00108USC2	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	6/21/2017 15/629,357	5/11/2015 20170284147	10/5/2017 3/6/2018 9909349	0	US	United States	In Force
UP-00171USCIP1	SENSORY STIMULATION FOR AN AUTONOMOUS VEHICLE	6/17/2016 15/186,279	3/3/2016 20170253252	9/7/2017 2/27/2018 9902403	0	US	United States	In Force
UP-00108USC1	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	3/3/2017 15/449,110	5/11/2015 20170175431	6/22/2017 10/17/2017 9790729	0	US	United States	In Force
UP-00171US	SENSORY STIMULATION SYSTEM FOR AN AUTONOMOUS VEHICLE	3/3/2016 15/059,493	3/3/2016 20170253254	9/7/2017 10/17/2017 9789880	0	US	United States	In Force
UP-00108US	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	5/11/2015 14/708,611	5/11/2015 20160332535	11/17/2016 4/11/2017 9616773	0	US	United States	In Force
TRANSPORT VEHICLE CONFIGURATION								
UP-00164US	FOR IMPAIRED RIDERS	4/27/2016 15/139,612	4/27/2016 20170316696	11/2/2017 4/9/2019 10255816	0	US	United States	Pending
UP-00170US-3C1	CONFIGURING AN AUTONOMOUS VEHICLE FOR AN UPCOMING RIDER	3/5/2018 15/911,485	4/1/2016 20180196433	7/12/2018 11/13/2018 10126749	0	US	United States	In Force
SENSORY STIMULATION SYSTEM FOR AN AUTONOMOUS VEHICLE								
UP-00171USC1	TRANSPORT FACILITATION SYSTEM FOR CONFIGURING A SERVICE VEHICLE FOR A USER	7/17/2017 15/651,878	3/3/2016 20170313326	11/2/2017 10/30/2018 10112623	0	US	United States	In Force
UP-00170US-1		4/1/2016 15/089,402	4/1/2016 20170282821	10/5/2017 10/9/2018 10093252	0	US	United States	In Force

UP-00192US-1	VIRTUAL REALITY EXPERIENCE FOR A VEHICLE	8/5/2016 15/229,923	8/5/2016 20180040162	2/8/2018	8/7/2018	10043316	0	US	United States	In Force
UP-00170US-3	OPTIMIZING TIMING FOR CONFIGURING AN AUTONOMOUS VEHICLE	4/1/2016 15/089,416	4/1/2016 20170285642	10/5/2017	7/3/2018	10012990	0	US	United States	In Force
UP-00329WO	SYSTEM FOR SAFE PASSENGER DEPARTURE FROM AUTONOMOUS VEHICLE	3/27/2018 PCT/US2018/024480	3/31/2017 2018183267	10/4/2018			0	WO	WIPO (PCT)	Pending
UP-00409WO	SYSTEMS AND METHODS TO OBTAIN PASSENGER FEEDBACK IN RESPONSE TO AUTONOMOUS VEHICLE DRIVING EVENTS	6/15/2018 PCT/US2018/037750	6/16/2017				0	WO	WIPO (PCT)	Pending
UP-00720US	Autonomous Vehicle Interface System With Multiple Interface Devices Featuring Redundant Vehicle Commands	2/21/2018 15/901,424	2/12/2018				0	US	United States	Pending
UP-00482WO	Systems and Methods for Communicating Intent of an Autonomous Vehicle	8/20/2018 PCT/US2018/047044	8/28/2017				0	WO	WIPO (PCT)	Pending
UP-00108CN	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	5/11/2016 201680040538.2	5/11/2015 107873098	4/3/2018			0	CN	China	Pending
UP-00721WO	State-Based Autonomous Vehicle Operations	2/13/2019 PCT/US2019/017837	2/14/2018				0	WO	WIPO (PCT)	Pending
UP-00396WO	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 PCT/US2018/036246	6/7/2017				0	WO	WIPO (PCT)	Pending
UP-00497WO	FACILITATING RIDER PICK-UP FOR A SELF-DRIVING VEHICLE	8/27/2018 PCT/US2018/048098	8/31/2017	11/30/2017			0	WO	WIPO (PCT)	Pending
UP-00163WO		5/26/2017 PCT/US2017/034819	5/27/2016 2017205822				0	WO	WIPO (PCT)	Pending
UP-00465USP	COORDINATING ON-DEMAND TRANSPORT USING REQUESTOR LOCALIZATION TRANSPORT FACILITATION SYSTEM FOR CONFIGURING A SERVICE VEHICLE FOR A USER	9/28/2017 62/564,451	9/28/2017				1	US	United States	Lapsed
UP-00170US-1C1	Systems and Methods for Changing Autonomous Vehicle Operations Based on User Profiles	6/15/2018 16/009,558	4/1/2016 20180290610	10/11/2018			0	US	United States	Pending
UP-00395USP		6/20/2017 62/522,207	6/20/2017				1	US	United States	Lapsed

TRANSPORT FACILITATION SYSTEM FOR CONFIGURING A SERVICE VEHICLE FOR A USER										
UP-00170WO	Systems and Methods for Presenting Virtual Content in a Vehicle System for Safe Passenger Departure from Autonomous Vehicle	3/21/2017	PC/US2017/023411	4/1/2016	2017172415	10/5/2017	0	WO	WIPO (PCT)	Pending
UP-00603US	Facilitating Rider Pick-Up For A Self-Driving Vehicle	11/9/2017	15/807,932	10/31/2017			0	US	United States	Pending
UP-00329US	Autonomous Vehicle System for Blending Sensor Data	3/31/2017	15/475,881	3/31/2017	20180284793	10/4/2018	0	US	United States	Pending
UP-00163USP	Autonomous Vehicle System for Blending Sensor Data	5/27/2016	62/342,797	5/27/2016			1	US	United States	Lapsed
UP-00320USP	Autonomous Vehicle System for Blending Sensor Data	3/31/2017	62/479,639	3/31/2017			1	US	United States	Lapsed
UP-00320US	PERSONALIZING RIDE EXPERIENCE BASED ON CONTEXTUAL RIDE USAGE DATA	6/5/2017	15/613,636	3/31/2017	20180284779	10/4/2018	0	US	United States	Pending
UP-00225US	Seamless Vehicle Entry	11/11/2016	15/349,648	11/11/2016	20180137593	5/17/2018	0	US	United States	Lapsed
UP-00583USP	CONTROLLING AUTONOMOUS VEHICLES IN CONNECTION WITH TRANSPORT SERVICES	12/1/2017	62/593,422	12/1/2017			1	US	United States	Pending
UP-00122WO	CONTROLLING AUTONOMOUS VEHICLES IN CONNECTION WITH TRANSPORT SERVICES	11/21/2016	PC/US2016/063203	11/20/2015	2017087984	5/26/2017	0	WO	WIPO (PCT)	Lapsed
UP-00122USP	CONTROLLING AUTONOMOUS VEHICLES IN CONNECTION WITH TRANSPORT SERVICES	11/20/2015	62/258,066	11/20/2015			1	US	United States	Lapsed
UP-00425US	Systems and Methods for Providing User Access to an Autonomous Vehicle	7/27/2017	15/661,608	7/27/2017	20190031144	1/31/2019	0	US	United States	Pending
UP-00556USP	Systems and Methods for Signaling Intentions to Riders	10/18/2017	62/573,761	10/18/2017			1	US	United States	Lapsed
UP-00423USP	System and Methods for Controlling Autonomous Vehicles that Provide a Vehicle Service to Users	5/24/2017	62/510,515	5/24/2017			1	US	United States	Lapsed
UP-00423US2	Systems and Methods for Controlling Autonomous Vehicles that Provide a Vehicle Service to Users	7/28/2017	15/662,327	5/24/2017	20180342157	11/29/2018	0	US	United States	Pending
UP-00200US	VEHICLE WORK ENVIRONMENT	11/14/2016	15/351,209	11/14/2016	20180137470	5/17/2018	0	US	United States	Pending
UP-00498USP	Systems and Methods for Determining Whether an Autonomous Vehicle Can Provide a Requested Service for a Rider	9/28/2017	62/564,326	9/28/2017			1	US	United States	Lapsed
UP-00497USP	Systems and Methods for Determining When to Release Control of an Autonomous Vehicle	8/31/2017	62/552,558	8/31/2017			1	US	United States	Lapsed
UP-00497US	When to Release Control of an Autonomous Vehicle	10/4/2017	15/724,728	8/31/2017	20190064806	2/28/2019	0	US	United States	Pending
UP-00423US1	Autonomous Vehicles that Provide a Vehicle Service to Users	7/28/2017	15/662,314	5/24/2017	20180341274	11/29/2018	0	US	United States	Pending
UP-00375US	PERSONALIZED CONTENT CREATION FOR AUTONOMOUS VEHICLE RIDES	3/9/2017	15/454,941	3/9/2017	20180259958	9/13/2018	0	US	United States	Pending
UP-00374US	COORDINATING ON-DEMAND TRANSPORTATION WITH AUTONOMOUS VEHICLES	5/25/2017	15/605,060	5/25/2017	20180342035	11/29/2018	0	US	United States	Pending

UP-00417USP	Vehicle Door Strike Prevention for Autonomous Vehicles	7/12/2017	62/531,508	7/12/2017		1	US	United States	Lapsed	
UP-00482US	Systems and Methods for Communicating Intent of an Autonomous Vehicle	9/11/2017	15/700,211	8/28/2017	20190064824	2/28/2019	0	US	United States	Pending
UP-00415US	Supervised Movement of Autonomous Vehicle	11/1/2017	15/800,494	7/14/2017	20190018413	1/17/2019	0	US	United States	Pending
UP-00186US	RIDER-VEHICLE HANDSHAKE	4/8/2016	15/094,899	4/8/2016	20170294130	10/12/2017	0	US	United States	Pending
UP-00108WO	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	5/11/2016	PCT/US2016/031929	5/11/2015	2016183241	11/17/2016	0	WO	WIPO (PCT)	Lapsed
UP-00409US	Systems and Methods to Obtain Passenger Feedback in Response to Autonomous Vehicle Driving Events	6/16/2017	15/625,145	6/16/2017	20180365740	12/20/2018	0	US	United States	Pending
UP-00396US	System and Methods to Enable User Control of an Autonomous Vehicle	6/7/2017	15/615,870	6/7/2017	20180356817	12/13/2018	0	US	United States	Pending
UP-00164USC1	TRANSPORT VEHICLE CONFIGURATION FOR IMPAIRED RIDERS	1/29/2019	16/260,663	4/27/2016			0	US	United States	Pending
UP-00482USP	Systems and Methods for Communicating Intent of an Autonomous Vehicle	8/28/2017	62/550,796	8/28/2017			1	US	United States	Lapsed
UP-00721US	State-Based Autonomous Vehicle Operations	3/19/2018	15/924,865	2/14/2018			0	US	United States	Pending
UP-00583US	Seamless Vehicle Entry	1/23/2018	15/877,689	12/1/2017			0	US	United States	Pending
SENSORY STIMULATION SYSTEM FOR AN AUTONOMOUS VEHICLE										
UP-00171USC2	Systems and Methods for Presenting Virtual Content in a Vehicle	8/1/2018	16/051,910	3/3/2016	2018039715	11/29/2018	0	US	United States	Pending
UP-00603WO	Systems and Methods for Signaling Intentions to Riders	10/30/2018	PCT/US2018/058163	10/31/2017			0	WO	WIPO (PCT)	Pending
UP-00556WO		10/16/2018	PCT/US2018/056028	10/18/2017			0	WO	WIPO (PCT)	Pending
UP-00108USC4	DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE	4/4/2018	15/945,365	5/11/2015	20180223584	8/9/2018	0	US	United States	Pending

TRANSPORT FACILITATION SYSTEM FOR CONFIGURING A SERVICE VEHICLE FOR A USER												
UP-00170CN		3/21/2017	201780022139.8	4/1/2016	109074621	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												
UP-00603USP		10/31/2017	62/579,505	10/31/2017			1	US	United States	Lapsed		
UP-00556US		11/6/2017	15/804,428	10/18/2017			0	US	United States	Pending		
CONTROLLING AUTONOMOUS VEHICLES IN CONNECTION WITH TRANSPORT SERVICES												
UP-00122EP		11/21/2016	16867359.8	11/20/2015	3378032	9/26/2018	0	EP	European Patent Office	Pending		
DETECTING OBJECTS WITHIN A VEHICLE IN CONNECTION WITH A SERVICE												
UP-00108EP		5/11/2016	16793475.1	5/11/2015	3295421	3/21/2018	0	EP	European Patent Office	Pending		
VEHICLE MANAGEMENT SYSTEM												
UP-00250US-1C2		10/11/2017	15/730,234	12/14/2016	20180164814	6/14/2018	3/5/2019	10223847	0	US	United States	In Force
UP-00319US	Autonomous Vehicle Palletization System	3/31/2017	15/475,755	3/31/2017	20180284807	10/4/2018	10/9/2018	10095239	0	US	United States	In Force
UP-00249USC1	Vehicle Servicing System	10/16/2017	15/784,594	12/14/2016	20180164815	6/14/2018	7/17/2018	10025310	0	US	United States	In Force
UP-00246WO	Charge Control System for Mobile Energy Storage Fleet	1/4/2018	PCT/US2018/012323	1/13/2017	2018132293	9/20/2018			0	WO	WIPO (PCT)	Pending
UP-00710USP	Systems and Methods for On-Site Recovery of Autonomous Vehicles	1/29/2018	62/623,155	1/29/2018					1	US	United States	Lapsed
UP-00710US	Systems and Methods for On-Site Recovery of Autonomous Vehicles	1/31/2018	15/884,852	1/29/2018					0	US	United States	Pending
UP-00621US	SYSTEMS AND METHODS FOR REMOTE INSPECTION OF A VEHICLE	3/23/2018	15/933,499	1/23/2018					0	US	United States	Pending
UP-00640US	Methods, Devices, and Systems For Communicating Autonomous Vehicle Status	1/29/2018	15/882,372	1/17/2018					0	US	United States	Pending

UP-0067JUS	Task Management Platform for Autonomous Vehicles Systems and Methods for Implementing Vehicle Assignments using Vehicle State Information	2/28/2018 15/907.829	1/19/2018	0	US	United States	Pending
UP-0067OUS	Systems and Methods For Remote Inspection of a Vehicle	2/19/2018 15/898.960	1/17/2018	0	US	United States	Pending
UP-0062IUSP	Systems and Methods for Providing a Vehicle Service via a Transportation Network for Autonomous Vehicles	1/23/2018 62/620.656	1/23/2018	1	US	United States	Lapsed
UP-0062OUSP	Self-Driving Delivery of Optionally-Driven Vehicles	11/10/2017 62/584.268	11/10/2017	1	US	United States	Lapsed
UP-00312US		5/16/2017 15/596.046	5/16/2017 20180335783	0	US	United States	Pending
UP-00376US-13	FLEET UTILIZATION EFFICIENCY FOR ON-DEMAND TRANSPORTATION SERVICES Systems and Methods for Deploying an Autonomous Vehicle to Oversee Autonomous Navigation	5/23/2017 15/602.398	5/23/2017 20180341895	0	US	United States	Pending
UP-00424US	POST-TRIP OPTIMIZATION FOR AUTONOMOUS VEHICLES	7/17/2017 15/651.362	7/17/2017 20190019416	0	US	United States	Pending
UP-00376US-6	Vehicle Management System	5/23/2017 15/602.277	5/23/2017 20180341881	0	US	United States	Pending
UP-00250US-2	Vehicle Management System	12/14/2016 15/379.420	12/14/2016 20180165895	0	US	United States	Pending
UP-00250US-1CT	Vehicle Control Device	10/11/2017 15/730.211	12/14/2016 20180164813	0	US	United States	Pending
UP-00248US	Charge Control System for Mobile Energy Storage Fleet	12/14/2016 15/378.553	12/14/2016 20180164798	0	US	United States	Pending
UP-00246US	Methods, Devices, and Systems for Communicating Autonomous Vehicle Status	1/13/2017 15/405.581	1/13/2017 20180201148	0	US	United States	Pending
UP-00640USP	Systems and Methods for a Task Management Platform	1/17/2018 62/618.367	1/17/2018	1	US	United States	Lapsed
UP-0067IUSP	Systems and Methods for Implementing Vehicle Assignments Using Vehicle State Information	1/19/2018 62/619.147	1/19/2018	1	US	United States	Lapsed
UP-00670USP	SYSTEMS AND METHODS FOR PROVIDING A VEHICLE SERVICE VIA A TRANSPORTATION NETWORK FOR AUTONOMOUS VEHICLES	1/17/2018 62/618.383	1/17/2018	1	US	United States	Lapsed
UP-00620WO	Vehicle Management System	11/9/2018 PCT/US2018/059934	11/10/2017	0	WO	WIPO (PCT)	Pending
UP-00250WO	Dispatching a Third-Party Autonomous Vehicle	12/12/2017 PCT/US2017/065818	12/14/2016 2018111877	0	WO	WIPO (PCT)	Pending
UP-00687USP	Systems and Methods for On-Site Recovery of Autonomous Vehicles	10/20/2017 62/575.200	10/20/2017	1	US	United States	Lapsed
UP-00710WO	Autonomous Vehicle Palletization System	1/28/2019 PCT/US2019/015336	1/29/2018	0	WO	WIPO (PCT)	Pending
UP-00319USCT	Vehicle Servicing System	9/19/2018 16/135.760	3/31/2017 20190033880	0	US	United States	Pending
UP-00249USC2	Vehicle Servicing System	7/6/2018 16/029.075	12/14/2016 20180314256	0	US	United States	Pending
UP-00249WO	Vehicle Servicing System	12/12/2017 PCT/US2017/065814	12/14/2016 2018111874	0	WO	WIPO (PCT)	Pending
UP-00670WO	Systems and Methods for Implementing Vehicle Assignments Using Vehicle State Information	1/17/2019 PCT/US2019/013904	1/17/2018	0	WO	WIPO (PCT)	Pending
UP-00620US	Vehicle Service Via a Transportation Network for Autonomous Vehicles	12/21/2017 15/850.398	11/10/2017	0	US	United States	Pending

UP-00169US UP-00323US UP-00169USCIP1	INTENTION SIGNALING FOR AN AUTONOMOUS VEHICLE Lidar Display Systems and Methods LIGHTING DEVICE FOR A VEHICLE	2/22/2016 15/050,237	2/22/2016 20170240096	8/24/2017 5/15/2018 9969326	0	US	United States	In Force
		4/10/2017 15/484,073	4/10/2017 9904375	2/27/2018 2/27/2018 9904375	0	US	United States	In Force
		4/29/2016 15/143,198	2/22/2016 20170240098	8/24/2017 2/27/2018 9902311	0	US	United States	In Force
UP-00469US UP-00169USCIP1C1	Systems and Methods for Communicating Autonomous Vehicle Scenario Evaluation and Intended Vehicle Actions LIGHT OUTPUT SYSTEM FOR A SELF- DRIVING VEHICLE	8/16/2017 15/678,675	8/16/2017 20190066741	2/21/2019 2/19/2019 10209716	0	US	United States	In Force
		11/3/2017 15/803,184	2/22/2016 20180072218	3/15/2018 12/25/2018 10160378	0	US	United States	In Force
UP-00469USC1	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
UP-00469WO UP-00323USC1	Systems and Methods for Communicating Autonomous Vehicle Scenario Evaluation and Intended Vehicle Actions Lidar Display Systems and Methods INTENTION SIGNALING FOR AN AUTONOMOUS VEHICLE	8/16/2018 PCT/US2018/000215	8/16/2017		0	WO	WIPO (PCT)	Pending
		2/26/2018 15/905,364	4/10/2017 20180292916	10/11/2018	0	US	United States	Pending
		12/23/2016 PCT/US2016/068563	2/22/2016 2017146815	8/31/2017	0	WO	WIPO (PCT)	Pending
UP-00441US	Systems and Methods for Communicating Autonomous Vehicle Confidence Levels	7/14/2017 15/650,028	7/14/2017 20190019411	1/17/2019	0	US	United States	Pending
UP-00440US	Systems and Methods for Communicating Future Vehicle Actions to be Performed by an Autonomous Vehicle INTENTION SIGNALING FOR AN	7/14/2017 15/650,004	7/14/2017 20190015976	1/17/2019	0	US	United States	Pending
UP-00169CIP1CN	INTENTION SIGNALING FOR AN AUTONOMOUS VEHICLE INTENTION SIGNALING FOR AN	12/23/2016 201680084495.8	2/22/2016 109070891	12/21/2018	0	CN	China	Pending
UP-00323WO	LIDAR DISPLAY SYSTEMS AND METHODS	1/16/2018 PCT/US2018/013810	4/10/2017 2018190929	10/18/2018	0	WO	WIPO (PCT)	Pending

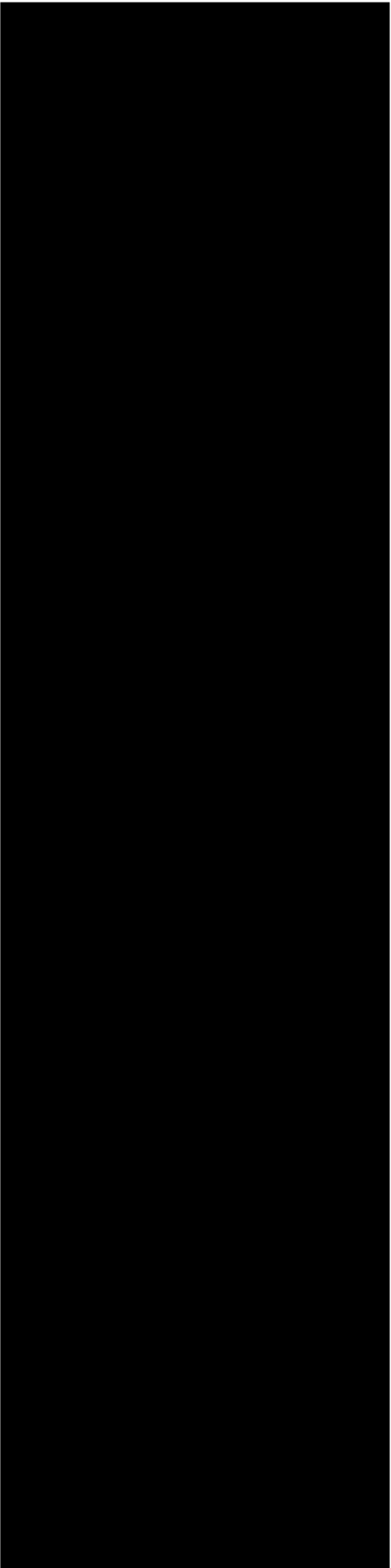
UP-00153EP	VEHICLE TRACTION MAP FOR AUTONOMOUS VEHICLES	12/12/2016	16874074.4	12/10/2015	3386828	10/17/2018	0	EP	European Patent Office Pending
UP-00140US-1	AUTONOMOUS VEHICLE CONTROL USING SUBMAPS	6/30/2017	15/640,289	7/1/2016	20180004225	1/4/2018	0	US	United States Pending
UP-00140US-2P	SUBMAP SYSTEM FOR USE IN AUTONOMOUSLY OPERATING VEHICLES	10/24/2016	62/412,041	10/24/2016			1	US	United States Lapsed
UP-00140US-1P	SUBMAP SYSTEM FOR USE IN AUTONOMOUSLY OPERATING VEHICLES	7/1/2016	62/357,903	7/1/2016			1	US	United States Lapsed
UP-00153WO	VEHICLE TRACTION MAP FOR AUTONOMOUS VEHICLES	12/12/2016	PCT/US2016/066235	12/10/2015	2017100797	6/15/2017	0	WO	WIPO (PCT) Pending
UP-00153US-2	VEHICLE TRACTION MAP FOR AUTONOMOUS VEHICLES	12/12/2016	15/376,574	12/10/2015	20170167881	6/15/2017	0	US	United States Pending
UP-00140-1WO	AUTONOMOUS VEHICLE CONTROL USING SUBMAPS	7/1/2017	PCT/US2017/040532	7/1/2016	2018006082	1/4/2018	0	WO	WIPO (PCT) Pending
UP-00140US-2	SYSTEM AND METHOD FOR MANAGING SUBMAPS FOR CONTROLLING AUTONOMOUS VEHICLES	6/30/2017	15/640,296	7/1/2016	20180004226	1/4/2018	0	US	United States Pending

UP-00498WO	SYSTEMS AND METHODS FOR DETERMINING WHETHER AN AUTONOMOUS VEHICLE CAN PROVIDE A REQUESTED SERVICE FOR A RIDER	9/13/2018 PCT/US2018/050879	9/28/2017	20180341571	11/29/2018	0	WO	WIPO (PCT)	Pending
UP-00499WO	SYSTEMS AND METHODS FOR MATCHING AN AUTONOMOUS VEHICLE TO A RIDER	9/13/2018 PCT/US2018/050883	9/28/2017	20180341571	11/29/2018	0	WO	WIPO (PCT)	Pending
UP-00376US-5	SOFTWARE VERSION VERIFICATION FOR AUTONOMOUS VEHICLES	5/23/2017 15/602,244	5/23/2017	20180342033	11/29/2018	0	US	United States	Pending
UP-00376US-4	SOFTWARE VERSION AND MODE SWITCHING FOR AUTONOMOUS VEHICLES	5/23/2017 15/602,234	5/23/2017	2018039712	11/29/2018	0	US	United States	Pending
UP-00376US-3	VEHICLE SELECTION FOR ON-DEMAND TRANSPORTATION SERVICES	5/23/2017 15/602,223	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 62/564,331	9/28/2017	20180342033	11/29/2018	1	US	United States	Lapsed
UP-00376US-2	TRIP CLASSIFICATION SYSTEM FOR ON-DEMAND TRANSPORTATION SERVICES	5/23/2017 15/602,204	5/23/2017	20180342033	11/29/2018	0	US	United States	Pending
UP-00376US-1	PATH SEGMENT RISK REGRESSION SYSTEM FOR ON-DEMAND TRANSPORTATION SERVICES	5/23/2017 15/602,197	5/23/2017	20180341261	11/29/2018	0	US	United States	Pending
UP-00376WO	PATH SEGMENT RISK REGRESSION SYSTEM FOR ON-DEMAND TRANSPORTATION SERVICES	5/17/2018 PCT/US2018/033092	5/23/2017	2018217526	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	10/25/2017 15/792,964	9/28/2017	20180341261	11/29/2018	0	US	United States	Pending
UP-00499US	Systems and Methods for Matching an Autonomous Vehicle to a Rider	10/31/2017 15/799,323	9/28/2017	20180341261	11/29/2018	0	US	United States	Pending

Discrete Decision Architecture for Motion Planning System of an Autonomous Vehicle										
UP-00698US1	AUTONOMOUS VEHICLE COLLISION MITIGATION SYSTEMS AND METHODS	8/8/2018	16/058,364	1/15/2018	0	US	United States	Pending		
UP-00394WO	HIERARCHICAL MOTION PLANNING FOR AUTONOMOUS VEHICLES	6/22/2018	PCI/US2018/038996	6/29/2017	0	WO	WIPO (PCT)	Pending		
UP-00291US	Autonomous Vehicle Collision Mitigation Systems and Methods	3/14/2017	15/458,740	3/14/2017	20180267337	0	US	United States	Pending	
UP-00394US2	Systems and Methods For Streaming Autonomy Processing For Autonomous Vehicles	6/29/2017	15/637,539	6/29/2017	20190004538	0	US	United States	Pending	
UP-00604USP	Systems and Methods to Adjust Autonomous Vehicle Parameters in Response to Passenger Feedback	1/12/2018	62/616,542	1/12/2018		1	US	United States	Lapsed	
UP-00452USP	Systems and Methods to Control Autonomous Vehicle Motion	8/11/2017	62/544,432	8/11/2017		1	US	United States	Lapsed	
UP-00322US	Systems and Methods to Adjust Autonomous Vehicle Parameters in Response to Passenger Feedback	3/30/2017	15/473,686	3/30/2017	20180284768	0	US	United States	Pending	
UP-00452US	Systems and Methods for Performing Lane Changes Around Static Vehicles	11/13/2017	15/810,296	8/11/2017	20190047584	0	US	United States	Pending	
UP-00448USP	Systems and Methods for Performing Lane Changes Around Static Vehicles	8/23/2017	62/549,056	8/23/2017		1	US	United States	Lapsed	
UP-00448US	Systems and Methods for Performing Lane Changes Around Obstacles	10/6/2017	15/726,498	8/23/2017	20190061765	0	US	United States	Pending	
UP-00447US	Systems and Methods of Controlling an Autonomous Vehicle Using an Enhanced Trajectory Following Configuration	8/29/2017	15/689,251	8/29/2017	20190064813	0	US	United States	Pending	
UP-00226US	NEURAL NETWORK SYSTEM FOR AUTONOMOUS VEHICLE CONTROL	10/17/2016	15/295,088	10/17/2016	20180107215	0	US	United States	Pending	
UP-00314USP	Machine Learning to Automatically Tune Autonomous Vehicle Cost Function Gains	4/6/2017	62/482,280	4/6/2017		1	US	United States	Lapsed	
UP-00153USP	VEHICLE CONTROL SYSTEM USING TIRE SENSOR DATA	12/10/2015	62/265,960	12/10/2015		1	US	United States	Lapsed	
UP-00576USP	Systems and Methods for a Vehicle Controller Robust to Time Delays	10/19/2017	62/574,247	10/19/2017		1	US	United States	Lapsed	
UP-00575USP	Systems and Methods for a Vehicle Controller Safety Monitor	10/6/2017	62/569,054	10/6/2017		1	US	United States	Lapsed	
UP-00567USP	Systems and Methods for Road Surface Dependent Motion Planning	12/7/2017	62/595,693	12/7/2017		1	US	United States	Lapsed	
UP-00314US	Automatic Tuning of Autonomous Vehicle Cost Functions Based on Human Driving Data	5/30/2017	15/607,994	4/6/2017	20180292830	0	US	United States	Lapsed	
UP-00153US 3	MOTION PLANNING FOR A VEHICLE USING TRACTION INFORMATION	12/12/2016	15/376,553	12/10/2015	20170166216	0	US	United States	Pending	
UP-00153US 1	VEHICLE CONTROL SYSTEM USING TIRE SENSOR DATA	12/12/2016	15/376,270	12/10/2015	20170166215	0	US	United States	Pending	
UP-00406US	CONFIGURING MOTION PLANNING FOR A SELF-DRIVING TRACTOR UNIT	8/16/2017	15/678,984	8/16/2017	20190056736	0	US	United States	Pending	
UP-00559USP	Autonomous Vehicles Featuring Vehicle Intention System	8/31/2017	62/552,574	8/31/2017		1	US	United States	Lapsed	

UP-00559US	Autonomous Vehicles Featuring Vehicle Intention System	9/11/2017	15/700,466	8/31/2017	20190066506	2/28/2019	0	US	United States	Pending
UP-00501USP	Systems and Methods for Autonomous Vehicle Lane Change Control	11/6/2017	62/582,005	11/6/2017			1	US	United States	Lapsed
UP-00418US	Context Specific Tolerance for Motion Control In Autonomous Vehicles	9/15/2017	15/705,507	9/15/2017	20190086924	3/21/2019	0	US	United States	Pending
UP-00484USP	Systems and Methods for Low-Latency Braking Action for an Autonomous Vehicle	8/23/2017	62/549,355	8/23/2017			1	US	United States	Lapsed
UP-00484US	Systems and Methods for Low-Latency Braking Action for an Autonomous Vehicle	10/16/2017	15/784,684	8/23/2017	20190061712	2/28/2019	0	US	United States	Pending
UP-00413US	Systems and Methods for Speed Limit Context Awareness	7/18/2017	15/652,654	7/18/2017	20190025843	1/24/2019	0	US	United States	Pending
UP-00286USC1	COLLISION AVOIDANCE SYSTEM FOR AUTONOMOUS-CAPABLE VEHICLES	5/23/2018	15/987,460	6/23/2017	20180373263	12/27/2018	0	US	United States	Pending
UP-00717USP	Autonomous Vehicle Safe Stop Discrete Design Architecture For Motion Planning System of an Autonomous Vehicle	1/30/2018	62/623,815	1/30/2018			1	US	United States	Lapsed
UP-00698USP1	Methods, Devices, and Systems For Analyzing Motion Plans of Autonomous Vehicles	1/15/2018	62/617,417	1/15/2018			1	US	United States	Lapsed
UP-00695USP	Systems and Methods for Streaming Processing for Autonomous Vehicles	1/26/2018	62/622,233	1/26/2018			1	US	United States	Lapsed
UP-00604US2	Systems and Methods for Streaming Processing for Autonomous Vehicles	5/18/2018	15/983,499	1/12/2018			0	US	United States	Pending
UP-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
UP-00698US2	Discrete Decision Architecture for Motion Planning System of an Autonomous Vehicle	8/8/2018	16/058,430	1/15/2018			0	US	United States	Pending
UP-00281USC1	Adaptive Vehicle Motion Control System	4/26/2018	15/963,662	2/2/2017	20180246517	8/30/2018	0	US	United States	Pending
UP-00094USC1	VEHICLE CONTROLS BASED ON THE MEASURED WEIGHT OF FREIGHT	8/1/2018	16/051,659	12/20/2016	20180339711	11/29/2018	0	US	United States	Pending
UP-00698WO	DISCRETE DECISION ARCHITECTURE FOR MOTION PLANNING SYSTEM OF AN AUTONOMOUS VEHICLE	1/14/2019	PCT/US2019/013464	1/15/2018			0	WO	WIPO (PCT)	Pending
UP-00226WO	NEURAL NETWORK SYSTEM FOR AUTONOMOUS VEHICLE CONTROL	10/12/2017	PCT/US2017/056277	10/17/2016	2018075325	4/26/2018	0	WO	WIPO (PCT)	Pending
UP-00567WO	Systems and Methods for Road Surface Dependent Motion Planning	12/7/2018	PCT/US2018/064383	12/7/2017			0	WO	WIPO (PCT)	Pending

UP-00208US-1	SENSOR CLEANING SYSTEM FOR VEHICLES	7/18/2016	15/213,110	7/18/2016	20180015907	1/18/2018	1/29/2019	10189450	0	US	United States	In Force
UP-00426US	Sequential Sensor Cleaning System for Autonomous Vehicle	7/7/2017	15/643,598	7/7/2017	20190009752	1/10/2019	1/8/2019	101773646	0	US	United States	In Force
SIDEPOD STEREO CAMERA SYSTEM FOR AN AUTONOMOUS VEHICLE												
UP-00162US	AUTONOMOUS VEHICLE	3/14/2016	15/069,428	3/14/2016	20170259753	9/14/2017	9/18/2018	10077007	0	US	United States	In Force
UP-00145US	INTELLIGENT LENS MASKING SYSTEM FOR AN AUTONOMOUS VEHICLE	12/22/2015	14/979,351	12/22/2015	20170177000	6/22/2017	8/14/2018	10048696	0	US	United States	In Force
UP-00407US	CARGO TRAILER SENSOR ASSEMBLY	10/23/2017	15/790,329	10/23/2017					0	US	United States	Pending
UP-00145USC1	LENS MASKING SYSTEM FOR A VEHICLE	6/26/2018	16/018,246	12/22/2015	20180299903	10/18/2018			0	US	United States	Pending
SENSOR CLEANING SYSTEM FOR VEHICLES												
UP-00208-1WO	INTELLIGENT LENS MASKING SYSTEM FOR AN AUTONOMOUS VEHICLE	7/13/2017	PC1/US2017/042005	7/18/2016	2018017395	1/25/2018			0	WO	WIPO (PCT)	Pending
UP-00145EP		12/20/2016	16879983.1	12/22/2015	3394694	10/31/2018			0	EP	European Patent Office	Pending
AUTONOMOUS VEHICLE SENSOR CLEANING SYSTEM												
UP-00330WO	Autonomous Vehicle Sensor Cleaning System	3/27/2018	PC1/US2018/024556	4/7/2017	2018187089	10/11/2018			0	WO	WIPO (PCT)	Pending
UP-00330US-2	Autonomous Vehicle Sensor Cleaning System	4/7/2017	15/482,251	4/7/2017	20180290631	10/11/2018			0	US	United States	Pending
UP-00330US-1	System Nozzles and Systems for Cleaning Sensors of an Autonomous Vehicle	4/7/2017	15/482,219	4/7/2017	20180290632	10/11/2018			0	US	United States	Pending
UP-00585USP		11/8/2017	62/583,143	11/8/2017					1	US	United States	Lapsed
UP-00253USP	Color Filter Array for Image Capture Device	12/29/2016	62/439,910	12/29/2016					1	US	United States	Lapsed
UP-00145WO	INTELLIGENT LENS MASKING SYSTEM FOR AN AUTONOMOUS VEHICLE	12/20/2016	PC1/US2016/067821	12/22/2015	2017112690	6/29/2017			0	WO	WIPO (PCT)	Pending
UP-00253US	Color Filter Array for Image Capture Device	12/21/2017	15/850,452	12/29/2016	20180188427	7/5/2018			0	US	United States	Pending
UP-00252US	Image Capture Device with Customizable Regions of Interest	12/29/2016	15/393,306	12/29/2016	20180189574	7/5/2018			0	US	United States	Pending
UP-00637WO	VEHICLE SENSOR CLEANING SYSTEM	11/5/2018	PC1/US2018/059201	11/8/2017					0	WO	WIPO (PCT)	Pending
UP-00637USP	Cleaning Patterns for Autonomous Vehicle Sensor Cleaning System	11/8/2017	62/583,153	11/8/2017					1	US	United States	Lapsed
UP-00473US	FUSED SENSOR VIEW FOR SELF-DRIVING TRUCK	1/30/2018	15/883,941	1/30/2018					0	US	United States	Pending
VEHICLE DYNAMICS MONITOR FOR AUTONOMOUS VEHICLE												
UP-00623USP		11/22/2017	62/589,701	11/22/2017					1	US	United States	Lapsed



UP-00172US	TRAFFIC SIGNAL ANALYSIS SYSTEM	3/9/2016	15/065,681	3/9/2016	20170262709	9/14/2017	6/5/2018	9990548	0	US	United States	In Force
OBJECT DETECTION FOR AN AUTONOMOUS VEHICLE												
UP-00166IL	SYSTEMS AND METHODS TO TRACK VEHICLES PROXIMATE PERCEIVED BY AN AUTONOMOUS VEHICLE	7/19/2018	16/039,864	3/30/2017	20180322650	11/8/2018	3/12/2019	10229510	0	US	United States	In Force
UP-00277USC1	IMAGE-BASED PEDESTRIAN DETECTION	9/8/2017	15/698,824	4/25/2017	20180307921	10/25/2018	10/23/2018	10108867	0	US	United States	In Force
UP-00315US	SYSTEMS AND METHODS TO TRACK VEHICLES PROXIMATE PERCEIVED BY AN AUTONOMOUS VEHICLE	8/28/2017	15/688,704	3/30/2017	10037613	7/31/2018	7/31/2018	10037613	0	US	United States	In Force
UP-00277US	SYSTEM AND METHOD TO DETERMINE TRACTION OF DISCRETE LOCATIONS OF A ROAD SEGMENT	12/12/2016	15/376,596	12/10/2015	20170168489	6/15/2017	7/10/2018	10018472	0	US	United States	In Force
UP-00153US 6												
Efficient Convolutions for Real-Time Semantic Segmentation of 3D Point Clouds												
UP-00714USP		11/15/2017	62/586,777	11/15/2017					1	US	United States	Lapsed
UP-00333US	RANGE-VIEW LIDAR-BASED OBJECT DETECTION	5/31/2017	15/609,256	5/31/2017	20180348374	12/6/2018			0	US	United States	Pending
UP-00332US	TOP-VIEW LIDAR-BASED OBJECT DETECTION	5/31/2017	15/609,141	5/31/2017	20180349746	12/6/2018			0	US	United States	Pending
IMPROVED OBJECT DETECTION FOR AN AUTONOMOUS VEHICLE												
UP-00166CN		5/5/2017	201710311393.1	5/6/2016	107450529	12/8/2017			0	CN	China	Pending

UP-00166USC1	OBJECT DETECTION FOR AN AUTONOMOUS VEHICLE Systems and Methods for Controlling an Autonomous Vehicle Including Occluded Sensor Zones	3/3/2017 15/449,501	5/6/2016 20170323179	11/9/2017	0	US	United States	Pending
UP-00453USP	Systems and Methods for Controlling an Autonomous Vehicle with Occluded Sensor Zones	8/31/2017 62/552,515	8/31/2017		1	US	United States	Lapsed
UP-00453US	Multiple Stage Image Based Object Detection and Recognition Systems and Methods For Image-Based Free Space Detection	5/22/2018 15/985,820	8/31/2017 20190064840	2/28/2019	0	US	United States	Pending
UP-00584USP	Image-Based Pedestrian Detection	12/5/2017 US62/594,631	12/15/2017		1	US	United States	Lapsed
UP-00578USP		1/5/2018 62/613,845	1/5/2018		1	US	United States	Lapsed
UP-00315USP		4/25/2017 62/489,524	4/25/2017		1	US	United States	Lapsed
UP-00310US	Machine Learning for Event Detection and Classification in Autonomous Vehicles	3/27/2017 15/469,981	3/27/2017 20180275667	9/27/2018	0	US	United States	Pending
UP-00277USP	Systems and Methods to Track Vehicles Proximate to an Autonomous Vehicle	3/30/2017 62/478,663	3/30/2017		1	US	United States	Lapsed
UP-00495USP	3D Graph Neural Networks for RGBD Semantic Segmentation	6/7/2017 62/516,531	6/7/2017		1	US	United States	Lapsed
UP-00141US-2	PERCEPTION SYSTEM FOR AUTONOMOUS VEHICLE	6/30/2017 15/640,370	7/1/2016 20180005053	1/4/2018	0	US	United States	Pending
UP-00141US-1	STATIC OBJECT DETECTION FOR OPERATING AUTONOMOUS VEHICLE	6/30/2017 15/640,364	7/1/2016 20180005052	1/4/2018	0	US	United States	Pending
UP-00475USP	Systems and Methods for Determining Tractor-Trailer Angles and Distances	10/26/2017 62/577,426	10/26/2017		1	US	United States	Lapsed
UP-00470USP	Systems and Methods for Object Detection at Various Ranges Using Multiple Range Imagery	12/12/2017 62/597,450	12/12/2017		1	US	United States	Lapsed
UP-00578US	Systems and Methods For Image-Based Free Space Detection	2/1/2018 15/886,434	1/5/2018		0	US	United States	Pending
UP-00485USP	Orientation Determination in Object Detection and Tracking for Autonomous Vehicles	9/8/2017 62/555,816	9/8/2017		1	US	United States	Lapsed
UP-00680USP	Deep Parametric Continuous Convolutional Neural Networks	11/15/2017 62/586,717	11/15/2017		1	US	United States	Lapsed
UP-00665USP	Hierarchical Recurrent Attention Networks for Structured Online Maps	11/15/2017 62/586,770	11/15/2017		1	US	United States	Lapsed
UP-00659USP	Sparse Convolutional Neural Networks	11/15/2017 62/586,668	11/15/2017		1	US	United States	Lapsed
UP-00661USP	Deep Convolutional Neural Networks for Online Multi-Sensor Lane Detection	11/15/2017 62/586,741	11/15/2017		1	US	United States	Lapsed
UP-00660USP	Deep Convolutional Neural Networks for Online Multi-Sensor Lane Detection	11/15/2017 62/586,725	11/15/2017		1	US	United States	Lapsed
UP-00657USP	Efficient 3D Object Detection from Point Clouds	11/15/2017 62/586,631	11/15/2017		1	US	United States	Lapsed
UP-00656USP	Semantic and Instance Segmentation	11/15/2017 62/586,564	11/15/2017		1	US	United States	Lapsed
UP-00660WO	Autonomous Vehicle Lane Boundary Detection Systems and Methods	11/15/2018 PCT/US2018/061216	11/15/2017		0	WO	WIPO (PCT)	Pending

Systems and Methods for Generating
Sparse Geographic Data for Autonomous
Vehicles

11/15/2018 PCT/US2018/061231

11/15/2017

0

WO

WIPO (PCT)

Pending

UP-00475WO Systems and Methods for Determining
Tractor-Trailer Angles and Distances

10/26/2018 PCT/US2018/057703

10/26/2017

0

WO

WIPO (PCT)

Pending

UP-00584WO Multiple Stage Image Based Object
Detection and Recognition

12/4/2018 PCT/US2018/063839

12/5/2017

0

WO

WIPO (PCT)

Pending

UP-00315USC1 Image Based Pedestrian Detection

10/8/2018 16/154,348

4/25/2017 20190042865

2/7/2019

0

US

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UP-00172USC1 TRAFFIC SIGNAL ANALYSIS SYSTEM

3/20/2018 15/926,211

3/9/2016 20180218226

8/2/2018

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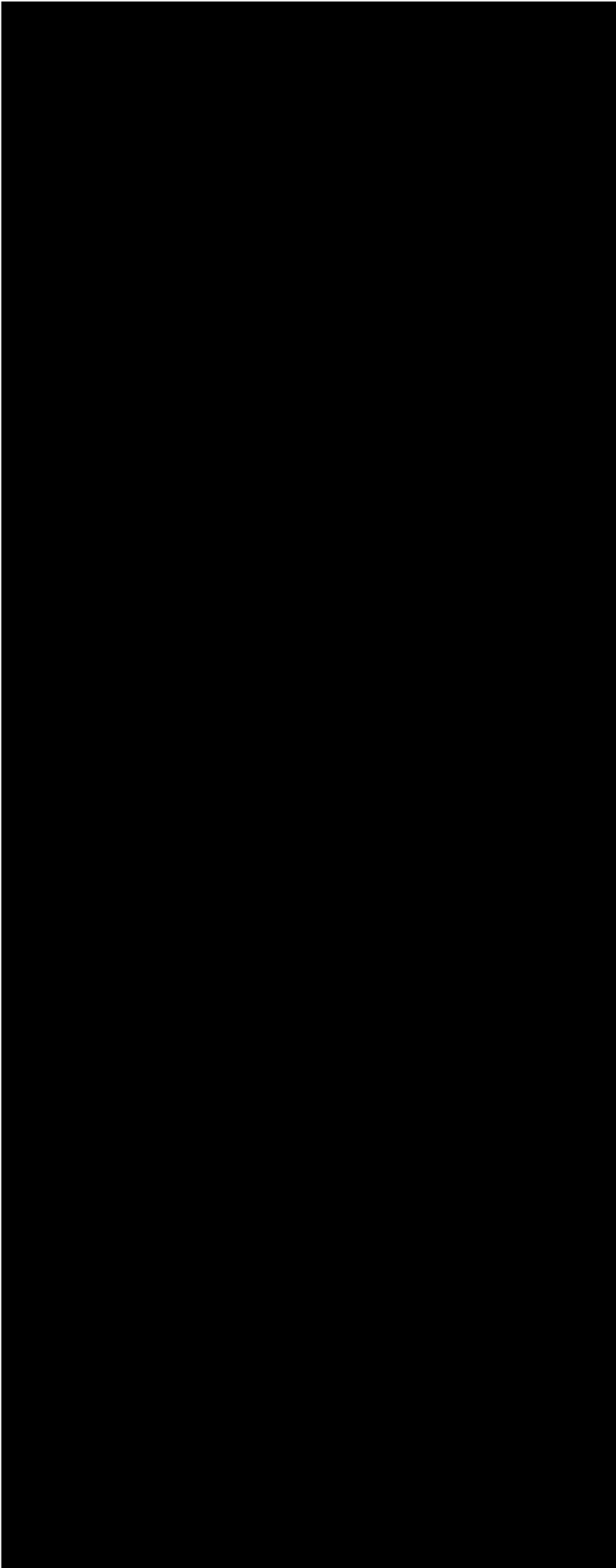
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Systems and Methods for Object Detection at Various Ranges Using Multiple Range Imagery									
UP-00470US	SYSTEM AND METHOD FOR PRESENTING AUTONOMY SWITCHING DIRECTIONS	5/30/2018 15/992,498	12/12/2017	0	US	United States	Pending		
UP-00410US	Orientation Determination in Object Detection and Tracking for Autonomous Vehicles	12/19/2017 15/847,476	12/19/2017	0	US	United States	Pending		
UP-00485US	Hybrid View Lidar-Based Object Detection	10/27/2017 15/795,632	9/8/2017 20190079526	0	US	United States	Pending		
UP-00332USP	Multiple Stage Image Based Object Detection and Recognition	10/31/2017 62/579,528	10/31/2017	1	US	United States	Lapsed		
UP-00584US	Autonomous Vehicle Lane Boundary Detection Systems and Methods	5/7/2018 15/972,566	12/5/2017	0	US	United States	Pending		
UP-00660US	Systems and Methods for Determining Tractor-Trailer Angles and Distances	9/5/2018 16/122,267	11/15/2017	0	US	United States	Pending		
UP-00475US	Sparse Convolutional Neural Networks	5/30/2018 15/992,346	10/26/2017	0	US	United States	Pending		
UP-00659US	Three Dimensional Object Detection	2/7/2018 15/890,886	11/15/2017	0	US	United States	Pending		
UP-00657US	Neural Networks	9/17/2018 16/133,046	11/15/2017	0	US	United States	Pending		
UP-00680US	Systems and Methods for Generating Sparse Geographic Data for Autonomous Vehicles	10/30/2018 16/175,161	11/15/2017	0	US	United States	Pending		
UP-00665US	Autonomous Vehicle Lane Boundary Detection Systems and Methods	9/6/2018 16/123,343	11/15/2017	0	US	United States	Pending		
UP-00661US	Hybrid View LIDAR-Based Object Detection	9/5/2018 16/122,413	11/15/2017	0	US	United States	Pending		
UP-00332USCIP1		2/28/2018 15/907,966	5/31/2017 20180348346	0	US	United States	Pending		

UP-00624US	DUAL ASSESSMENT FOR EARLY COLLISION WARNING USING SEGMENTED CONES FOR FAST, CONSERVATIVE ASSESSMENT OF COLLISION RISK	6/12/2007 11/818,187	6/12/2007 20080312832	12/18/2008	2/1/2011 7881868	0	US	United States	In Force
UP-00626US	USING LONG-RANGE DYNAMICS AND MENTAL-STATE MODELS TO ASSESS COLLISION RISK FOR EARLY WARNING	6/12/2007 11/818,191	6/12/2007 20080312833	12/18/2008	11/9/2010 7831391	0	US	United States	In Force
UP-00625US	HUMAN MACHINE-INTERFACE (HMI) CUSTOMIZATION BASED ON COLLISION ASSESSMENTS	6/12/2007 11/818,122	6/12/2007 20080312830	12/18/2008	9/7/2010 7792641	0	US	United States	In Force
UP-00628US	USING SEGMENTED CONES FOR FAST, CONSERVATIVE ASSESSMENT OF COLLISION RISK	6/12/2007 11/818,176	6/12/2007 20080309468	12/18/2008	5/4/2010 7710248	0	US	United States	In Force
UP-00626JP		5/2/2008 2008-120580	6/12/2007 2008312833	12/18/2008	4/1/2015 5694636	0	JP	Japan	In Force
UP-00628JP	HUMAN MACHINE-INTERFACE (HMI) CUSTOMIZATION BASED ON COLLISION ASSESSMENTS	5/2/2008 2008-120582	6/12/2007 2008310807	12/25/2008	4/2/2014 5460973	0	JP	Japan	In Force
UP-00467US	Systems and Methods for Prioritizing Object Prediction for Autonomous Vehicles	11/14/2017 15/811,865	8/23/2017 20190064815	2/28/2019	2/26/2019 10216189	0	US	United States	In Force
UP-00658USP2	Object Detection, Tracking, and Motion Prediction	2/27/2018 62/635,881	2/27/2018			1	US	United States	Lapsed
UP-00467WO	SYSTEMS AND METHODS FOR PRIORITIZING OBJECT PREDICTION FOR AUTONOMOUS VEHICLES	8/20/2018 PC/US2018/047032	8/23/2017			0	WO	WIPO (PCT)	Pending
UP-00458USCIP1	Object Motion Prediction and Autonomous Vehicle Control	9/5/2018 16/122,455	8/8/2017 20190049970	2/14/2019		0	US	United States	Pending
UP-00624JP	DUAL ASSESSMENT FOR EARLY COLLISION WARNING	5/2/2008 2008-120556	6/12/2007 2008310803	12/25/2008		0	JP	Japan	Lapsed
UP-00467USP	Systems and Methods for Prioritizing Object Prediction for Autonomous Vehicles	8/23/2017 62/549,407	8/23/2017			1	US	United States	Lapsed

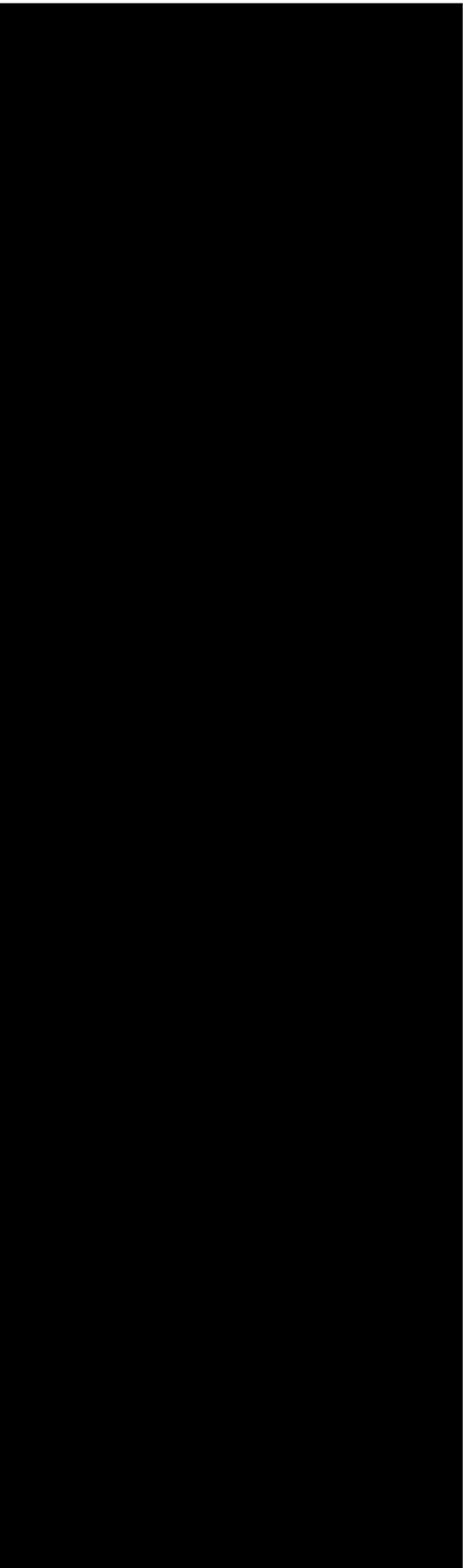
UP-00466USP	Anomaly Detection Systems and Methods for Autonomous Vehicles	10/3/2017	62/567,533	10/3/2017	1	US	United States	Lapsed
UP-00458USP	Object Motion Prediction and Autonomous Vehicle Control	8/8/2017	62/542,506	8/8/2017	1	US	United States	Lapsed
UP-00458US	Object Motion Prediction and Autonomous Vehicle Control	10/13/2017	15/783,005	8/8/2017 20190049987	0	US	United States	Pending
UP-00446USP	Machine Learning for Predicting Locations of Objects Perceived by Autonomous Vehicles	7/21/2017	62/535,343	7/21/2017	1	US	United States	Lapsed
UP-00446US	Machine Learning for Predicting Locations of Objects Perceived by Autonomous Vehicles	8/23/2017	15/684,865	7/21/2017 20190025841	0	US	United States	Pending
CONTROL SYSTEM TO ADJUST OPERATION OF AN AUTONOMOUS VEHICLE BASED ON A PROBABILITY OF INTERFERENCE BY A DYNAMIC OBJECT								
UP-00107US		5/10/2016	15/151,394	5/10/2016 20170329332	0	US	United States	Pending
UP-00638USP	Object Interaction Prediction Systems and Methods for Autonomous Vehicles	11/22/2017	62/589,951	11/22/2017	1	US	United States	Lapsed
UP-00688USP	Object Motion Prediction and Vehicle Control Systems and Methods for Autonomous Vehicles	12/8/2017	62/596,308	12/8/2017	1	US	United States	Lapsed
UP-00658USP1	End-to-End Tracking of Objects	11/15/2017	62/586,700	11/15/2017	1	US	United States	Lapsed
UP-00467USC1	Systems and Methods for Prioritizing Object Prediction for Autonomous Vehicles	12/6/2018	16/211,376	8/23/2017	0	US	United States	Pending
UP-00718USP	Autonomous Vehicle Motion Control Systems and Methods	11/29/2017	62/592,024	11/29/2017	1	US	United States	Lapsed
UP-00688WO	OBJECT MOTION PREDICTION AND VEHICLE CONTROL SYSTEMS AND METHODS FOR AUTONOMOUS VEHICLES	10/19/2018	PCI/US2018/056628	12/8/2017	0	WO	WIPO (PCI)	Pending
UP-00466WO	ANOMALY DETECTION SYSTEMS AND METHODS FOR AUTONOMOUS VEHICLES	9/28/2018	PCI/US2018/053514	10/3/2017	0	WO	WIPO (PCI)	Pending
UP-00638WO	Object Interaction Prediction Systems and Methods for Autonomous Vehicles	11/21/2018	PCI/US2018/062171	11/22/2017	0	WO	WIPO (PCI)	Pending
UP-00658US2	Systems and Methods for Object Detection, Tracking, and Motion Prediction	9/7/2018	16/124,966	11/15/2017	0	US	United States	Pending
UP-00466US	Anomaly Detection Systems and Methods for Autonomous Vehicles	10/25/2017	15/793,291	10/3/2017	0	US	United States	Pending

UP-00496WO	SYSTEMS AND METHODS FOR CHANGING A DESTINATION OF AN AUTONOMOUS VEHICLE IN REAL-TIME	8/27/2018	PCT/US2018/048091	9/1/2017	11/30/2017	0	WO	WIPO (PCT)	Pending
UP-00163US	FACILITATING RIDER PICK-UP FOR A SELF-DRIVING VEHICLE	5/26/2017	15/606,451	5/27/2016	20170344010	0	US	United States	Pending
UP-00376US-12	NON-TRIP RISK MATCHING AND ROUTING FOR ON-DEMAND TRANSPORTATION SERVICES	5/23/2017	15/602,387	5/23/2017	20180342034	0	US	United States	Pending
UP-00376US-11	INDIVIDUALIZED RISK ROUTING FOR HUMAN DRIVERS	5/23/2017	15/602,375	5/23/2017	20180340790	0	US	United States	Pending
UP-00376US-10	GENERALIZED RISK ROUTING FOR HUMAN DRIVERS	5/23/2017	15/602,327	5/23/2017	20180341888	0	US	United States	Pending
UP-00496USP	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
UP-00416USP	Turn Based Autonomous Vehicle Guidance Systems and Methods for Changing a Destination of an Autonomous Vehicle in Real-Time	10/12/2017	62/571,418	10/12/2017		1	US	United States	Lapsed
UP-00496US		10/26/2017	15/794,547	9/1/2017	20190072964	0	US	United States	Pending
UP-00416US	Turn Based Autonomous Vehicle Guidance	11/17/2017	15/816,242	10/12/2017		0	US	United States	Pending



UP-00173US-2	SECURE START SYSTEM FOR AN AUTONOMOUS VEHICLE	3/18/2016 15/07/4,924	3/18/2016 20170272943	9/21/2017 4/17/2018 9946890	0	US	United States	In Force
UP-00101USC1	AUTONOMOUS VEHICLE OPERATED WITH GUIDE ASSISTANCE OF HUMAN DRIVEN VEHICLES	9/13/2016 15/264,374	5/13/2015 20170003681	1/5/2017 4/3/2018 9933779	0	US	United States	In Force
UP-00101US	AUTONOMOUS VEHICLE OPERATED WITH GUIDE ASSISTANCE OF HUMAN DRIVEN VEHICLES	5/13/2015 14/711,506	5/13/2015 20160334229	11/17/2016 11/15/2016 9494439	0	US	United States	In Force
UP-00251US	Vehicle Security System SECURE START SYSTEM FOR AN	10/28/2016 15/337,383	10/28/2016 20180124213	5/3/2018 3/26/2019 10243867	0	US	United States	Pending
UP-00173US-2C1	AUTONOMOUS VEHICLE	1/18/2018 15/874,549	3/18/2016 20180157862	6/7/2018 11/27/2018 10140468	0	US	United States	In Force
UP-00139US	AUTONOMOUS VEHICLE OPERATED WITH SAFETY AUGMENTATION	9/26/2016 15/276,321	9/24/2015 20170090480	3/30/2017 11/27/2018 10139828	0	US	United States	In Force

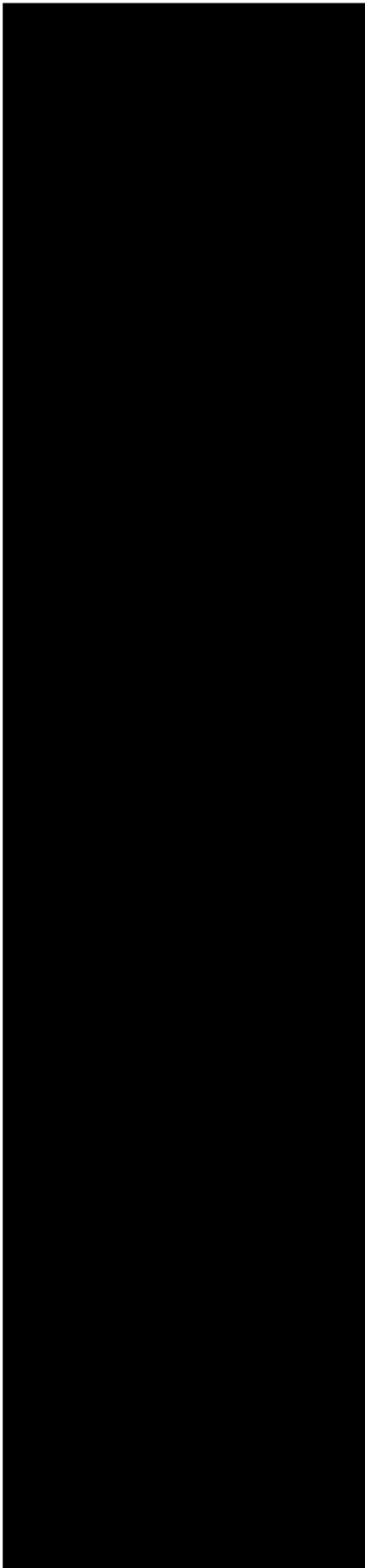
UP-00101USD1	AUTONOMOUS VEHICLE OPERATED WITH GUIDE ASSISTANCE OF HUMAN DRIVEN VEHICLES CONTROL SYSTEM FOR AUTONOMOUS-CAPABLE VEHICLES SECURE START SYSTEM FOR AN AUTONOMOUS VEHICLE	11/11/2016 15/349,793	5/13/2015 20170060129	3/2/2017 11/13/2018 10126742	0	US	United States	In Force
UP-00134US		8/30/2016 15/252,152	8/31/2015 20170057520	3/2/2017 10/16/2018 10099705	0	US	United States	In Force
UP-00173US-1		3/18/2016 15/074,892	3/18/2016 20170269940	9/21/2017 10/2/2018 10089116	0	US	United States	In Force
UP-00137US	AUTONOMOUS VEHICLE WITH INDEPENDENT AUXILIARY CONTROL UNITS	9/28/2016 15/279,165	9/28/2015 20170090476	3/30/2017 8/28/2018 10061313	0	US	United States	In Force
UP-00254US	Customizable Vehicle Security System	10/31/2017 15/799,469	10/31/2016 20180118164	5/3/2018	0	US	United States	Pending
UP-00137EP	AUTONOMOUS VEHICLE WITH INDEPENDENT AUXILIARY CONTROL UNITS	9/28/2016 16852522.8	9/28/2015 3356899	8/8/2018	0	EP	European Patent Office	Pending
Systems and Methods For Deploying Warning Devices From an Autonomous Vehicle								
UP-00430US		2/7/2018 15/890,383	1/15/2018		0	US	United States	Pending
AUTONOMOUS VEHICLE OPERATED WITH SAFETY AUGMENTATION								
UP-00139USP		9/24/2015 62/232,435	9/24/2015		1	US	United States	Lapsed
UP-00137WO	AUTONOMOUS VEHICLE WITH INDEPENDENT AUXILIARY CONTROL UNITS	9/28/2016 PCT/US2016/054250	9/28/2015 2017058961	4/6/2017	0	WO	WIPO (PCT)	Lapsed
UP-00137USP	AUTOMATED VEHICLE WITH INDEPENDENT BYPASS RESPONSE	9/28/2015 62/233,930	9/28/2015		1	US	United States	Lapsed
Systems and Methods For Deploying a Warning Device From an Autonomous Vehicle								
UP-00430USP		1/15/2018 62/617,409	1/15/2018		1	US	United States	Lapsed
UP-00311US	Machine Learning for Triaging Failures in Autonomous Vehicles INDIVIDUALIZED RISK VEHICLE MATCHING FOR AN ON-DEMAND TRANSPORTATION SERVICE	3/23/2017 15/467,504	3/23/2017 20180276912	9/27/2018	0	US	United States	Pending
UP-00376US-9	AUTONOMOUS VEHICLE DEGRADATION LEVEL MONITORING	5/23/2017 15/602,313	5/23/2017 20180341887	11/29/2018	0	US	United States	Pending
UP-00376US-8	FRACTIONAL RISK PERFORMANCE EVALUATION FOR AUTONOMOUS VEHICLES	5/23/2017 15/602,303	5/23/2017 20180342113	11/29/2018	0	US	United States	Pending
UP-00376US-7		5/23/2017 15/602,292	5/23/2017 20180341276	11/29/2018	0	US	United States	Pending



UP-00709US2	Autonomous Vehicle Application Programming Interface And Communications Systems And Methods	3/12/2018 15/918,599	1/29/2018	0	US	United States	Pending
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UP-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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UP-00709WO	Autonomous Vehicle Application Programming Interface and Communications Systems and Methods	1/29/2019 PCT/US2019/015665	1/29/2018	0	WO	WIPO (PCT)	Pending
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UP-00142US-2	PREDICTIVE SENSOR ARRAY CONFIGURATION SYSTEM FOR AN AUTONOMOUS VEHICLE	12/16/2015 14/971.866	12/16/2015 9841763	12/12/2017 12/12/2017 9841763	0	US	United States	In Force
UP-00142US-1	PREDICTIVE SENSOR ARRAY CONFIGURATION SYSTEM FOR AN AUTONOMOUS VEHICLE	12/16/2015 14/971.850	12/16/2015 9840256	12/12/2017 12/12/2017 9840256	0	US	United States	In Force
UP-00142US-1-C1	PREDICTIVE SENSOR ARRAY CONFIGURATION SYSTEM FOR AN AUTONOMOUS VEHICLE	9/1/2017 15/694.493	12/16/2015 20180009441	1/11/2018 3/5/2019 10220852	0	US	United States	In Force
UP-00463WO	Sensor Control System for Autonomous Vehicle	9/12/2018 PCT/US2018/050563	9/28/2017		0	WO	WIPO (PCT)	Pending
UP-00471US	SENSOR CONFIGURATION FOR AN AUTONOMOUS SEMI-TRUCK	6/15/2018 16/010.281	6/27/2017 20180372875	12/27/2018	0	US	United States	Pending
UP-00471WO	SENSOR CONFIGURATION FOR AN AUTONOMOUS SEMI-TRUCK	6/27/2018 PCT/US2018/039842	6/27/2017 2019006021	1/3/2019	0	WO	WIPO (PCT)	Pending
UP-00142US-2-C1	PREDICTIVE SENSOR ARRAY CONFIGURATION SYSTEM FOR AN AUTONOMOUS VEHICLE	9/26/2017 15/716.144	12/16/2015 20180032075	2/1/2018	0	US	United States	Pending
UP-00463USP	Sensor Control System for Autonomous Vehicle	9/28/2017 62/564.322	9/28/2017		1	US	United States	Lapsed
UP-00317US	Camera Fields of View for Object Detection	4/3/2017 15/477.638	4/3/2017 20180288320	10/4/2018	0	US	United States	Pending
UP-00221US	RADAR MULTIPATH PROCESSING	10/27/2016 15/335.692	10/27/2016 20180120842	5/3/2018	0	US	United States	Pending
UP-00220US	DYNAMIC SENSOR SELECTION FOR SELF- DRIVING VEHICLES	3/23/2017 15/467.525	3/23/2017 20180272963	9/27/2018	0	US	United States	Pending

UP-00133US-5	ACTIVE LIGHT SENSORS FOR DETERMINING EXPECTED TRACTION VALUE OF A ROAD SEGMENT	12/12/2016 15/376,592	12/10/2015 20170168495	6/15/2017	0	US	United States	Pending
UP-00471USP2	SENSOR CONFIGURATION FOR PROVIDING FIELD OF VIEW FOR AUTONOMOUSLY OPERATING SEMI-TRUCKS	6/27/2017 62/525,192	6/27/2017		1	US	United States	Lapsed
UP-00471USP1	FIELD OF VIEW CONFIGURATION OPTIONS	6/9/2017 62/517,836	6/9/2017		1	US	United States	Lapsed
UP-00188US	EXTERNAL SENSOR ASSEMBLY FOR VEHICLES	5/3/2016 29/563,210	5/3/2016		0	US	United States	Pending
UP-00187US	EXTERNAL SENSOR ASSEMBLY FOR VEHICLES	4/22/2016 15/136,876	4/22/2016 20170305360	10/26/2017	0	US	United States	Pending
UP-00185USP	DYNAMIC RANGE SETTING FOR VEHICULAR RADARS	3/4/2016 62/304,131	3/4/2016		1	US	United States	Lapsed
UP-00185US	DYNAMIC RANGE SETTING FOR VEHICULAR RADARS	3/6/2017 15/451,206	3/4/2016 20170254880	9/7/2017	0	US	United States	Pending
UP-00636US	Autonomous Vehicle Sensor Compensation Using Displacement Sensor	12/27/2017 15/855,364	11/30/2017		0	US	United States	Pending
UP-00636USP	Autonomous Vehicle Sensor Compensation Using Displacement Sensor	11/30/2017 62/592,529	11/30/2017		1	US	United States	Lapsed
UP-00635USP	Autonomous Vehicle Sensor Compensation By Monitoring Acceleration	11/30/2017 62/592,527	11/30/2017		1	US	United States	Lapsed
UP-00635US	Autonomous Vehicle Sensor Compensation By Monitoring Acceleration	12/27/2017 15/855,313	11/30/2017		0	US	United States	Pending
UP-00142US-1-CZ	PREDICTIVE SENSOR ARRAY CONFIGURATION SYSTEM FOR AN AUTONOMOUS VEHICLE	11/30/2018 16/206,660	12/16/2015		0	US	United States	Pending
UP-00220WO	DYNAMIC SENSOR SELECTION FOR SELF-DRIVING VEHICLES	3/22/2018 PCT/US2018/023885	3/23/2017 2018175808	9/27/2018	0	WO	WIPO (PCT)	Pending
UP-00463US	Sensor Control System for Autonomous Vehicle	10/30/2017 15/797,365	9/28/2017		0	US	United States	Pending
UP-00696US	Passenger Experience and Biometric Monitoring in an Autonomous Vehicle	2/13/2018 15/895,381	1/23/2018		0	US	United States	Pending
UP-00602USP	Simulated Sensor Testing	12/13/2017 62/598,125	12/13/2017		1	US	United States	Lapsed
UP-00577USP	Autonomous Vehicle Simulation Testing Systems and Methods	10/27/2017 62/577,979	10/27/2017		1	US	United States	Lapsed
UP-00444USP	Systems and Methods to Test an Autonomous Vehicle	8/21/2017 62/548,061	8/21/2017		1	US	United States	Lapsed
UP-00443US	Testing Environment for Autonomous Vehicles	8/29/2017 15/689,196	8/29/2017 20190064036	2/28/2019	0	US	United States	Pending
UP-00442USP	Systems and Methods for Using a Linear Actuator in Track Testing	8/24/2017 62/549,534	8/24/2017		1	US	United States	Lapsed

UP-00558USP	Deterministic Simulation Framework for Autonomous Vehicle Testing	11/2/2017	62/580,703	11/2/2017		1	US	United States	Lapsed
UP-00480USP	Autonomous Vehicle Hybrid Simulation Testing	8/24/2017	62/549,613	8/24/2017		1	US	United States	Lapsed
UP-00696USP	Monitoring in an Autonomous Vehicle LidarSIM: Combining Physics and Deep	1/23/2018	62/620,735	1/23/2018		1	US	United States	Lapsed
UP-00601USP	Autonomous Vehicle Testing Systems and Methods	10/25/2017	62/576,844	10/25/2017		1	US	United States	Lapsed
UP-00602US	Simulated Sensor Testing	2/12/2018	15/893,729	12/13/2017		0	US	United States	Pending
UP-00558US	Deterministic Simulation Framework for Autonomous Vehicle Testing	12/7/2017	15/834,691	11/2/2017		0	US	United States	Pending
UP-00577US	Autonomous Vehicle Simulation Testing Systems and Methods	12/11/2017	15/837,341	10/27/2017		0	US	United States	Pending
UP-00143US	THERMAL REDUCTION SYSTEM FOR AN AUTOMATED VEHICLE	12/22/2015	14/979,248	12/22/2015	2017014037	0	US	United States	In Force
UP-00247WO	Decreasing Vehicle Power Consumption	12/22/2017	PCT/US2017/068104	12/28/2016	2018125782	0	WO	WIPO (PCT)	Pending
UP-00557USP	Power and Thermal Management Systems and Methods for Autonomous Vehicles	9/8/2017	62/555,895	9/8/2017		1	US	United States	Lapsed
UP-00143JP	THERMAL REDUCTION SYSTEM FOR AN AUTONOMOUS VEHICLE	12/20/2016	2018-532388	12/22/2015	201903583	0	JP	Japan	Pending
UP-00143CN	THERMAL REDUCTION SYSTEM FOR AN AUTONOMOUS VEHICLE	12/20/2016	201680082277.0	12/22/2015	109196966	0	CN	China	Pending
UP-00143EP	THERMAL REDUCTION SYSTEM FOR AN AUTONOMOUS VEHICLE	12/20/2016	16879958.3	12/22/2015	3395132	0	EP	European Patent Office	Pending
UP-00600USP	Modular Devices and Systems for Cooling a Computing System of an Autonomous Vehicle	12/1/2017	62/593,454	12/1/2017		1	US	United States	Lapsed
UP-00570USP	Systems and Methods for Cooling Vehicle Systems of an Autonomous Vehicle	10/6/2017	62/568,839	10/6/2017		1	US	United States	Lapsed
UP-00557US	Power and Thermal Management Systems and Methods for Autonomous Vehicles	10/2/2017	15/722,346	9/8/2017	20190080602	0	US	United States	Pending
UP-00143WO	THERMAL REDUCTION SYSTEM FOR AN AUTONOMOUS VEHICLE	12/20/2016	PCT/US2016/067718	12/22/2015	2017112648	0	WO	WIPO (PCT)	Pending
UP-00143USC1	THERMAL REDUCTION SYSTEM FOR AN AUTONOMOUS VEHICLE	6/14/2017	15/623,229	12/22/2015	20170282675	0	US	United States	Pending
UP-00247US	Decreasing an Autonomous Vehicle Power Consumption	12/28/2016	15/392,274	12/28/2016	20180178741	0	US	United States	Pending

UP-00600US	Modular Vehicle Computing System Cooling Systems	2/9/2018 15/892,506	12/1/2017	0	US	United States	Pending
UP-00600WO	Modular Vehicle Computing System Cooling Systems	11/30/2018 PCT/US2018/063252	12/1/2017	0	WO	WIPO (PCT)	Pending
UP-00570US	Systems and Methods for Cooling Vehicle Systems of an Autonomous Vehicle	11/6/2017 15/804,386	10/6/2017	0	US	United States	Pending
SYSTEM FOR SWITCHING CONTROL OF AN AUTONOMOUS VEHICLE							
UP-00148US-2	DRIVE-BY-WIRE CONTROL SYSTEM	3/15/2016 15/070,795	3/15/2016 9616896	4/11/2017 4/11/2017 9616896	0	US	United States In Force
UP-00148US-1		3/15/2016 15/070,754	3/15/2016 9580080	2/28/2017 2/28/2017 9580080	0	US	United States In Force
UP-00144US	INTEGRATED CLUTCH STEERING SYSTEM	12/22/2015 14/979,187	12/22/2015 9481393	11/1/2016 11/1/2016 9481393	0	US	United States In Force
UP-00630US	Lamp Ignition system and lamp Ignition method	9/13/2012 13/614,678	7/16/2012 20140015434	1/16/2014 12/2/2014 8901840	0	US	United States In Force
UP-00282US	Vehicle Control System	2/23/2017 15/440,510	2/23/2017 20180237030	8/23/2018 3/5/2019 10220857	0	US	United States In Force
UP-00144USCT	INTEGRATED CLUTCH STEERING SYSTEM	8/17/2016 15/239,056	12/22/2015 20170174259	6/22/2017 10/16/2018 10099723	0	US	United States In Force
UP-00394US1	Multi-Model Switching on a Collision Mitigation System	8/3/2017 15/668,196	8/3/2017 10066638	9/4/2018 9/4/2018 10066638	0	US	United States In Force
UP-00282WO	Vehicle Control System	2/19/2018 PCT/US2018/018600	2/23/2017 2018156451	8/30/2018	0	WO	WIPO (PCT) Pending
UP-00474US	System for Actively Monitoring the Steering Angle of a Vehicle Using a Kingpin Sensor	10/18/2017 15/786,778	9/7/2017 20190071124	3/7/2019	0	US	United States Pending
UP-00459WO	VEHICLE INTERFACE FOR AUTONOMOUS VEHICLE	7/16/2018 PCT/US2018/042247	8/23/2017		0	WO	WIPO (PCT) Pending

CONTROL SYSTEM FOR AUTONOMOUS-CAPABLE VEHICLES									
UP-00134WO	Systems and Methods for Controlling Autonomous Vehicle	8/31/2016 PCT/US2016/049736	8/31/2015 2017040689	3/9/2017	0	WO	WIPO (PCT)	Lapsed	
UP-00622USP	Systems and Methods for Controlling an Autonomous Vehicle with Multiple Control Lanes	1/9/2018 62/615,206	1/9/2018		1	US	United States	Lapsed	
UP-00460USP	Vehicle Interface For Autonomous Vehicle	9/14/2017 62/558,523	9/14/2017		1	US	United States	Lapsed	
UP-00459USP	Vehicle Interface For Autonomous Vehicle	8/23/2017 62/549,024	8/23/2017		1	US	United States	Lapsed	
UP-00459US	Disabling Onboard Input Devices in an Autonomous Vehicle	9/28/2017 15/718,003	8/23/2017 20190064825	2/28/2019	0	US	United States	Pending	
UP-00378US	CONTROL SYSTEM FOR AUTONOMOUS-CAPABLE VEHICLES	6/27/2017 15/634,067	6/27/2017 20180370543	12/27/2018	0	US	United States	Pending	
UP-00134USP	SYSTEM AND METHOD TO DETERMINE TRACTION ABILITY OF VEHICLES IN OPERATION	8/31/2015 62/212,577	8/31/2015		1	US	United States	Lapsed	
UP-00153US-7	DRIVE-BY-WIRE CONTROL SYSTEM	12/12/2016 15/376,604	12/10/2015 20170168500	6/15/2017	0	US	United States	Pending	
UP-00148US-1C1		1/18/2017 15/408,619	3/15/2016 20170269593	9/21/2017	0	US	United States	Pending	
UP-00419USP	Control Method for Autonomous Vehicles	7/14/2017 62/532,494	7/14/2017		1	US	United States	Lapsed	
UP-00144WO	INTEGRATED CLUTCH STEERING SYSTEM	12/20/2016 PCT/US2016/067791	12/22/2015 2017112676	6/29/2017	0	WO	WIPO (PCT)	Pending	
UP-00419US	Control Method for Autonomous Vehicles Supervised Movement of Autonomous Vehicle	9/6/2017 15/697,368	7/14/2017 20190018412	1/17/2019	0	US	United States	Pending	
UP-00415USP		7/14/2017 62/532,476	7/14/2017		1	US	United States	Lapsed	
UP-00412USP	Systems and Methods for Controlling an Input Device of an Autonomous Vehicle	6/16/2017 62/520,639	6/16/2017		1	US	United States	Lapsed	
UP-00412US	Systems and Methods for Controlling an Input Device of an Autonomous Vehicle System for Actively Monitoring the Steering Angle of a Vehicle Using a Kinipin Sensor	10/11/2017 15/730,177	6/16/2017 20180362070	12/20/2018	0	US	United States	Pending	
UP-00474USP	Systems and Methods for Controlling an Autonomous Vehicle	9/7/2017 62/555,356	9/7/2017		1	US	United States	Lapsed	
UP-00622US		5/15/2018 15/980,324	1/9/2018		0	US	United States	Pending	
UP-00639USP	Location Based Vehicle Headlight Control Systems and Methods For Communication Via Hydraulic Fluid	12/7/2017 62/595,906	12/7/2017		1	US	United States	Lapsed	
UP-00686USP		1/10/2018 62/615,740	1/10/2018		1	US	United States	Lapsed	
UP-00679USP1	Systems and Methods for Brake Redundancy for an Autonomous Vehicle	12/6/2017 62/595,193	12/6/2017		1	US	United States	Lapsed	
UP-00282USC1	Vehicle Control System	2/5/2019 16/267,468	2/23/2017		0	US	United States	Pending	

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UP-00394US1C1	Multi-Model Switching on a Collision Mitigation System	8/21/2018 16/052,899	8/3/2017 20190039609	2/7/2019	0	US	United States	Pending
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UP-00460WO	Fault-Tolerant Control of an Autonomous Vehicle with Multiple Control Lanes	9/12/2018	PCT/US2018/050542	9/14/2017	0	WO	WIPO (PCT)	Pending
UP-00378EP	Disabling Onboard Input Devices in an Autonomous Vehicle	6/21/2018	EP18179015.5	6/27/2017	EP3421316	0	EP	European Patent Office

UP-00622WO	SYSTEMS AND METHODS FOR CONTROLLING AN AUTONOMOUS VEHICLE	1/9/2019	PCT/US2019/012857	1/9/2018	0	WO	WIPO (PCT)	Pending
UP-00679USP2	Systems and Methods for Brake Redundancy for an Autonomous Vehicle	1/8/2018	62/614,545	1/8/2018	1	US	United States	Lapsed

UP-00134EP	CONTROL SYSTEM FOR AUTONOMOUS-CAPABLE VEHICLES	8/31/2016	16842925.6	8/31/2015	3344507	0	EP	European Patent Office
UP-00134CN	CONTROL SYSTEM FOR AUTONOMOUS-CAPABLE VEHICLES	8/31/2016	201680049672.9	8/31/2015	107924191	0	CN	China
UP-00144EP	INTEGRATED CLUTCH STEERING SYSTEM	12/20/2016	16879976.5	12/22/2015	3393887	0	EP	European Patent Office

UP-00639US	Location Based Vehicle Headlight Control Systems and Methods For Communication Via Hydraulic Fluid	2/28/2018	15/907,906	12/7/2017		0	US	United States
UP-00686WO	Systems and Methods for Brake Redundancy for an Autonomous Vehicle	1/10/2019	PCT/US2019/013020	1/10/2018		0	WO	WIPO (PCT)
UP-00679US	Fault-Tolerant Control of an Autonomous Vehicle with Multiple Control Lanes	9/10/2018	16/126,533	9/14/2017	20190079513	0	US	United States