drive.ai

27 December 2018

DMV – Occupational Licensing 8243 Demetre Ave., MS L224 Sacramento, CA 95828

Dear Sir or Madam,

Pursuant to California Code of Regulations Title 13, Article 3.7, Section 227.50, we hereby submit our Summary Report of Disengagements of Autonomous Mode. This report covers all autonomous operation from 01 December 2017 until the closing date of the reporting period, 30 November 2018.

Specifically, this report covers 1) the total number of miles each autonomous vehicle tested in autonomous mode on public roads each month and 2) all disengagements that occurred when a failure of the autonomous technology was detected or when the safe operation of the vehicle required that the autonomous vehicle test driver disengage the vehicle from autonomous mode and take manual control of the vehicle.

As of 30 November 2018, we had thirteen vehicles licensed for autonomous operation in California. A few points of summary:

- a. Total autonomous miles driven: 4,616.69 miles
- b. Total disengagements in 2018: We had 55 disengagements where either a failure of the autonomous technology was detected or safe operation of the vehicle required that the test driver take manual control.
- c. Miles driven per disengagement (MPD): We have improved from an annual MPD of 65.38 in reportable year 2016-2017 to an annual MPD of 83.94 in reportable year 2018.
- d. Most importantly, we are pleased to report that we completed this reporting period without any collisions or safety incidents in autonomous mode.

Full details of our autonomous vehicle operation follow in the enclosed report. Please feel free to reach out if there are any questions or if additional information is needed.

Bijit Halder, CEO

Summary Report of Disengagements of Autonomous Mode

Introduction

This report contains a summary of autonomous vehicle operations conducted by Drive.ai, Inc. on public roads in the State of California for the period beginning 01 December 2017 and ending 30 November 2018.

The total number of miles that each autonomous vehicle was tested on public roads, as well as the locations of this testing, are provided.

All disengagements that occurred either (i) when a failure of the autonomous technology was detected or (ii) when the safe operation of the vehicle required that the autonomous vehicle test driver disengage the vehicle from autonomous mode and take manual control of the vehicle, are summarized herein.

In 2018, Drive.ai also launched its initial public services in Frisco and Arlington, Texas, allowing users to download an app to hail a ride with its autonomous vehicles. The Frisco deployment serves an office park while the Arlington deployment serves multiple routes including professional sports stadiums for the Dallas Cowboys (NFL) and Texas Rangers (MLB) as well as a large entertainment center and downtown area. The approximate 8,000 additional autonomous miles driven in Texas are not included as part of this report.

Supplement to the annual report of AV Disengagements

Definition and description of the facts causing disengagements

Motion Planning Discrepancy

Deviation from the expected motion planning behavior of the vehicle is caused by an error in the path planning system that decides the steering, braking or acceleration of the vehicle. Examples of disengagements caused by this are insufficient clearance when passing other vehicles and late braking for pedestrians and cyclists.

Perception Discrepancy

Our perception system processes the vehicle's surrounding environment and provides this information to our motion planning system. Information collected by the perception system includes but is not limited to: attributes of other agents, static obstacles, and traffic signals. Examples of disengagements caused by this are discrepancy in the perception of either traffic lights or of pedestrians.

<u>Localization Divergence</u>

Our localization system pinpoints the vehicle's location on a map. An error in this process may cause the vehicle to become uncertain of its location. Examples of disengagements caused by this may include poor lane placement and uncomfortable proximity to static objects.



ANNUA PORT OF AUTONOMOUS VEH. __ E DISENGAGEMENT

Instructions: Print as many pages as needed. Submit completed report to: Department of Motor Vehicles, Autonomous Vehicle Program, P.O. BOX 932342, MS L224. Sacramento. CA 94232-3420

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SECTION 1	MANUFACTURER IN	FORMATION		
name of manufa Drive.ai Inc	CTURER			AVT NUMBER AVT013
BUSINESS MAILING 365 Ravendale			CITY Mountain View	STATE ZIP CODE TELEPHONE NUMBER CA 94043 ()
SECTION 2	DISENGAGEMENT E	VENT DETAIL Use	one row for each disen	jagement event:
DATE	VIN NUMBER	DISENGAGEMENT INITIATED BY (AV System, Test Driver, Remote Operator, or Passenger)	DISENGAGEMENT LOCATION (Interstate, Freeway, Highway, Rural Road, Street, or Parking Facility)	DESCRIPTION OF FACTS CAUSING DISENGAGEMENT *
12/05/2017	3LN6L2LU6GR629781 VEHICLE IS CAPABLE OF OPERATING	Test Driver DRIVER PRESENT	Street	False perception of traffic light caused AV to proceed at red light
12/05/2017	WITHOUT A DRIVER YES NO 3LN6L2LU6GR629781 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES NO	✓ YES □NO Test Driver DRIVER PRESENT ✓ YES □ NO	Street	False perception of traffic light caused AV to proceed at red light
12/07/2017		Test Driver	Street	AV did not slow for pedestrian with intent to cross protected crosswalk
12/11/2017	3LN6L2LU6GR629781 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES NO	Test Driver DRIVER PRESENT ✓ YES □ NO	Street	False perception of traffic light caused AV to proceed at red light
01/31/2018	3N8CM0JT3GK695673 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES NO	Test Driver DRIVER PRESENT YES \(\sum_{NO} \)	Street	Poor perception of traffic light caused AV not to stop for red traffic light
01/31/2018	3N8CM0JT3GK695673 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES NO	Test Driver DRIVER PRESENT ✓ YES □ NO	Street	Did not stop appropriately (outside of crosswalk) for pedestrian while making a right turn
02/05/2018		Test Driver DRIVER PRESENT YES NO	Street	Poor braking behavior for nearby pedestrian
02/05/2018	3N8CM0JT3GK695673 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES NO	Test Driver DRIVER PRESENT YES □ NO	Street	Poor braking behavior for pedestrian in crosswalk

^{*} Additional information regarding the causes of the disengagement may be submitted as an attachment. If an attachment is provided, indicate the specific attachment number for the disengagement event.

S , 12	DISENGAGEMENT E	VENT DETAIL Use	one row for each diseng	jagement event:						
DATE	VIN NUMBER	DISENGAGEMENT INITIATED BY (AV System, Test Driver, Remote Operator, or Passenger)	DISENGAGEMENT LOCATION (Interslate, Freeway, Highway, Rural Road, Street, or Parking Facility)	DESCRIPTION OF FACTS CAUSING DISENGAGEMENT *						
02/07/2018	3N8CM0JT3GK699089 VEHICLE IS CAPABLE OF OPERATING	Test Driver DRIVER PRESENT	Street	Motion planning discrepancy						
02/09/2018	WITHOUT A DRIVER YES NO 3N8CMOJT3GK695673 VEHICLE IS GAPABLE OF OPERATING WITHOUT A DRIVER YES INO	Test Driver	Street	Localization divergence						
02/14/2018	3N8CMOJT3GK695673 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES PINO	Test Driver DRIVER PRESENT	Street	Localization divergence						
02/21/2018	3N8CMOJT3GK695673 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES NO	Test Driver	Street	Motion planning discrepancy						
02/23/2018	3N8CMOJT3GK695673 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER TYPES TO NO.	Test Driver	Street	Motion planning discrepancy						
02/26/2018	3N8CMOJT2GK696989 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES NO	Test Driver ORIVER PRESENT PYES NO	Street	Perception discrepancy						
02/26/2018	3N8CMOJT3GK695673 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES NO	Test Driver DRIVER PRESENT	Street	Perception discrepancy						
03/06/2018	3N8CM01T2GK696989 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES MO	Test Driver DRIVER PRESENT	Street	Perception discrepancy						
DATE	DISENGAGEMENT E	VENT DETAIL Use DISENGAGEMENT INITIATED BY (AV System, Test Driver, Remote Operator, or Passenger)	One row for each diseng DISENGAGEMENT LOCATION (Interslate, Froeway, Highway, Rural Road, Street, or Parking Facility)	agement event. DESCRIPTION OF FACTS CAUSING DISENGAGEMENT*						
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/3/07/2018	WITHOUT A DRIVER YES NO 3N8CMOJTZGK696989 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES YENO	Test Driver Driver Present	Street	Motion planning discrepancy						
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03/08/2018	3NBCMOJT2GK696989 VEHICLE IS CAPAGLE OF OPERATING WITHOUT A DRIVER YES NO	Test Driver CRIVER PRESENT VRS NO	Street	Motion planning discrepancy						
03/13/2018	3N8CMOJT3GK699089 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES WHO	Test Driver DRIVER PRESENT VER NO	Street	Perception discrepancy						
03/14/2018	3N8CMOJT3GK699089 VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES PHO	Test Drive DRIVER PRESENT VES UNO	Sirect	Perception discrepancy						
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2010010	3N8CM0JT3GK699089	Test Driver	artinerina kalendrina artinisti kanana kalendrina kanana (kalendrina kanana) kanana artinisti kanana artinisti Barinisti kanana artinisti kanana artinisti kanana kanana artinisti kanana artinisti kanana artinisti kanana a	Perception discrepancy
03/21/2018	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES NO	DRIVER PRESENT	Street	
03/21/2018	3N8CM0JT3GK695673	Test Driver	riandes de la companya de la company	Perception discrepancy
X21/2016	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES YNO	DRIVER PRESENT	Street	
03/29/2018	3N8CM0JT3GK695673	Test Driver		Motion planning discrepancy
	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES VINO	DRIVER PRESENT	Street	
4/10/2018	3N8CM0JT3QK695673	Test Driver	Street	Perception discrepancy
# 10/2010	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES YES	DRIVER PRESENT	aueci	
1/19/2018	3N8CM0JT0GK698790	Test Driver	O. a. a. i	Motion planning discrepancy
11 1 21 20 113	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES VINO	DRIVER PRESENT	Street	
4/20/2018	3N8CM0JT3GK695673	Test driver	C	Localization divergence
	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES PRO	DRIVER PRESENT	Street	·
4/27/2018	3N8CM0JT6QK695828	Test Driver		Localization divergence
4/ <i>4//4</i> U10	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES YES	DRIVER PRESENT	Street	
5/23/2018	3N8CM0JT4GK696122	Test Driver	Double Fat	Localization divergence
ひといないまけ	VEHICLE IS CAPABLE OF OPERATING	For the control of the state of	Parking Lot	
	WITHOUT A DRIVER YES NO	Driver Present Yes []No	_	
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OATE 05/24/2018 05/31/2018 06/21/2018 06/21/2018 07/10/2018	WITHOUTA DRIVER	DISENGAGEMENT INITIATED BY (AV System, Test Driver, Remote Operator, or Passenger) Test Driver DRIVER PRESENT DIVES NO Test Driver DRIVER PRESENT DRIVER PRESENT DRIVER PRESENT DRIVER PRESENT DRIVER PRESENT DRIVER DRIVER DRIVER PRESENT DRIVER NO Test Driver DRIVER PRESENT DRIVER NO Test Driver DRIVER PRESENT DRIVER PRESENT DRIVER PRESENT DRIVER PRESENT	DISENGAGEMENT LOCATION (Interstate, Freeway, Highway, Rural Road, Street, or Parking Facility) Parking Lot Parking Lot Street Street Street	DESCRIPTION OF FACTS CAUSING DISENGAGEMENT * Localization divergence Perception discrepancy Motion planning discrepancy Perception discrepancy Perception discrepancy

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0010420010	3N8CM0JT3GK699089	Test Driver		Perception discrepancy						
08/24/2018	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES VINO	DRIVER PRESENT	- Street							
00010010	3N8CM0JT4GK696122	Test Driver		Perception discrepancy						
08/31/2018	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES VINO	DRIVER PRESENT	Street							
	3N8CM0JT4GK696122	Test Driver		Perception discrepancy						
08/31/2018	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES YNO	DRIVER PRESENT	- Street							
09/06/2018	3N8CM0JT3GK699089	Test Driver	St	Motion planning discrepancy						
G9/00/2016	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES ZNO	ORIVER PRESENT	- Street							
09/10/2018	3N8CM0JT3GK699089	Test Driver	Street	Motion planning discrepancy						
ON 1002016	VEHICLE IS CAPABLE OF OPERATING. WITHOUT A DRIVER YES YOU	DRIVER PRESENT	- Janear							
10/01/2018	3N8CM0JT8GK699119	Test Driver		Perception discrepancy						
10/01/2010	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YER YER	DRIVER PRESENT	Street							
10/10/2018	3N8CM0JT8GK699119	Test Driver		Motion planning discrepancy						
	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES 7 NO	ORIVER PRESENT	Street							
10/10/2018	3N8CM0JT3GK699089	Test Driver		Motion planning discrepancy						
	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES VINO	DRIVER PRESENT	Street							
SECTION 2	2-DISENGAGEMENTE		one row for each diseng	agement event:						
DATE	VIN NUMBER	DISENGAGEMENT INITIATED BY (AV System, Test Driver, Remote Operator, or Passenger)	DISENGAGEMENT LOCATION (Interstate, Freeway, Highway, Rural Road, Street, or Parking Facility)	DESCRIPTION OF FACTS CAUSING DISENGAGEMENT *						
10/11/2018	3N8CM0JT3GK699089	Test Driver	Street	Motion planning discrepancy						
· · · · · · · · · · · · · · · · · · ·	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES YOU	. ORIVER PRESENT	Sucot							
10/15/2018	3N8CM0JT8GK699119	Test Driver	Street	Motion planning discrepancy						
10,10,000	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES VEHICLE V	DRIVER PRESENT ☑YES ☐NO	Juon							
10/19/2018	3N8CM0JT8GK699119	Test Driver	Street	Motion planning discrepancy						
	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES YES	Driver Present Lyes Lko								
10/23/2018	3N8CM0JT3GK698735	Test Driver	Street	Localization divergence						
	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER ☐ YES ☑ NO	DRIVER PRESENT								
10/24/2018	3N8CM0JT3GK698735	Test Driver	Street	Perception discrepancy						
	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER TYPES ON O	ORIVER PRESENT								
10/24/2018	3N8CM0JT3GK698735	Test Driver	Street	Motion planning discrepancy						
4 01 401 404 0	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES NO	Driver Present ☑Yes ☐NO								
11/09/2018	3N8CM0JT3GK698735	Test Driver	Street	Localization divergence						
: INW/401B	VEHICLE IS CAPABLE OF OPERATING WITHOUT A DRIVER YES VINO	ORIVER PRESENT								

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SECTION

- DISENGAGEMENT AND AV MILES SUMMARY PER VEHI

据得别国际的联络中心。	Annual Total of Disengagements	Total Number of Miles Tested in Autonomous Mode (December 2017 to November 2018)												
VIN Number		December	January	February	March	April	May	June -	July	August	September	October	November	ANNUAL TOTAL
3LN6L2LU6GR629781	1	113	22	0	0	0	0	0	0 .	0	0	0	0	0
3LN6L2LU0GR600602	3	2	0	0	0 .	0	0	0	0 .	0	o	0	0	0
3N8CM0JT3GK695673	8	0	32	143	52	26				-				þ
3N8CM0JT3GK699089	9	0	0	83	107			.93						0
3N8CM0JT2GK696989	10	0	0	0	20			34.39						0
3N8CM0JT6GK695828	12					4	74.8	49.87						þ
3N8CM0JT1GK698734	13													0
3N8CM0JT1GK698734	14					10		44.41						0
3N8CM0JT4GK696122	15						65.9	277.70						þ
3N8CM0JT2GK698760	16							26.95						0
3N8CM0JT0GK698787	17													0
3N8CM0JT3GK698735	18													þ
3N8CM0JT8GK699119	19													b .
3N8CM0JTGK699034	20						i :				,			0
3N8CM0JT6GK699040	21											-		0
														þ
SECTION 4—ACKN	OWLEDGMENT													
PRINTED NAME OF AUTHORIZED	REPRESENTATIVE		Hansarda Maryanan	entres No Collaboration				TITLE					:	··
SIGNATURE X						DATE:	DATE SIGNED							
STREET ADDRESS CITY STATE							ZI	P CODE						
EMAIL ADDRESS								FAX NU	JMBER .		TELEPHO	NE NUMBER		

SECTION 3 — DISENGAGEMENT AND AV MILES SUMMARY PER VEHICLE Total Number of Miles Tested in Autonomous Mode (December 2017) to November 2018 Appual Total of VIN Number Disengagements ANNUAL December February March May January Anril June July August September October November TOTAL 3LN6L2LU6GR629781 113 22 โก 135 3LN6L2LU0GR600602 h lo. n ሰ n O 0 2 26 3N8CM0JT3GK695673 15 32 143 52 n n 253 3N8CM0JT3GK699089 13 83 107 0 O .93 142.26 477.83 388.78 406.67 475.37 2081.84 3N8CM0JT2GK696989 O n 20 n 34.39 ก 'n n n 0 54.39 3N8CM0JT6GK695828 n 74.8 49.87 n n n 128.67 3N8CM0JT1GK698734 n n 10 n 44.41 n 54.41 3N8CM0JT4GK696122 65.9 277.70 26.95 269.16 105.36 745.07 3N8CM0JT2GK698760 n n 0 26.95 10 0 26.95 3N8CM0JT3GK698735 n ln o i lo. 107.57 159.32 266.89 3N8CM0JT8GK699119 0 21.48 105.72 114.01 385.52 n 626.73 3N8CM0JTGK699034 O 0 n 152.88 159.88 3N8CM0JT6GK699040 lo. 0 2.04 79.82 81.86 Total 4616.69 SECTION 4 — ACKNOWLEDGMENT PRINTED NAME OF AUTHORIZED REPRESENTATIVE Leilani Abenoiar Driver Manager SIGNATURE DATE SIGNED 12/27/18 STREET ADDRESS STATE ZIP CODE mountain view 365 Ravendale Dr. CA 94042

leilani@drive_ai

FAX NUMBER

TELEPHONE NUMBER

(408) 655-462R