

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

To: LOVELAND, DAMIEN G. 5831 Musgrave Crescent RICHMOND, British Columbia Canada, V7C 5N6

Date of mailing <i>(day/month/year)</i>	10 December 2018 (10-12-2018)
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Applicant's or agent's file reference DMX003-PCT
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FOR FURTHER ACTION See paragraph 2 below
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International application No. PCT/CA2018/051080	International filing date <i>(day/month/year)</i> 06 September 2018 (06-09-2018)	Priority date <i>(day/month/year)</i> 06 September 2017 (06-09-2017)
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International Patent Classification (IPC) or both national classification and IPC IPC: B62K 23/00 (2006.01), B62J 27/00 (2006.01), B62K 11/14 (2006.01), G06F 3/01 (2006.01), H03K 17/96 (2006.01)

Applicant DAMON MOTORS INC.

1. This opinion contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input checked="" type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Rule 43 <i>bis</i> .1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application
2. FURTHER ACTION If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 <i>bis</i> (b) that written opinions of this International Searching Authority will not be so considered. If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later. For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/CA Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001-819-953-2476	Date of completion of this opinion 10 December 2018 (10-12-2018)	Authorized officer Gregory Myslicki (819) 639-7876
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Box No I

Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

- the international application in the language in which it was filed.
- a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

a. forming part of the international application as filed:

- in the form of an Annex C/ST.25 text file.
- on paper or in the form of an image file.

b. furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

c. furnished subsequent to the international filing date for the purposes of international search only:

- in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
- on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/CA2018/051080

Box No. II

Priority

1. The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43bis.1 and 64.1) is the claimed priority date.

2. This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 4 to 9, 11 to 14, and 19	YES
	Claims 1 to 3, 10, 15 to 18, 20 and 21	NO
Inventive step (IS)	Claims None	YES
	Claims 1 to 21	NO
Industrial applicability (IA)	Claims 1 to 21	YES
	Claims None	NO

2. Citations and explanations:

Reference is made to the following documents:

- D1:** WO2011/035350A2 (DUNCAN, M. et al.) 24 March 2011 (24-03-2011)
D2: CA2986360A1 (HUARD, L.-P.) 24 November 2016 (24-11-2016)
D3: JP2016-68769A (MICHIRI, O. et al.) 09 May 2016 (09-05-2016)
D4: US2017/0146358A1 (WARD, R. T.) 25 May 2017 (25-05-2017)
D5: WO2017/028997A1 (HENZLER, M. et al.) 23 February 2017 (23-02-2017)
D6: US8248270B2 (NIEVES, V.) 21 August 2012 (21-08-2012)
D7: US9227682B2 (OETTGEN, O.) 05 January 2016 (05-01-2016)
D8: CN2607318Y (PAN, Y. et al.) 24 March 2004 (24-03-2004)
D9: US2017/0168630A1 (KHOSHKAVA, V. et al.) 15 June 2017 (15-06-2017)

Novelty (N):

Claims 1 to 3, 10, 15 to 18, 20 and 21 are not novel and therefore do not comply with PCT Article 33(2).

Each of documents D1, and D4 to D7 discloses the subject matter of claims 1, 15 to 18, 20 and 21.

Regarding claim 1, each of D1, and D4 to D7 discloses a motorcycle (D1: 10; D4: 206; D5: lines 23 to 25 on page 1; D6: Fig. 4; D7: line 26 on column 1 to line 44 on column 3) comprising: at least one haptic device (D1: 10A; Fig. 4; D4: [0033] to [0038]; D5: line 16 on page 3 to line 15 on page 4; D6: 16"; D7: 11, 12) configured to: provide haptic feedback to a rider of the motorcycle; and a control unit (D1: [0015] to [0018], [0026] to [0041]; D4: [0027] to [0032], [0084] to [0087]; D5: lines 1 to 6 on page 3; D6: 14; D7: 1) connected to the haptic device(s), and configured to detect a condition, and activate at least one of the haptic device(s) in response to the condition.

Regarding claim 15, each of D1, and D4 to D7 discloses (D1: [0018], [0041]; D4: [0026] to [0038]; D5: line 16 on page 3 to line 15 on page 4; D6: line 45 on column 6 to line 39 on column 7; D7: line 26 on column 1 to line 44 on column 3) the control unit comprises one or more interfaces for connecting to one or more sensors (D1: [0040], [0041]; D4: [0027] to [0032], [0084] to [0087]; D5: 102, line 16 on page 3 to line 15 on page 4; D6: 12, line 45 on column 6 to line 39 on column 7; D7: 5, 6, 7) attached to the motorcycle; and the control unit is configured to: detect signals from sensor(s); compare the signals to one or more thresholds stored in the control unit; activate at least one of the haptic devices when one of the thresholds is met; and deactivate the activated haptic device(s) when the met thresholds is met; and deactivate the activated haptic device(s) when the met threshold is no longer met.

Regarding claim 16, each of D1, and D4 to D7 discloses (D1: [0015] to [0018], [0040] to [0041]; D4: [0026] to [0038]; D5: line 16 on page 3 to line 15 on page 4; D6: line 45 on column 6 to line 39 on column 7; D7: line 26 on column 1 to line 44 on column 3) each threshold represents a different hazard to the rider.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **Box No. V**

Regarding claim 17, each of D1, and D4 to D7 discloses (D1: [0015] to [0018], [0040] to [0041]; D4: [0033] to [0038]; D5: line 16 on page 3 to line 15 on page 4; D6: line 45 on column 6 to line 39 on column 7; D7: line 26 on column 1 to line 44 on column 3) at least one sensor detects a value of a parameter of an environment in which the motorcycle is present, and at least one of the thresholds is based on the parameter.

Regarding claim 18, each of D1, and D4 to D7 discloses (D1: [0015] to [0018], [0040] to [0041]; D4: [0033] to [0038]; D5: line 16 on page 3 to line 15 on page 4; D6: line 45 on column 6 to line 39 on column 7; D7: line 26 on column 1 to line 44 on column 3) at least one sensor detects a parameter of the rider, and at least one of the threshold is based on the parameter.

Regarding claim 20, each of D1, and D4 to D7 discloses a method for warning a rider of a motorcycle (D1: 10; D4: 206; D5: lines 23 to 25 on page 1; D6: Fig. 4; D7: line 26 on column 1 to line 44 on column 3) of a hazard comprising: attaching, to the motorcycle, at least one haptic device (D1: 10A; Fig. 4; D4: [0033] to [0038]; D5: line 16 on page 3 to line 15 on page 4; D6: 16"; D7: 11, 12) configured to provide haptic feedback to the rider; attaching, to the motorcycle, a control unit (D1: [0015] to [0018], [0026] to [0041]; D4: [0027] to [0032], [0084] to [0087]; D5: lines 1 to 6 on page 3; D6: 14; D7: 1) connecting the control unit to the haptic device(s); detecting, by the control unit, a condition; and activating, by the control unit, at least one of the haptic device(s) in response to the condition.

Regarding claim 21, each of D1, and D4 to D7 discloses a kit of parts for attachment to a motorcycle (D1: 10; D4: 206; D5: lines 23 to 25 on page 1; D6: Fig. 4; D7: line 26 on column 1 to line 44 on column 3), the kit comprising at least one haptic device (D1: 10A; Fig. 4; D4: [0033] to [0038]; D5: line 16 on page 3 to line 15 on page 4; D6: 16"; D7: 11, 12) configured to: mount on the motorcycle; and provide haptic feedback to a rider of the motorcycle; and a control unit (D1: [0015] to [0018], [0026] to [0041]; D4: [0027] to [0032], [0084] to [0087]; D5: lines 1 to 6 on page 3; D6: 14; D7: 1) configured to: mount on the motorcycle; connect to the haptic device(s); detect a condition; and activate at least one of the haptic device(s) in response to the condition; and one or more connectors (D1: 104; D4: [0034]; D5: line 23 on page 1 to line 15 on page 4, Fig. 2; D6: line 45 on column 6 to line 39 on column 7, Fig. 1; D7: 10) configured to connect the haptic device(s) to the control unit.

Document D2 discloses the subject matter of claims 1 to 3, 10, 15 to 18, 20 and 21.

Regarding claim 1, D2 discloses a motorcycle (D2: lines 13 to 14 on page 2, line 35 on page 8, and line 21 on page 9) comprising: at least one haptic device (D2: 4, 31, 32) configured to provide haptic feedback to a rider of the motorcycle; and a control unit (D2: 7; lines 9 to 23 on page 3, line 15 on page 5 to line 27 on page 6, line 3 on page 9 to line 14 on page 10, lines 4 to 7 on page 11, lines 20 to 22 on page 12) connected to the haptic device(s) and configured to: detect a condition; and activate at least one of the haptic device(s) in response to the condition.

Regarding claim 2, D2 discloses there are at least two (D2: 31, 32; line 28 on page 7 to line 11 on page 9, line 21 on page 13 to line 8 on page 14; Fig. 4) of said haptic devices; each of the two haptic devices is a motor (D2: 23) with an eccentrically rotating mass (D2: lines 18 to 20 on page 12), one of the motors is mounted in a left handlebar (D2: left 3) of the motorcycle; and one of the motors is mounted in a right handlebar (D2: right 3) of the motorcycle.

Regarding claim 3, D2 discloses each motor is mounted rigidly in the corresponding handlebar (D2: line 18 on page 12 to line 29 on page 13).

Regarding claim 10, D2 discloses there are at least two of the haptic devices, each of the two haptic devices is a motor (D2: 23) with an eccentrically rotating mass (D2: lines 18 to 20 on page 12), one of the motors is mounted in a left position in a rider's seat (D2: line 1 on page 10 to line 4 on page 12), and so that one of the motors is mounted in a right position in a rider's seat (D2: line 1 on page 10 to line 4 on page 12).

Regarding claim 15, D2 discloses (D2: line 28 on page 6 to line 8 on page 14) the control unit comprises one or more interfaces for connecting to one or more sensors (D2: lines 30 to 34 on page 6) attached to the motorcycle; and the control unit is configured to: detect signals from sensor(s); compare the signals to one or more thresholds stored in the control unit; activate at least one of the haptic devices when one of the thresholds is met; and deactivate the activated haptic device(s) when the met thresholds is met; and deactivate the activated haptic device(s) when the met threshold is no longer met.

Regarding claim 16, D2 discloses (D2: line 28 on page 6 to line 8 on page 14) each threshold represents a different hazard to the rider.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **Box No. V**

Regarding claim 17, D2 discloses (D2: line 28 on page 6 to line 8 on page 14) at least one sensor (D2: lines 30 to 34 on page 6) detects a value of a parameter of an environment in which the motorcycle is present, and at least one of the thresholds is based on the parameter.

Regarding claim 18, D2 discloses (D2: line 28 on page 6 to line 8 on page 14) at least one sensor (D2: lines 30 to 34 on page 6) detects a parameter of the rider, and at least one of the threshold is based on the parameter.

Regarding claim 20, D2 discloses (D2: lines 11 to 33 on page 2, lines 12 to 20 on page 9, line 21 on page 10 to line 27 on page 11, line 32 on page 13 to line 11 on page 14) a method for warning a rider of a motorcycle of a hazard comprising: attaching, to the motorcycle, at least one haptic device (D2: lines 13 to 14 on page 2, line 35 on page 8, and line 21 on page 9) configured to provide haptic feedback to the rider, attaching, to the motorcycle, a control unit (D2: 7; lines 9 to 23 on page 3, line 15 on page 5 to line 27 on page 6, line 3 on page 9 to line 14 on page 10, lines 4 to 7 on page 11, lines 20 to 22 on page 12); connecting the control unit to the haptic device(s); detecting, by the control unit, a condition; and activating, by the control unit, at least one of the haptic device(s) in response to the condition.

Regarding claim 21, D2 discloses a kit of parts for attachment to a motorcycle, the kit comprising: at least one haptic device (D2: lines 13 to 14 on page 2, line 35 on page 8, and line 21 on page 9) configured to: mount on the motorcycle; and provide haptic feedback to a rider of the motorcycle; a control unit (D2: 7; lines 9 to 23 on page 3, line 15 on page 5 to line 27 on page 6, line 3 on page 9 to line 14 on page 10, lines 4 to 7 on page 11, lines 20 to 22 on page 12) configured to: mount on the motorcycle; connect to the haptic device(s); detect a condition; and activate at least one of the haptic device(s) in response to the condition; and one or more connectors configured to connect the haptic device(s) to the control unit (D2: lines 11 to 33 on page 2, lines 12 to 20 on page 9, line 21 on page 10 to line 27 on page 11, line 32 on page 13 to line 11 on page 14).

Document D3 discloses the subject matter of claims 1 to 3, and 15 to 18, 20 and 21.

Regarding claim 1, D3 discloses a motorcycle (D3: 10) comprising: at least one haptic device (D3: 84) configured to provide haptic feedback to a rider of the motorcycle; and a control unit (D3: 80) connected to the haptic device(s) and configured to: detect a condition; and activate at least one of the haptic device(s) in response to the condition.

Regarding claim 2, D3 discloses there are at least two (D3: 84, 84a) of said haptic devices; each of the two haptic devices is a motor (D3: 110) with an eccentrically rotating mass (D3: 112), one of the motors is mounted in a left handlebar (D3: at 92 on 32) of the motorcycle; and one of the motors is mounted in a right handlebar (D3: at 86 on 32) of the motorcycle.

Regarding claim 3, D3 discloses each motor is mounted rigidly in the corresponding handlebar (D3: Figs. 8 to 10).

Regarding claim 15, D3 discloses (D3: [0005] to [0068]) the control unit comprises one or more interfaces for connecting to one or more sensors (D3: 52a, 70, 76, 78, 82a, 82b, 90, 96, 132) attached to the motorcycle; and the control unit is configured to: detect signals from sensor(s); compare the signals to one or more thresholds stored in the control unit; activate at least one of the haptic devices when one of the thresholds is met; and deactivate the activated haptic device(s) when the met thresholds is met; and deactivate the activated haptic device(s) when the met threshold is no longer met.

Regarding claim 16, D3 discloses (D3: [0005] to [0068]) each threshold represents a different hazard to the rider.

Regarding claim 17, D3 discloses at least one sensor (D3: 78; [0005] to [0068]) detects a value of a parameter of an environment in which the motorcycle is present, and at least one of the thresholds is based on the parameter.

Regarding claim 18, D3 discloses at least one sensor (D3: 76, 132; [0005] to [0068]) detects a parameter of the rider, and at least one of the threshold is based on the parameter.

Regarding claim 20, D3 discloses (D3: [0005] to [0068]) a method for warning a rider of a motorcycle of a hazard comprising: attaching, to the motorcycle, at least one haptic device (D3: 84) configured to provide haptic feedback to the rider, attaching, to the motorcycle, a control unit (D3: 80); connecting the control unit to the haptic device(s); detecting, by the control unit, a condition; and activating, by the control unit, at least one of the haptic device(s) in response to the condition.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **Box No. V**

Regarding claim 21, D3 discloses (D3: [0005] to [0068]) a kit of parts for attachment to a motorcycle, the kit comprising: at least one haptic device (D3: 84) configured to: mount on the motorcycle; and provide haptic feedback to a rider of the motorcycle; a control unit (D3: 80) configured to: mount on the motorcycle; connect to the haptic device(s); detect a condition; and activate at least one of the haptic device(s) in response to the condition; and one or more connectors configured to connect the haptic device(s) to the control unit.

Inventive Step (IS):

Claims 1 to 21 do not involve an inventive step and therefore do not comply with PCT Article 33(3).

Given the above novelty objection, claims 1 to 3, 10, 15 to 18, 20 and 21 do not involve an inventive step.

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 2 to 6, and 8 by combining the teachings of document D1 with common general knowledge.

Regarding claim 2, it would have been obvious to a person skilled in the art to modify D1 so that there are at least two of said haptic devices, so that each of the two haptic devices is a motor with an eccentrically rotating mass, so that one of the motors is mounted in a left handlebar of the motorcycle, and so that one of the motors is mounted in a right handlebar of the motorcycle.

Regarding claim 3, it would have been obvious to a person skilled in the art to modify D1 so that each of the motors is mounted rigidly in the corresponding handlebar.

Regarding claim 4, D1 discloses an eccentrically rotating mass (D1: 116) is located beyond an end of a structural tube of the handlebar and housed in a stud cover (D1: 130; [0037]). It would have been obvious to a person skilled in the art to modify D1 so that there are two eccentrically rotating masses, and so that each of the masses is located beyond an end of a structural tube of the corresponding handlebar and housed in a stud cover.

Regarding claim 5, D1 discloses the haptic device is on a fixed handlebar (D1: [0021]; Fig. 2).

Regarding claim 6, it would have been obvious to a person skilled in the art to modify D1 so that a haptic device is on a handlebar which rotates to control a throttle of the motorcycle (D1: [[0017], [0018], [0040], [0041]).

Regarding claim 8, D1 discloses the haptic device comprises a resonance booster (D1: 86, 88, 88A, 88B; [0032], [0033], [0037], [0039]). It would have been obvious to a person skilled in the art to modify D1 so that there are two haptic devices, and so that each of the haptic devices is in a corresponding handlebar.

It would have been obvious to a person skilled in the art to arrive at the matter defined in claim 7 by combining the teachings of any one of documents D1 to D7, with document D8, and with common general knowledge.

Having viewed D8, it would have been obvious to a person skilled in the art to modify any one of D1 to D7 so that each handlebar comprises: nodules (D8: at 3 in each of Figs. 1 and 2) projecting outwards from a structural tube (D8: 3) of the handlebar; and a grip (D8: 14) around the tube, wherein the grip is thinner (D8: Figs. 1 and 2) over the nodules than over other parts of the tube. Further, it would have been an obvious design choice for the structural tube to be metal, and for the grip to be rubber.

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 9 to 12 by combining the teachings of any one of documents D1 and D3, with common general knowledge as shown by document D7.

Regarding claim 9, it would have been obvious to a person skilled in the art, as shown by viewed D7, to modify any one of D1 and D3, so that there are at least two of the haptic devices; so that each of the two haptic devices is a motor (D1: 32; D3: 110) with an eccentrically rotating mass (D1: 116; D3: 112), so that one of the motors is mounted in a left footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, and so that one of the motors is mounted in a right footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**

Continuation of: **Box No. V**

Regarding claim 10, it would have been obvious to a person skilled in the art, having viewed D7 and common general knowledge, to modify any one of D1 and D3, so that there are at least two of the haptic devices; so that each of the two haptic devices is a motor (D1: 32; D3: 110) with an eccentrically rotating mass (D1: 116; D3: 112), so that one of the motors is mounted in a left position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, and so that one of the motors is mounted in a right position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

Regarding claim 11, it would have been obvious to a person skilled in the art, having viewed D7 and common general knowledge, to modify any one of D1 and D3, so that there are at least six of the haptic devices; so that one of the haptic devices is mounted in a left handlebar (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle; so that one of the haptic devices is mounted in a right handlebar (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle; so that one of the haptic devices is mounted in a left footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle; so that one of the haptic devices is mounted in a right footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle; so that one of the haptic devices is mounted in a left position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle; and so that one of the haptic devices is mounted in a right position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

Regarding claim 12, the haptic device of each of D1 and D3 is a motor (D1: 32; D3: 110) with an eccentrically rotating mass (D1: 116; D3: 112). Further, it would have been obvious to a person skilled in the art to modify D1 so that there is more than one haptic device.

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 13 and 14 by combining the teachings of document D1, with common general knowledge as shown by documents D7 and D9.

Regarding claim 13, it would have been obvious to a person skilled in the art, having viewed D9, to further modify D1 so that at least one of the haptic devices is a piezoelectric actuator (D9: [0054]).

Regarding claim 14, it would have been obvious to a person skilled in the art, having viewed D9, to further modify D1 so that at least one of the haptic devices is an electro-active polymer (D9: [0054]).

It would have been obvious to a person skilled in the art to arrive at the matter defined in claim 19 by combining the teachings of any one of documents D1, D2, and D4 to D7, with document D3, and common general knowledge.

It is considered common general knowledge that the motorcycle of D3 comprises an electronic control module (D3: for 52), therefore, it would have been obvious to a person skilled in the art, having viewed D3 (D3: 52, [0010], [0012], [0015], [0024], [0030], [0042], [0054]), to modify any one of D1, D2, and D4 to D7 so that the control unit comprises an interface for connection to an engine control unit of the motorcycle, so that the control unit is configured to obtain data regarding a state of the motorcycle, and so that at least one threshold is based on the state of the motorcycle.

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 9, 11 and 12 by combining the teachings of document D2, with common general knowledge, as shown by document D7.

Regarding claim 9, D2 discloses at least two of the haptic devices, and each of the two haptic devices is a motor (D2: 23) with an eccentrically rotating mass (D2: lines 18 to 20 on page 12). It would have been obvious to a person skilled in the art, having viewed common general knowledge, as shown by D7, to modify D2 so that one of the motors is mounted in a left footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, and so that one of the motors is mounted in a right footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

Regarding claim 11, it would have been obvious to a person skilled in the art, having viewed common general knowledge, as shown by D7, to modify D2 so that there are at least six of the haptic devices, so that one of the haptic devices is mounted in a left handlebar (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, so that one of the haptic devices is mounted in a right handlebar (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, so that one of the haptic devices is mounted in a left footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, so that one of the haptic devices is mounted in a right footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, so that one of the haptic devices is mounted in a left position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, and so that one of the haptic devices is mounted in a right position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**

Continuation of: **Box No. V**

Regarding claim 12, the haptic device of D2 is a motor (D2: 23) with an eccentrically rotating mass (D2: lines 18 to 20 on page 12). Further, D2 discloses (D2: 31, 32; line 28 on page 7 to line 11 on page 9, line 21 on page 13 to line 8 on page 14; Fig. 4) that there is more than one haptic device.

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 13 and 14 by combining the teachings of document D2, with common general knowledge as shown by documents D7 and D9.

Regarding claim 13, it would have been obvious to a person skilled in the art, having viewed D9, to further modify D2 so that at least one of the haptic devices is a piezoelectric actuator (D9: [0054]).

Regarding claim 14, it would have been obvious to a person skilled in the art, having viewed D9, to further modify D2 so that at least one of the haptic devices is an electro-active polymer (D9: [0054]).

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 13 and 14 by combining the teachings of document D3, with common general knowledge as shown by documents D7 and D9.

Regarding claim 13, it would have been obvious to a person skilled in the art, having viewed D9, to further modify D3 so that at least one of the haptic devices is a piezoelectric actuator (D9: [0054]).

Regarding claim 14, it would have been obvious to a person skilled in the art, having viewed D9, to further modify D3 so that at least one of the haptic devices is an electro-active polymer (D9: [0054]).

It would have been obvious to a person skilled in the art to arrive at the matter defined in claim 19 by combining the teachings of document D3, with common general knowledge.

It is considered common general knowledge that the motorcycle of D3 comprises an electronic control module (D3: for 52). Therefore, it would have been obvious to a person skilled in the art, having viewed D3 (D3: 52, [0010], [0012], [0015], [0024], [0030], [0042], [0054]), that the control unit comprises an interface for connection to an engine control unit of the motorcycle, so that the control unit is configured to obtain data regarding a state of the motorcycle, and so that at least one threshold is based on the state of the motorcycle.

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 2, 3 and 10 by combining the teachings of document D4, with common general knowledge as shown by any one of documents D1, D2 and D3.

Regarding claim 2, D4 discloses there are at least two of said haptic devices. It would have been obvious to a person skilled in the art, having viewed any one of D1, D2 and D3, to modify D4 so that each of the two haptic devices is a motor (D1: 32; D2: 23; D3: 110) with an eccentrically rotating mass (D1: 116; D2: lines 18 to 20 on page 12; 23; D3: 112), and so that one of the motors is mounted in the left handlebar of the motorcycle; and another one of the motors is mounted in the right handlebar of the motorcycle.

Regarding claim 3, it would have been obvious to a person skilled in the art, as shown by any one of documents D1 to D3, to modify D4 so that each of the motors is mounted rigidly in the corresponding handlebar.

Regarding claim 10, D4 discloses there are at least two of the haptic devices (D4: at 202 and 204 in FIG. 2, [0033] to [0036]), one of the haptic devices is mounted in a left position in a rider's seat (D4: [0067]) of the motorcycle, and an other one of the motors is mounted in a right position in a rider's seat (D4: [0067]) of the motorcycle. It would have been obvious to a person skilled in the art, as shown by any one of documents D1 to D3, to modify D4 so that each of the haptic devices is a motor (D1: 32; D2: 23; D3: 110) with an eccentrically rotating mass (D1: 116; D2: lines 18 to 20 on page 12; 23; D3: 112).

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 4 to 6, and 8 by combining the teachings of document D4 with document D1, and common general knowledge, as shown by any one of documents D1 to D3.

Regarding claim 4, D1 discloses an eccentrically rotating mass (D1: 116) is located beyond an end of a structural tube of the handlebar and housed in a stud cover (D1: 130; [0037]). Therefore, it would have been obvious to a person skilled in the art, having viewed D1, to

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**

Continuation of: **Box No. V**

modify each of the haptic devices of D4 so that each of the masses is located beyond an end of a structural tube of the corresponding handlebar and housed in a stud cover.

Regarding claim 5, the handlebar of D4 is fixed (D4: FIG. 2).

Regarding claim 6, it is considered common general knowledge that one of handlebars (D4: 202 in FIG.2) of D4 rotates to control a throttle of the motorcycle.

Regarding claim 8, it would have been obvious to a person skilled in the art to modify D4 so that each of the haptic devices comprises a resonance booster (D1: 86, 88, 88A, 88B; [0032], [0033], [0037], [0039]) in a corresponding handlebar, as taught by D1.

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 9 and 12 by combining the teachings of document D4, with common general knowledge, as shown by documents D3 and D7.

Regarding claim 9, it would have been obvious to a person skilled in the art, having viewed common general knowledge, as shown by documents D3 and D7, to modify D4, so that there are at least two of the haptic devices, so that each of the two haptic devices is a motor (D3: 110) with an eccentrically rotating mass (D3: 112), so that one of the motors is mounted in a left footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, and so that one of the motors is mounted in a right footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

Regarding claim 12, the haptic device of D1 is a motor (D1: 32) with an eccentrically rotating mass (D1: 116). Further, it would have been obvious to a person skilled in the art, as shown by document D7, to modify D1 so that there is more than one haptic device.

It would have been obvious to a person skilled in the art to arrive at the matter defined in claim 11 by combining the teachings of document D4, with common general knowledge, as shown by document D7.

It would have been obvious to a person skilled in the art, having viewed common general knowledge, as shown by D7, to modify D4 so that there are at least six of the haptic devices, so that one of the haptic devices is mounted in a left handlebar (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, so that one of the haptic devices is mounted in a right handlebar (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, so that one of the haptic devices is mounted in a left footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, so that one of the haptic devices is mounted in a right footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, so that one of the haptic devices is mounted in a left position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, and so that one of the haptic devices is mounted in a right position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 13 and 14 by combining the teachings of document D4, with common general knowledge as shown by any one of documents D1 to D3 and document D9.

Regarding claim 13, it would have been obvious to a person skilled in the art, having viewed D9, to further modify D4 so that at least one of the haptic devices is a piezoelectric actuator (D9: [0054]).

Regarding claim 14, it would have been obvious to a person skilled in the art, having viewed D9, to further modify D4 so that at least one of the haptic devices is an electro-active polymer (D9: [0054]).

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 9 to 12 by combining the teachings of any one of documents D5 and D6, with document D7, and with common general knowledge as shown by any one of documents D1, D2 and D3.

Regarding claim 9, it would have been obvious to a person skilled in the art, having viewed D7 and common general knowledge, to modify any one of D5 and D6, so that there are at least two of the haptic devices, so that each of the two haptic devices is a motor (D1: 32; D2: 23; D3: 110) with an eccentrically rotating mass (D1: 116; D2: lines 18 to 20 on page 12; D3: 112), and so that one of the motors is mounted in a left footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, and so that one of the motors is mounted in a right footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **Box No. V**

Regarding claim 10, it would have been obvious to a person skilled in the art, having viewed D7 and common general knowledge, to modify any one of D5 and D6, so that there are at least two of the haptic devices; so that each of the two haptic devices is a motor (D1: 32; D2: 23; D3: 110) with an eccentrically rotating mass (D1: 116; D2: lines 18 to 20 on page 12; D3: 112), so that one of the motors is mounted in a left position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, and so that one of the motors is mounted in a right position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

Regarding claim 11, it would have been obvious to a person skilled in the art, having viewed D7 and common general knowledge, to modify any one of D5 and D6, so that there are at least six of the haptic devices; so that one of the haptic devices is mounted in a left handlebar (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle; so that one of the haptic devices is mounted in a right handlebar (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle; so that one of the haptic devices is mounted in a left footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle; so that one of the haptic devices is mounted in a right footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle; so that one of the haptic devices is mounted in a left position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle; and so that one of the haptic devices is mounted in a right position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

Regarding claim 12, it would have been obvious to a person skilled, as shown by any one of D1, D2 and D3, for the haptic device of any one of D5 and D6 to be a motor (D1: 32; D2: 23; D3: 110) with an eccentrically rotating mass (D1: 116; D2: lines 18 to 20 on page 12; D3: 112). Further, it would have been obvious to a person skilled in the art to modify any one of D5 and D6 so that there is more than one haptic device.

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 9 to 12 by combining the teachings of document D7, with any one of documents D1, D2 and D3.

Regarding claim 9, it would have been obvious to a person skilled in the art, having viewed any one of D1, D2 and D3, to modify D7, so that each of the two haptic devices is a motor (D1: 32; D2: 23; D3: 110) with an eccentrically rotating mass (D1: 116; D2: lines 18 to 20 on page 12; D3: 112), so that one of the motors is mounted in a left footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, and so that one of the motors is mounted in a right footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

Regarding claim 10, it would have been obvious to a person skilled in the art, having viewed any one of D1, D2 and D3, to modify D7, so that each of the two haptic devices is a motor (D1: 32; D2: 23; D3: 110) with an eccentrically rotating mass (D1: 116; D2: lines 18 to 20 on page 12; D3: 112), so that one of the motors is mounted in a left position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, and so that one of the motors is mounted in a right position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

Regarding claim 11, D7 discloses one of the haptic devices is mounted in a left handlebar (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, one of the haptic devices is mounted in a right handlebar (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, one of the haptic devices is mounted in a left footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, one of the haptic devices is mounted in a right footpeg (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, one of the haptic devices is mounted in a left position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle, and one of the haptic devices is mounted in a right position in a rider's seat (D7: lines 16 to 21 on column 2; lines 9 to 26 on column 3) of the motorcycle.

Regarding claim 12, it would have been obvious to a person skilled in the art, having viewed any one of D1, D2 and D3, to modify D7, so that the haptic device is a motor (D1: 32; D2: 23; D3: 110) with an eccentrically rotating mass (D1: 116; D2: lines 18 to 20 on page 12; D3: 112).

It would have been obvious to a person skilled in the art to arrive at the matter defined in each of claims 13 and 14 by combining the teachings of document D7, with any one of documents D1, D2 and D3, and with common general knowledge as shown by D9.

Regarding claim 13, it would have been obvious to a person skilled in the art, having viewed D9, to further modify D7 so that at least one of the haptic devices is a piezoelectric actuator (D9: [0054]).

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Continuation of: **Box No. V**

Regarding claim 14, it would have been obvious to a person skilled in the art, having viewed D9, to further modify D7 so that at least one of the haptic devices is an electro-active polymer (D9: [0054]).

Industrial Applicability (IA):

The subject matter of claims 1 to 21 is considered to be industrially applicable and thus complies with the requirements of PCT Article 33(4).

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 1, 2, 5, 6, 9 to 11, and 15 to 21 do not comply with PCT Article 6. The claims shall be clear and concise.

It is unclear whether or not the expression “the haptic device(s)” (claim 1, lines 4 and 6; claim 20, lines 2 and 4 on page 17; claim 21, lines 7, 9 and 11) implies “the at least one haptic device”, whether or not the expression “said haptic devices” (claim 2, line 2; claim 9, line 2; claim 10, line 2; claim 11, line 2; claim 15, line 7) intends to read “said at least one haptic device”, whether or not the expression “said two haptic devices” (claim 2, line 3; claim 9, line 3; claim 10, line 3) intends to read “said at least two haptic devices”, and whether or not the expression “the activated haptic device(s)” (claim 15, line 9) implies “the at least one activated haptic device”.

It is unclear whether or not the expression “the sensor(s)” (claim 15, line 5) implies “the one or more sensors”.

It is unclear whether or not the expression “when one” (claim 15, line 7) intends to read “when one or more”.

It is unclear whether or not the expression “said thresholds” (claim 15, line 7) intends to read “said one or more thresholds”, whether or not the expression “the met threshold” (claim 15, line 7) intends to read “the one or more met thresholds”, whether or not the expression “each threshold” (claim 16, line 1) intends to read “each of the one or more thresholds”, and whether or not the expression “the thresholds” (claim 17, lines 2 to 3; claim 18, line 2) intends to read “the one more thresholds”.

It is unclear whether the expression “at least one sensor” (claim 17, line 1; claim 18, line 1) attempts to introduce at least one sensor different than any of the previously introduced “one or more sensors” (claim 15, lines 2 to 3), or refer to “at least one of the one or more sensors”.

It is unclear whether the expression “an interface” (claim 19, line 2) attempts to introduce an interface different than any of the previously introduced “one or more interfaces” (claim 15, line 2), or refer to “one of the one or more interfaces”.

It is unclear whether the expression “at least one threshold” (claim 19, line 6) attempts to introduce at least one threshold different than any of the previously introduced “one or more thresholds” (claim 15, line 6), or refer to “at least one of the one or more thresholds”.

It is unclear whether the expression “the handlebar” (claim 5, line 1; claim 6, line 1) refers to the “left handlebar” (claim 2, line 4) or to the “right handlebar” (claim 2, line 5).

The description does not comply with PCT Article 5. The description does not disclose the invention in a manner sufficiently clear and complete to be carried out by a person skilled in the art. It is unclear whether or not the expression “keys steps” (line 1 of [0034] on page 5; emphasis added) should read “key steps”, and whether or not the expression “compresses areas” (line 6 of [0040] on page 7; emphasis added) should read “compressed areas”.