US009409597B2

(12) **United States Patent**
Sudale

(10) **Patent No.: US 9,409,597 B2**
(45) **Date of Patent: Aug. 9, 2016**

(54) **SYSTEM AND METHOD TO SELECT A STEER MODE**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/421,390**

(22) PCT Filed: **Aug. 7, 2013**

(86) PCT No.: **PCT/US2013/053927**

§ 371 (c)(1),
(2) Date: **Feb. 12, 2015**

(87) PCT Pub. No.: **WO2014/028282**

PCT Pub. Date: **Feb. 20, 2014**

(65) **Prior Publication Data**

US 2015/0217803 A1 Aug. 6, 2015

(30) **Foreign Application Priority Data**

Aug. 14, 2012 (EP) 12180392

(51) **Int. Cl.**
B62D 7/15 (2006.01)
E02F 9/20 (2006.01)

(52) **U.S. Cl.**
CPC ***B62D 7/159*** (2013.01); ***B62D 7/1509*** (2013.01); ***E02F 9/2087*** (2013.01)

(58) **Field of Classification Search**
CPC E02F 9/2253; B62D 5/003; B62D 21/14; B60K 31/10; B60Q 1/143; G01C 21/3492
USPC 701/36, 41, 423; 180/305; 280/782
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,604,528	A	9/1971	Williamson	
5,238,077	A	8/1993	Vaughn et al.	
7,278,511	B1	10/2007	Gass et al.	
2001/0038246	A1	11/2001	Frenza et al.	
2002/0161499	A1*	10/2002	Radamis	B62D 5/003 701/41
2003/0070859	A1*	4/2003	Dahl	B60K 31/10 180/305
2006/0287818	A1*	12/2006	Okude	G01C 21/3492 701/423
2009/0206589	A1*	8/2009	Osswald	B62D 21/14 280/782
2011/0196574	A1*	8/2011	Krieg	B60Q 1/143 701/36

FOREIGN PATENT DOCUMENTS

EP	0637650	A1	2/1995
EP	2390163		11/2011

OTHER PUBLICATIONS

International Search Report mailed Jan. 29, 2014 from Application No. PCT/US2013/053927.

* cited by examiner

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(57) **ABSTRACT**

The present disclosure is related to a system to control switching between a two wheel steer mode and a four wheel steer mode. The system may have a sensor device that monitors an operational value indicative of vehicle speed and emits an operational signal corresponding to the operational value. A controller is provided in the system, which receives the operational signal and selects between the two wheel steer mode and the four wheel steer mode based on the operational signal.

12 Claims, 2 Drawing Sheets