

Title (en)  
EXCAVATOR CONTROL SYSTEM AND METHOD

Title (de)  
BAGGERSTEUERSYSTEM UND -VERFAHREN

Title (fr)  
SYSTÈME DE COMMANDE D'EXCAVATEUR ET SON PROCÉDÉ

Publication  
**EP 2038487 A2 20090325 (EN)**

Application  
**EP 07799027 A 20070626**

Priority  
• US 2007072089 W 20070626  
• US 47838906 A 20060629

Abstract (en)  
[origin: WO2008002898A2] The system determines the orientation,  $r$ , of an excavator or other machine sitting on a sloped portion of a construction or work site with respect to the direction across the site in which there is no slope. This direction across the site in which there is no slope is perpendicular to the direction of the fall line of the sloped portion. The system includes a first inclinometer for determining the pitch angle, Pitch, of the machine and providing a pitch angle output. The system includes a second inclinometer for determining the roll angle, Roll, of the machine and for providing a roll angle output. Finally, the system includes a processor, responsive to said pitch angle output and said roll angle output, with the processor determining the orientation,  $r$ , according to one of the following:  $r = \sin^{-1} \left[ \frac{\text{Pitch}}{\sqrt{\text{Pitch}^2 + \text{Roll}^2}} \right]$ ; or  $r = \cos^{-1} \left[ \frac{\text{Roll}}{\sqrt{\text{Pitch}^2 + \text{Roll}^2}} \right]$ ; or  $r = \tan^{-1} \left[ \frac{\text{Pitch}}{\text{Roll}} \right]$ . The first and second inclinometers may comprise a single, dual axis inclinometer, or they may comprise a pair of appropriately oriented inclinometers. The system may use only one of the three formulae continuously, or may select various ones of the formulae for use at various times, depending upon which formula is judged to provide the most accurate indication of orientation. For example, the formula may be selected based upon the quadrant in which the longitudinal axis of the machine is oriented.

IPC 8 full level  
**E02F 9/20** (2006.01); **E02F 3/84** (2006.01); **G05D 1/02** (2006.01)

CPC (source: EP US)  
**E02F 3/435** (2013.01 - EP US); **E02F 9/2045** (2013.01 - EP US)

Citation (search report)  
See references of WO 2008002898A2

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

Designated extension state (EPC)  
AL BA HR MK RS

DOCDB simple family (publication)  
**WO 2008002898 A2 20080103**; **WO 2008002898 A3 20080529**; AU 2007265131 A1 20080103; AU 2007265131 A2 20090108; CN 101479431 A 20090708; EP 2038487 A2 20090325; JP 2009542941 A 20091203; US 2008000111 A1 20080103

DOCDB simple family (application)  
**US 2007072089 W 20070626**; AU 2007265131 A 20070626; CN 200780024628 A 20070626; EP 07799027 A 20070626; JP 2009518501 A 20070626; US 47838906 A 20060629