Title (en)
METHOD FOR DETERMINING A POSE OF AN OBJECT, METHOD FOR CONTROLLING A VEHICLE, CONTROL UNIT AND VEHICLE

Title (de)
VERFAHREN ZUM ERMITTELN EINER POSE EINES OBJEKTES, VERFAHREN ZUM STEUERN EINES FAHRZEUGES, STEUEREINHEIT UND FAHRZEUG

Title (fr)
PROCÉDÉ PERMETTANT DE DÉTERMINER LA POSE D'UN OBJET, PROCÉDÉ PERMETTANT DE COMMANDER UN VÉHICULE, UNITÉ DE COMMANDE ET VÉHICULE

Publication
EP 4128160 A1 20230208 (DE)

Application
EP 21715163 A 20210322

Priority
- DE 102020108416 A 20200326
- EP 2021057174 W 20210322

Abstract (en)
[origin: WO2021191099A1] The invention relates to a method for determining a pose (PO) of an object (O) relative to a vehicle (1), wherein the object (O) has at least three markers (M1, M2, M3, M4) and is captured by at least one camera (4) on the vehicle (1), comprising the following steps: – capturing the markers (M1, M2, M3, M4) by means of the camera (4) and generating an image (B), wherein a marker representation is assigned to the markers (M1, M2, M3, M4) in the image; – determining marker positions and/or marker vectors of the markers (M1, M2, M3, M4) on the captured object (O); – determining a transformation matrix (T) depending on the marker positions and/or the marker vectors and depending on the marker representations, wherein the transformation matrix (T) maps the markers (M1, M2, M3, M4) on the object (O) to the marker representation in the image (B); – determining an object plane (OE) formed by the markers (M1, M2, M3, M4) on the object (O) in a second coordinate system (K2) depending on the transformation matrix (T) determined, wherein the second coordinate system (K2) is fixed with respect to the vehicle in order to determine the pose (PO) of the object (O) relative to the vehicle (1). The invention provides for the at least three markers (M1, M2, M3, M4) on the object (O) to be of three-dimensional extent and to be assigned to two-dimensional marker representations in the image (B).

IPC 8 full level
G06T 7/73 (2006.01); B60D 1/36 (2006.01); B60D 1/62 (2006.01); B62D 13/06 (2006.01); B62D 15/02 (2006.01)

CPC (source: EP US)
B60D 1/245 (2013.01 - EP); B60D 1/36 (2013.01 - US); B60D 1/62 (2013.01 - EP); G06T 7/73 (2016.12 - EP US); B62D 13/06 (2013.01 - EP); B62D 15/0285 (2013.01 - EP); G06T 2207/30204 (2013.01 - EP US); G06T 2207/30252 (2013.01 - EP US)

Citation (search report)
See references of WO 2021191099A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
DE 102020108416 A1 20210930; EP 4128160 A1 20230208; US 2023196609 A1 20230622; WO 2021191099 A1 20210930

DOCDB simple family (application)
DE 102020108416 A 20200326; EP 2021057174 W 20210322; EP 21715163 A 20210322; US 202117913439 A 20210322