

EUROPEAN PATENT OFFICE
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 1646

DATE: AUGUST 1, 2024

PROJECT DP12341

The following classification changes will be effected by this Notice of Changes:

<u>Action</u>	<u>Subclass</u>	<u>Group(s)</u>
DEFINITIONS:		
Definitions New:	G05D	1/20, 1/40, 1/43, 1/435, 1/46, 1/467, 1/48, 1/49, 1/60, 1/617, 1/622, 1/639, 1/661, 1/683, 1/69, 1/698, 1/80, 1/82
	G05D	2105/22
	G05D	2107/50
	G05D	2111/00
Definitions Modified:	G05D	1/00

No other subclasses/groups are impacted by this Notice of Changes.

This Notice of Changes includes the following:

1. CLASSIFICATION SCHEME CHANGES

- A. New, Modified or Deleted Group(s)
- B. New, Modified or Deleted Warning(s)
- C. New, Modified or Deleted Note(s)
- D. New, Modified or Deleted Guidance Heading(s)

2. DEFINITIONS

- A. New or Modified Definitions (Full definition template)
- B. Modified or Deleted Definitions (Definitions Quick Fix)

3. REVISION CONCORDANCE LIST (RCL)

4. CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

5. CHANGES TO THE CROSS-REFERENCE LIST (CRL)

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2. A. DEFINITIONS (new)

Insert: The following new Definitions.

G05D 1/20

Definition statement

This place covers:

Inputs used by the control system to control the position, course, altitude, depth or attitude of the vehicle. It comprises position, course, altitude or attitude command inputs from an offboard human operator or from an external computer system, as well as onboard and offboard arrangements for determining the position or orientation of the vehicle in relation to its environment used for the specific purpose of position, course, altitude or attitude control. This place further covers allocation of control inputs between offboard and onboard operators and systems.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring height	G01C 5/00
Gyroscopes	G01C 19/00
Navigation	G01C 21/00
Measuring distance traversed on the ground by vehicles, e.g. using odometers	G01C 22/00
Combined instruments indicating more than one navigational value, e.g. for aircraft; Combined measuring devices for measuring two or more variables of movement, e.g. distance, speed or acceleration	G01C 23/00
Positioning beacons, e.g. LORAN, VOR or TACAN systems	G01S 1/00
Determining the direction from which radio, optical or acoustic waves are being received	G01S 3/00
Determining position or attitude using radio, optical or acoustic waves	G01S 5/00
Details of systems according to groups G01S 13/00 , G01S 15/00 , G01S 17/00	G01S 7/00

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Determining distance or velocity using radio, optical or acoustic waves and not using reflection or reradiation	G01S 11/00
Systems using the reflection or reradiation of radio waves, e.g. radar systems; Analogous systems	G01S 13/00
Systems using the reflection or reradiation of acoustic waves, e.g. Sonar systems	G01S 15/00
Systems using the reflection or reradiation of electromagnetic waves other than radio waves, e.g. Lidar systems	G01S 17/00
Satellite radio beacon positioning systems, e.g. GPS; Determining position, velocity or attitude using signals transmitted by such systems	G01S 19/00
Control devices characterised by mechanical features only	G05G
Input arrangements for transferring data to be processed into a form capable of being handled by the computer; Output arrangements for transferring data from processing unit to output unit, e.g. interface arrangements	G06F 3/00
Image analysis	G06T 7/00
Arrangements for transmitting signals characterised by the use of a wireless electrical link	G08C 17/00
Image or video recognition of scenes	G06V 20/00
Transmission	H04B
Details of television systems	H04N 5/00
Wireless communication networks for vehicles	H04W 4/40

G05D 1/40

Definition statement

This place covers:

Control arrangements specific for the control of position or course of a vehicle within two dimensions or three dimensions.

Control arrangements specific for the control of altitude, depth or attitude of a vehicle.

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G05D 1/43

Definition statement

This place covers:

Position or course control in two dimensions, for example, over a solid or liquid surface or inside a fluid at constant altitude or depth. The surface may be horizontal, vertical, inclined or uneven, for example.

G05D 1/435

Definition statement

This place covers:

Control of a vehicle in two dimensions, wherein features of the surface or of the environment, like the presence of inclined planes, stairs or lifts, results in a change in the altitude or depth of the vehicle during the two-dimensional control.

G05D 1/46

Definition statement

This place covers:

Position or course control in three dimensions for vehicles controllable within three dimensions.

G05D 1/467

Definition statement

This place covers:

Three-dimensional control of a vehicle moving inside a volume defined by physical surfaces, e.g. having solid or liquid surfaces as boundaries, regardless of the size or accessibility of the volume. For example, tanks, pools or buildings.

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Special rules of classification

An open body of water is not considered to be a confined volume for this place.

G05D 1/48

Definition statement

This place covers:

Control arrangements for achieving a desired altitude, depth, vertical speed or vertical profile.

G05D 1/49

Definition statement

This place covers:

Attitude control comprising direct isolated or combined control of yaw, pitch and roll.

G05D 1/60

Definition statement

This place covers:

The intended result of the position, course, altitude, depth or attitude control of a single vehicle or of a coordinated group of vehicles, i.e. the goal or purpose that the position, course, altitude or attitude control of the vehicle is meant to achieve through the control.

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References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Anti-collision traffic control systems for road vehicles	G08G 1/16
Anti-collision traffic control systems for aircraft	G08G 5/04

G05D 1/617

Definition statement

This place covers:

Position, course, altitude, depth or attitude control of a vehicle specifically aimed at ensuring safety and protection of the vehicle, its occupants or its environment during operation of the vehicle.

References

Limiting references

This place does not cover:

Arrangements for controlling the position or course of two or more vehicles for avoiding collisions therebetween	G05D 1/693
Arrangements for reacting to or preventing system or operator failure	G05D 1/80

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G05D 1/622

Definition statement

This place covers:

Position, course, altitude, depth or attitude control of a vehicle specifically aimed at detecting objects during travel and modifying the movement of the vehicle to maintain at least a minimum distance to them.

References

Limiting references

This place does not cover:

Predicting or avoiding probable or impending collision of road vehicles	B60W 30/08
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G05D 1/639

Definition statement

This place covers:

Position, course, altitude, depth or attitude control of a vehicle specifically aimed at resolving or avoiding situations where the movement of the vehicle is constrained so as to substantially hinder the intended task of the vehicle.

G05D 1/661

Definition statement

This place covers:

Position, course, altitude, depth or attitude control of a vehicle specifically aimed at achieving a desired relative position and orientation at zero relative velocity to an external facility in order to allow interaction between the facility and the vehicle, the external facility typically being cooperative or comprising features for allowing relative positioning of the vehicle.

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References

Limiting references

This place does not cover:

Delivering or retrieving payloads	G05D 1/667
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G05D 1/683

Definition statement

This place covers:

Position, course, altitude, depth or attitude control of a vehicle specifically aimed at reducing the distance to a moving uncooperative target to zero, where the final orientation and relative velocity are typically not controlled.

References

Limiting references

This place does not cover:

Docking at a base station	G05D 1/661
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G05D 1/69

Definition statement

This place covers:

Control of the position or course of each of two or more vehicles in coordination with each other by taking into account the position or course of each of the vehicles.

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G05D 1/698**Definition statement***This place covers:*

Processes and systems for allocating the authority for providing commands for the coordinated control of two or more vehicles between one or more of the vehicles or external entities. Includes shared or sequential allocation of the authority.

G05D 1/80**Definition statement***This place covers:*

Safety arrangements relating to position, course, altitude, depth or attitude control of a vehicle for reacting to or preventing abnormal system operation caused by failures or errors of a system or a human operator.

References**Limiting references***This place does not cover:*

Handing over between remote control and on-board control, or handing over between remote control arrangements	G05D 1/227
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

Ensuring safety in case of road vehicle drive control system failures not related to the control of a particular subunit	B60W 50/02
Interaction between the driver and the road vehicle drive control system not related to the control of a particular subunit	B60W 50/08
Testing of vehicles	G01M 17/00
Electric safety arrangements in general	G05B 9/02

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Electric testing or monitoring of control systems	G05B 23/02
Preventing errors by testing or debugging of software	G06F 11/36
Computer-aided design of vehicles	G06F 30/15
Registering or indicating the working of vehicles	G07C 5/00
Alarm systems	G08B

G05D 1/82**Definition statement***This place covers:*

Systems limiting the allowed control by the operator or system, e.g. limiting the control output to an amount less than commanded by the operator of a vehicle when it is determined that there is a risk associated with implementing the commanded output.

References**Limiting references***This place does not cover:*

Limitation of acceleration or structural stress	G05D 1/83
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G05D 2105/22**Definition statement***This place covers:*

Vehicles designed to transport a human as a driver or a passenger.

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G05D 2107/50

Definition statement

This place covers:

Confined spaces not easily accessible to humans.

G05D 2111/00

Definition statement

This place covers:

The type of signal used for determining position or orientation during control of position, course, altitude, depth or attitude of a vehicle.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Beacons or beacon systems transmitting signals having a characteristic or characteristics capable of being detected by non-directional receivers and defining directions, positions or position lines fixed relatively to the beacon transmitters using radio waves	G01S 1/02
Beacons or beacon systems transmitting signals having a characteristic or characteristics capable of being detected by non-directional receivers and defining directions, positions or position lines fixed relatively to the beacon transmitters using electromagnetic waves other than radio waves	G01S 1/70
Beacons or beacon systems transmitting signals having a characteristic or characteristics capable of being detected by non-directional receivers and defining directions, positions or position lines fixed relatively to the beacon transmitters using ultrasonic, sonic or infrasonic waves	G01S 1/72

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Direction-finders for determining the direction from which infrasonic, sonic, ultrasonic or electromagnetic waves or particle emission, not having a directional significance, are being received using radio waves	G01S 3/02
Direction-finders for determining the direction from which infrasonic, sonic, ultrasonic or electromagnetic waves or particle emission, not having a directional significance, are being received using electromagnetic waves other than radio waves	G01S 3/78
Direction-finders for determining the direction from which infrasonic, sonic, ultrasonic or electromagnetic waves or particle emission, not having a directional significance, are being received using ultrasonic, sonic or infrasonic waves	G01S 3/80
Position-fixing by co-ordinating two or more direction or position-line determinations or position-fixing by co-ordinating two or more distance determinations using radio waves	G01S 5/02
Position-fixing by co-ordinating two or more direction or position-line determinations or position-fixing by co-ordinating two or more distance determinations using electromagnetic waves other than radio waves	G01S 5/16
Position-fixing by co-ordinating two or more direction or position-line determinations or position-fixing by co-ordinating two or more distance determinations using ultrasonic, sonic or infrasonic waves	G01S 5/18
Systems details using the reflection or reradiation of radio waves, e.g. radar systems or analogous systems using reflection or reradiation of waves whose nature or wavelength is irrelevant or unspecified	G01S 7/02
Systems details using the reflection or reradiation of electromagnetic waves other than radio waves, e.g. lidar systems	G01S 7/48
Details of radio direction-finding, radio navigation, determining distance or velocity by use of radio waves, locating or presence-detecting by use of the reflection or reradiation of radio waves or analogous arrangements using reflection of acoustic waves	G01S 7/52
Systems for determining distance or velocity not using reflection or reradiation using radio waves	G01S 11/02
Systems for determining distance or velocity not using reflection or reradiation using electromagnetic waves other than radio waves	G01S 11/12
Systems for determining distance or velocity not using reflection or reradiation using ultrasonic, sonic or infrasonic waves	G01S 11/14

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Systems using the reflection or reradiation of radio waves, e.g. radar systems or analogous systems using reflection or reradiation of waves whose nature or wavelength is irrelevant or unspecified	G01S 13/00
Systems using the reflection or reradiation of radio waves, e.g. radar systems, or analogous systems using reflection or reradiation of waves whose nature or wavelength is irrelevant or unspecified using transponders powered from received waves, e.g. using passive transponders	G01S 13/75
Radio direction-finding, radio navigation, determining distance or velocity by use of radio waves, locating or presence-detecting by use of the reflection or reradiation of radio waves or analogous arrangements using reflection of acoustic waves	G01S 15/00
Systems using the reflection or reradiation of electromagnetic waves other than radio waves, e.g. lidar systems	G01S 17/00
Satellite radio beacon positioning systems; Determining position, velocity or attitude using signals transmitted by such systems	G01S 19/00
Determining position by combining measurements of signals from the satellite radio beacon positioning system with a supplementary measurement	G01S 19/45
Determining position by combining or switching between position solutions derived from the satellite radio beacon positioning system and position solutions derived from a further system	G01S 19/48

Special rules of classification

This group should only be used in combination with a corresponding group in [G05D 1/24](#) and in the case when the type of signal is used in the control of position, course, altitude, depth or attitude of a vehicle.

2. A. DEFINITIONS (modified)

G05D 1/00

Insert: The following new Definition statement.

Definition statement

This place covers:

Autonomous, remote or assisted control of the position, course, altitude, depth or attitude of land, water, air or space manned or unmanned vehicles.

Relationships with other classification places

Replace: The existing Relationships text with the following updated text.

Subclass **G01C** covers measuring distance or height, e.g. measuring distance or height for land vehicles, ships, aircraft and space vehicles. Group **G01C 21/00** covers navigation in general, e.g. determining the route to be followed by a vehicle. Group **G01C 21/00** also covers determining position or distance traveled using dead reckoning and inertial sensors.

Subclass **G08G** covers arrangements, located in land, water, air or space vehicles or on the ground, for controlling road vehicles, marine craft or aircraft within a traffic environment, e.g. traffic signals, landing aids or anti-collision systems. Subclass **G08G** does not cover arrangements for the control of position, course, altitude or attitude of land, water, air or space vehicles, not being specific to a traffic environment, e.g. automatic pilots, which are covered by group **G05D 1/00**.

Subclass **G01S** covers systems and devices for determining positions, distances, velocities or directions using radio, optical, acoustic or similar waves. Subclass **G01S** also covers detecting the presence of an object using these waves.

This main group concerns only the position, course, altitude, depth or attitude control of vehicles as a whole. It does not cover internal adjustments of elements of the vehicles, like for example robotic arms, cranes, gimbal cameras or other types of payloads.

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Application-oriented references

Replace: The existing Application-oriented references table with the following updated table.

Steering or guiding agricultural machines or implements	A01B 69/00
Steering for toy vehicles	A63H 17/36
Electrical remote-control arrangements for toy vehicles	A63H 30/02
Stability or attitude control of air-cushion vehicles	B60V 1/11
Purposes of road vehicle drive control systems not related to the control of a particular subunit	B60W 30/00
Control of rail vehicles	B61L 23/00
Steering controls of motor vehicles or trailers, i.e. means for initiating a change of direction	B62D 1/00
Arrangements for automatically controlling the steering depending on driving conditions	B62D 6/00
Active steering aids	B62D 15/025
Attitude or position control of chassis of endless-tracked vehicles	B62D 55/116
Control of attitude or depth of underwater vessels	B63G 8/14
Marine steering; Marine dynamic anchoring	B63H 25/00
Control systems for actuating flying-control surfaces, lift-increasing flaps, air brakes or spoilers of aircraft	B64C 13/00
Attitude, flight direction or altitude control of aircraft by jet reaction	B64C 15/00
Ejector seats	B64D 25/10
Guiding or controlling cosmonautic vehicles	B64G 1/24
Control devices for conveyors	B65G 43/00
Control systems for cranes	B66C 13/18
Control devices for soil-shifting machines	E02F 9/20
Onboard guidance or control of self-propelled or guided missiles	F42B 15/01
Steering control of marine torpedoes	F42B 19/01

Informative references

Replace: The existing Informative references table with the following updated table.

Control of position or direction of an object not being a vehicle	G05D 3/00
Control of linear or angular speed or of acceleration	G05D 13/00
Mowers	A01D 34/00
Electric equipment of suction cleaners	A47L 9/28

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Programme-controlled manipulators	B25J 9/00
Safety devices for propulsion unit control	B60K 28/00
Vehicle fittings, acting on a single subunit only, for automatically controlling vehicle speed	B60K 31/00
Ground or aircraft carrier deck installations	B64F
Unmanned aerial vehicles	B64U
Fork lifts	B66F 9/00
Direction control systems for self-propelled missiles	F41G 7/00
Navigation	G01C 21/00
Determining positions, velocities, directions or distances using radio, optical or acoustic waves	G01S
Total factory control	G05B 19/418
Machine learning	G06N 20/00
Optimisation of routes or paths specially adapted for administration or management purposes	G06Q 10/047
Logistics and inventory or stock management	G06Q 10/08
Traffic control systems	G08G

Special rules of classification

Replace: The existing Special rules text with the following updated text.

In this main group, it is desirable to add the indexing codes of groups [G05D 2101/00](#) - [G05D 2111/00](#). These groups should be used for embodiments which are useful for search purposes, not just for possible alternatives mentioned in a list.

Insert: The following new Glossary of terms table.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

vehicle	is any machine for transporting or moving for other purposes which comprises means for adjusting its position within an environment without being constrained with respect to a fixed location. This covers, e.g. moving robots, land vehicles, ships, submarines, airplanes, drones or space vehicles.
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