EUROPEAN PATENT OFFICE
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 1786

DATE: AUGUST 1, 2025

PROJECT DP12473

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

Action	**Subclass**	**Group(s)**
DEFINITIONS:		
Definitions New:	G05D	1/22, 1/221, 1/224, 1/226, 1/227, 1/228, 1/229, 1/24, 1/246, 1/461, 1/618, 1/619, 1/642, 1/644, 1/6445, 1/648, 1/6484, 1/65, 1/6542, 1/656, 1/665, 1/667, 1/672, 1/678, 1/686, 1/692, 1/693, 1/695, 1/696, 1/6983, 1/6985, 1/6987, 1/85, 1/86, 1/87
	G05D	2105/10, 2105/14, 2105/20, 2105/24, 2105/28
	G05D	2107/13
	G05D	2109/10, 2109/14, 2109/15, 2109/23, 2109/24, 2109/25, 2109/254, 2109/40
	G05D	2111/30, 2111/32, 2111/65
Definitions Modified:	G05D	1/617, 1/622
	G05D	2111/00

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

This Notice of Changes includes the following *[Check the ones included]:*

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)

2. A. DEFINITIONS (new)

G05D1/22

Definition statement

This place covers:

Position, course, altitude or attitude command input arrangements to the control system of a semi-autonomous, fully autonomous or remote-controlled vehicle. In particular, position, course, altitude or attitude command input arrangements for establishing, influencing or constraining the target position, course, altitude or attitude of the vehicle.

Relationships with other classification places

Command input arrangements for human pilots or operators located onboard vehicles are classified in classes B62, B63 or B64.

References

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Steering controls for land motor vehicles or trailers	B62D1/00
Marine steering	B63H25/00
Initiating means actuated personally for actuating flying-control surfaces, lift-increasing flaps, air brakes or spoilers	B64C13/04

G05D1/221

Definition statement

This place covers:

Position, course, altitude or attitude command input arrangements from an offboard operator or from an external computer system.

Feedback arrangements from the vehicle to the offboard operator or external computer system for the purpose of position, course, altitude or attitude control.

G05D1/224

References

Informative references

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

Flight directors	G01C23/005

G05D1/226

Definition statement

This place covers:

Networking arrangements or signal aspects of the communication link between an offboard operator or an external computer system and a vehicle for the purpose of position, course, altitude or attitude control.

References

Informative references

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

Arrangements for transmitting signals characterised by the use of a wireless electrical link	G08C17/00
Transmission	H04B
Wireless communication networks specially adapted for vehicles	H04W4/40

G05D1/227

Definition statement

This place covers:

Handover of control between multiple offboard operators or external computer systems, or between onboard and offboard operators or external computer systems.

G05D1/228

Definition statement

This place covers:

Position, course, altitude or attitude command input arrangements mounted on an unmanned vehicle to be used by operators or systems located off board the vehicle.

G05D1/229

Definition statement

This place covers:

Details of position, course, altitude or attitude command input data, e.g. waypoints, to the control system of a vehicle.

References

Informative references

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

Flight plan management traffic control systems for aircraft	G08G5/30
Navigation or guidance aids for a single aircraft in accordance with predefined flight zones, e.g. to avoid prohibited zones	G08G5/55 in combination with G08G5/59

G05D1/24

Definition statement

This place covers:

Onboard or offboard arrangements for determining the position or orientation of a vehicle in relation to its environment used for the specific purpose of position, course, altitude or attitude control of the vehicle.

References

Informative references

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

Altimeters for aircraft	G01C5/005
Gyroscopes	G01C19/00
Navigation	G01C21/00
Measuring distance traversed on the ground by vehicles, e.g. using odometers	G01C22/00
Positioning beacons, e.g. LORAN, VOR or TACAN systems	G01S1/00
Determining the direction from which radio, optical or acoustic waves are being received	G01S3/00
Determining position or attitude using radio, optical or acoustic waves	G01S5/00
Details of systems according to groups G01S13/00, G01S15/00, G01S17/00	G01S7/00
Determining distance or velocity using radio, optical or acoustic waves and not using reflection or reradiation	G01S11/00
Systems using the reflection or reradiation of radio waves, e.g. radar systems; Analogous systems	G01S13/00
Systems using the reflection or reradiation of acoustic waves, e.g. sonar systems	G01S15/00
Systems using the reflection or reradiation of electromagnetic waves other than radio waves, e.g. lidar systems	G01S17/00
Satellite radio beacon positioning systems, e.g. GPS; Determining position, velocity or attitude using signals transmitted by such systems	G01S19/00
Image analysis	G06T7/00
Image or video recognition or understanding of scenes or scheme-specific elements	G06V20/00

Details of television systems	H04N5/00

Special rules of classification

In this place, it is desirable to add the indexing codes of group G05D2111/00 for specifying details of the particular signals, which are useful for search purposes.

G05D1/246

Definition statement

This place covers:

Arrangements for determining the position or orientation of the vehicle in relation to a representation or model of the environment for the specific purpose of position, course, altitude or attitude control of the vehicle.

G05D1/461

Definition statement

This place covers:

Control in three dimensions of a vehicle having no active propulsion.

Special rules of classification

In this place, the vehicle that has no active propulsion is considered to be “unpowered” for propulsion purposes, but this vehicle may otherwise have internally-powered elements, e.g. control surface actuators.

G05D1/618

Definition statement

This place covers:

Controlling the movement of the vehicle in order to prevent or minimize harm or injury to cargo or occupants.

G05D1/619

Definition statement

This place covers:

Controlling the movement of the vehicle in order to prevent or minimize the exposure of a vehicle to an attack or detection by hostile entities.

G05D1/642

Definition statement

This place covers:

Arrangements for temporarily or permanently removing or relocating obstacles that hinder the movement of the vehicle.

G05D1/644

Definition statement

This place covers:

Arrangements for optimisation of travel parameters by modifying the position, course, altitude or attitude control of the vehicle during operation.

References

Informative references

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

Route searching or route guidance specially adapted for navigation in road networks	G01C21/34
Optimisation of routes or paths specially adapted for administration or management purposes, e.g. travelling salesman problem	G06Q10/047

G05D1/6445

Definition statement

This place covers:

Arrangements for controlling the position, course, altitude or attitude of the vehicle for optimising payload operation of a component or load carried by the vehicle.

References

Informative references

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

Control of position, course, altitude or attitude of land, water, air or space vehicles with the intended control result of interaction with payloads or external entities	G05D1/656

G05D1/648

Definition statement

This place covers:

Controlling the movement of the vehicle within a space or over a surface to perform a work operation that changes the characteristics of the space or surface.

G05D1/6484

Definition statement

This place covers:

Controlling the movement of the vehicle by taking into account the physical parameters or characteristics of the working area or space, e.g. boundaries or surface features.

G05D1/65

Definition statement

This place covers:

Arrangements for directly controlling, limiting or otherwise influencing the travel speed or acceleration of a semi-autonomous, fully autonomous or remote-controlled vehicle over a route or at a given point or area.

References

Informative references

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

Control of linear speed; Control of angular speed; Control of acceleration or deceleration	G05D13/00

G05D1/6542

Definition statement

This place covers:

Arrangements for controlling landing on a moving platform, while it is moving.

G05D1/656

Definition statement

This place covers:

Position, course, altitude, depth or attitude control of a vehicle specifically aimed at allowing a desired operation of, or interaction with, internal or external entities to the vehicle.

Relationships with other classification places

Controlled ordnance, e.g. missiles or bombs, interacting with external entities is not classified in this place, but is classified in groups F41G7/00 or F42B15/01.

G05D1/665

Definition statement

This place covers:

Position, course, altitude, depth or attitude control of a vehicle specifically aimed at achieving a target position or orientation of the vehicle for the appropriate release of a payload, e.g. in order to achieve the landing of a parachute at a desired spot, or in order to achieve a desired trajectory for a released missile or torpedo.

References

Informative references

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

Systems for controlling missiles or projectiles, not provided for elsewhere, for guiding a craft to a correct firing position	F41G9/002

G05D1/667

Definition statement

This place covers:

Position, course, altitude, depth or attitude control of a vehicle specifically aimed at placing a payload at a target location or retrieving a payload from a target location.

G05D1/672

Definition statement

This place covers:

Position, course, altitude, depth or attitude control of vehicles specifically aimed at achieving a desired position, orientation or course of an implement or another piece of equipment being towed or pushed by the vehicle or suspended from it.

G05D1/678

Definition statement

This place covers:

Position, course, altitude, depth or attitude control of a vehicle physically coupled by a tether, e.g. cable, to a fixed or moving entity.

References

Limiting references

This place does not cover:

Positioning towed, pushed or suspended implements	G05D1/672

G05D1/686

Definition statement

This place covers:

Position, course, altitude, depth or attitude control of a vehicle specifically aimed at maintaining a desired relative position with respect to an independently moving target.

References

Limiting references

This place does not cover:

Pointing payloads towards targets	G05D1/689
Coordinated control of the position or course of two or more vehicles	G05D1/69

G05D1/692

Definition statement

This place covers:

Arrangements for the coordinated position or course control of two or more vehicles that are substantially different from a point of view of position control or structure. For example, coordinated control of an air vehicle and a land vehicle, coordinated control of a fixed wing aircraft and a rotorcraft, or coordinated control of a holonomic vehicle and a non-holonomic vehicle.

G05D1/693

Definition statement

This place covers:

Coordinated position or course control of two or more vehicles for the specific purpose of avoiding collisions between them.

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	G08G1/16
Traffic collision avoidance systems for aircraft	G08G5/80

G05D1/695

Definition statement

This place covers:

Arrangements for controlling two or more vehicles with the purpose of maintaining a desired relative distance or orientation to each other.

References

Informative references

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

Platooning in road vehicles	G08G1/22

G05D1/696

Definition statement

This place covers:

Arrangements for controlling two or more independently controlled vehicles that are temporarily linked together by a shared payload or a physical coupling.

G05D1/6983

Definition statement

This place covers:

Coordinated control of the position or course of two or more vehicles, wherein the command signals for the coordinated control are generated by two or more of the vehicles, either sequentially (e.g. by token passing) or simultaneously (e.g. by negotiating between the vehicles).

G05D1/6985

Definition statement

This place covers:

Coordinated control of the position or course of a group of two or more vehicles, wherein the command signals for the coordinated control are generated centrally by one single vehicle of the group acting as a lead vehicle.

G05D1/6987

Definition statement

This place covers:

Coordinated control of the position or course of a group of two or more vehicles, wherein the command signals for the coordinated control are generated centrally by an entity external to the group of vehicles.

G05D1/85

Definition statement

This place covers:

Arrangements for achieving a safe degraded operation of a vehicle in response to certain conditions, e.g. limp home mode.

G05D1/86

Definition statement

This place covers:

Arrangements for monitoring the performance of the position, course, altitude or attitude control system. A detected performance abnormality may trigger action by the control system or by elements external to the control system, e.g. warnings.

G05D1/87

Definition statement

This place covers:

Arrangements for reacting to or preventing system or operator failure, comprising two or more elements of the control system capable of performing the same function redundantly, e.g. redundant sensors, processors or software modules.

G05D2105/10

Definition statement

This place covers:

Vehicles designed to make a surface or a region free of dirt, marks or contaminants, especially by washing, wiping, brushing, vacuuming or polishing.

Vehicles designed for air cleaning, disinfection or sterilisation.

G05D2105/14

Definition statement

This place covers:

Vehicles designed to remove undesired objects from a location, e.g. removing garbage or tidying.

G05D2105/20

Definition statement

This place covers:

Vehicles designed to move objects, animals or humans from one location to another in an indoor or outdoor environment.

G05D2105/24

Definition statement

This place covers:

Motorised non-road vehicles intended for transport of a single human as a driver or a passenger, e.g. skateboards, wheelchairs or self-balancing scooters.

G05D2105/28

Definition statement

This place covers:

Vehicles designed to transport cargo, e.g. cargo aircraft, freight trains, lorries, delivery vehicles, forklifts or freighters.

G05D2107/13

Definition statement

This place covers:

Outdoor spaces reserved for vehicle traffic and regulated by a public authority.

References

Informative references

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

Transportation hubs	G05D2107/80

G05D2109/10

Definition statement

This place covers:

Vehicles designed for moving on a solid surface, e.g. extra-terrestrial land rovers.

G05D2109/14

Definition statement

This place covers:

Vehicles configured to travel along a grid of physical or visual elements, e.g. tracks or markings.

G05D2109/15

Definition statement

This place covers:

Vehicles designed for climbing or moving on a substantially vertical solid surface.

G05D2109/23

Definition statement

This place covers:

Fixed wing aircraft capable of taking off and landing vertically, or of taking off from or landing on a short runway.

References

Informative references

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

Flying platforms	G05D2109/254

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

STOL	short take-off and landing (aircraft)
STOVL	short take-off and vertical landing (aircraft)
VTOL	vertical take-off and landing (aircraft)

G05D2109/24

Definition statement

This place covers:

Aircraft having two or more separate modes of operation for generating lift, e.g. aircraft having fixed wing and rotary wing modes.

G05D2109/25

Definition statement

This place covers:

Aircraft generating lift from rotating blades, such as helicopters or autogyros.

G05D 2109/254

Definition statement

This place covers:

Aircraft having one or more rotors generating a lifting thrust, wherein attitude control is provided by differential rotor thrust control or a separate force generated outside of the rotors.

Illustrative example of subject matter classified in this place:

1a.

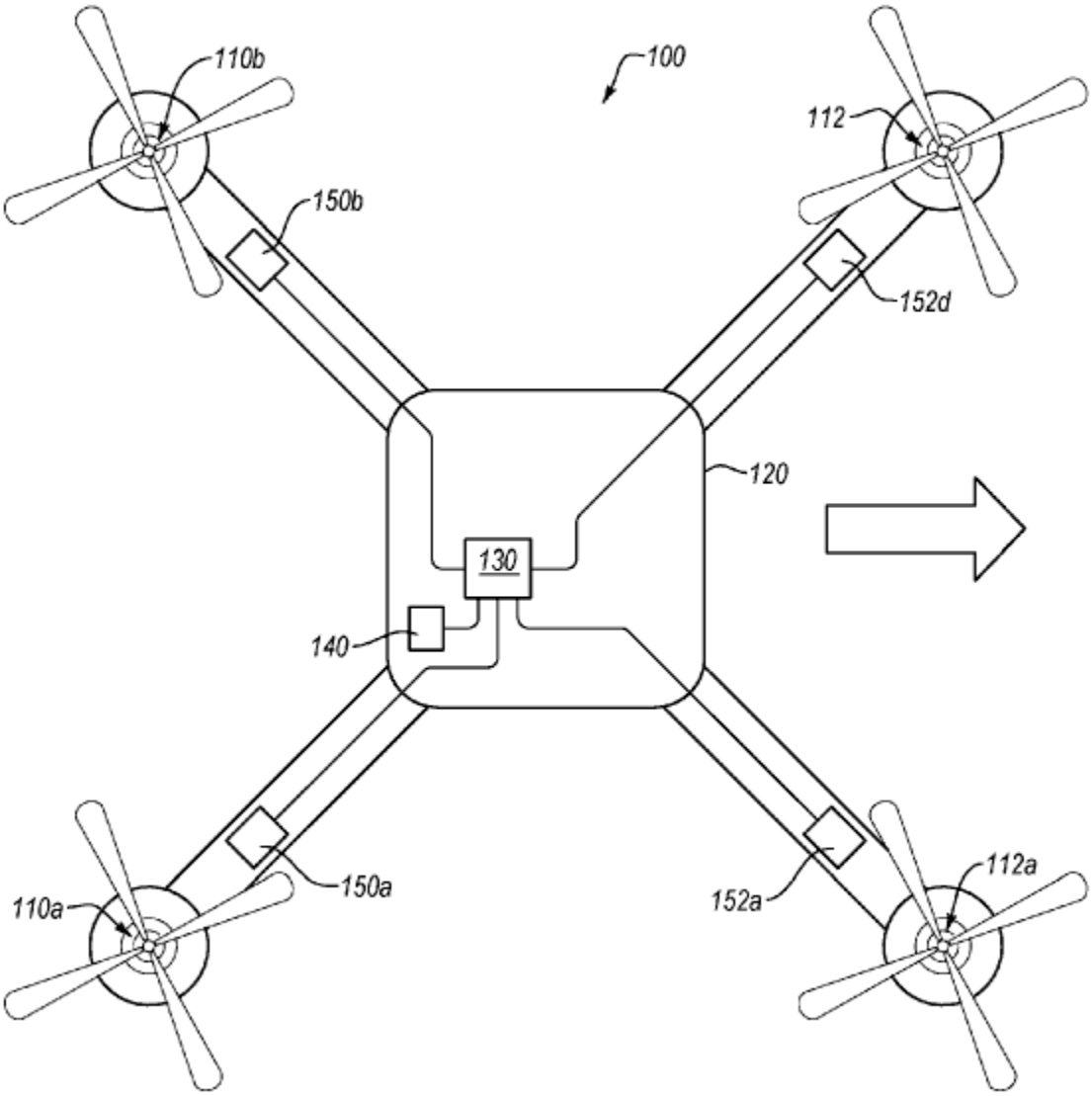

Figure 1a illustrates a top view of an aircraft having one or more rotors.

1b.

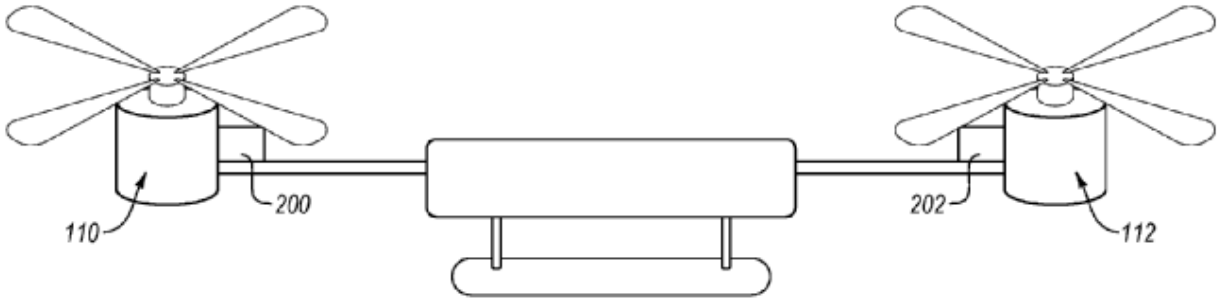

Figure 1b illustrates a side view of an aircraft having one or more rotors.

References

Informative references

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

Vertical take-off and landing [VTOL] aircraft; Short take-off and landing [STOL, STOVL] aircraft	G05D2109/23

G05D2109/40

Definition statement

This place covers:

Vehicles designed to operate outside of a celestial body, e.g. asteroid or planet, and its atmosphere.

References

Informative references

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

Land vehicles, e.g. extra-terrestrial land rovers	G05D2109/10

G05D2111/30

Definition statement

This place covers:

Details of radio signals used for control of position, course, altitude or attitude of land, water, air or space vehicles.

Special rules of classification

In this place, microwave signals are considered as a type of radio signal.

G05D2111/32

Definition statement

This place covers:

Details related to using transmission signals transmitted by communication networks to determine the position or orientation of a vehicle in order to control the position, course, altitude or attitude of the vehicle, the communication networks being originally intended for a different purpose other than position or orientation determination.

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

WLAN	wireless local area networks

G05D2111/65

Definition statement

This place covers:

Combining two or more signals of the same type generated sequentially and the combined signals being used for control of position, course, altitude or attitude of a vehicle by identifying common features in the combined signals.

References

Informative references

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

Control of position, course, altitude or attitude of land, water, air or space vehicles including arrangements for determining position or orientation using environment maps, e.g. simultaneous localisation and mapping [SLAM]	G05D1/246

2. A. DEFINITIONS (modified)

G05D1/617

References

Insert: The following new Informative references section.

Informative references

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

Arrangements for monitoring atmospheric conditions used in traffic control systems for aircraft	G08G5/76

G05D1/622

References

Insert: The following new Informative references section.

Informative references

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

Arrangements for monitoring terrain used in traffic control systems for aircraft	G08G5/74

G05D2111/00

References

Informative references

Insert: The following new row into the existing Informative references table.

Wireless communication networks, e.g. signals for communication purposes	H04W