CLAIMS

1. Airport stand arrangement comprising:

a display;

a radar-based system; and

one or more additional systems selected from laser-based systems only;

wherein said radar-based system and said one or more additional systems together form a combined system,

wherein the airport stand arrangement is configured, based on ~~output data from said combined system~~combined output data from said radar-based system and from said one or more additional systems, to detect and track an aircraft within a stand area when said aircraft is approaching a stand within the stand area for parking at a parking position therein, and configured, based on said detection and tracking of the approaching aircraft, to provide pilot maneuvering guidance information on said display for aiding a pilot of the approaching aircraft in maneuvering the aircraft towards said parking position~~.~~,

wherein the airport stand arrangement is further configured to detect and track the approaching aircraft based on a spatially resolved weighted average of the combined output data, wherein the weighted average is determined based on statistical weights for the radar system and the one or more additional systems, respectively.

~~2. The airport stand arrangement according to claim 1, wherein the airport stand arrangement is configured to detect and track the approaching aircraft based on combined output data from said radar-based system, on the one hand, and from said one or more additional systems, on the other hand.~~

~~3. The airport stand arrangement according to claim 2, wherein the airport stand arrangement is configured to detect and track the approaching aircraft based on a spatially resolved weighted average of the combined output data, wherein the weighted average is determined based on statistical weights for the radar system and the one or more additional systems, respectively.~~

~~4~~2. The airport stand arrangement according to claim ~~3~~1, wherein the airport stand arrangement is configured to determine the statistical weights based on associated output data from the respective systems of the combined system.

~~5~~3. The airport stand arrangement according to claim ~~4~~2, wherein the airport stand arrangement is configured to determine a visibility based on output data from said one or more additional systems and determine said statistical weights based on said visibility.

~~6~~4. The airport stand arrangement according to claim 1, wherein two or more systems of the combined system each are distanced from each other so as to, at each position in time, detect the approaching aircraft using different collection angles.

~~7~~5. The airport stand arrangement according to claim ~~6~~4, wherein at least one system of the combined system is arranged such that an associated area of coverage thereof extends over a portion of the stand area which portion at least partly overlaps with a part of the stand area being blocked, by a blocking structure in the stand area, from detection and tracking using remaining systems of the combined system.

~~8~~6. The airport stand arrangement according to claim ~~7~~5, wherein the blocking structure in the stand area is a passenger bridge.

~~9~~7. The airport stand arrangement according to claim ~~7~~5, wherein said at least one system is arranged on, or at, the blocking structure.

~~10~~8. Airport stand arrangement comprising:

a display;

a radar-based system; and

one or more additional systems selected from laser-based systems only;

wherein said radar-based system and said one or more additional systems together form a combined system,

wherein the airport stand arrangement is configured, based on output data from said combined system, to detect and track an aircraft within a stand area when said aircraft is approaching a stand within the stand area for parking at a parking position therein, and configured, based on said detection and tracking of the approaching aircraft, to provide pilot maneuvering guidance information on said display for aiding a pilot of the approaching aircraft in maneuvering the aircraft towards said parking position,

~~The airport stand arrangement according to claim 1,~~ wherein the airport stand arrangement is further configured to determine a visibility based on output data from one or more of said additional systems, and in response to said visibility being lower than a first visibility threshold, to detect and track the approaching aircraft based on output data from the radar-based system.

~~11~~9. The airport stand arrangement according to claim ~~10~~8, further comprising wireless transmitting means, and wherein the airport stand arrangement is configured, in response to said visibility being lower than a second visibility threshold, lower than said first visibility threshold, to wirelessly transmit, using the wireless transmitting means, a signal comprising said pilot maneuvering guidance information to the approaching aircraft.

~~12~~10. Airport stand arrangement comprising:

a display;

a radar-based system; and

one or more additional systems selected from laser-based systems only;

wherein said radar-based system and said one or more additional systems together form a combined system,

wherein the airport stand arrangement is configured, based on output data from said combined system, to detect and track an aircraft within a stand area when said aircraft is approaching a stand within the stand area for

parking at a parking position therein, and configured, based on said detection and tracking of the approaching aircraft, to provide pilot maneuvering guidance information on said display for aiding a pilot of the approaching aircraft in maneuvering the aircraft towards said parking position,

~~The airport stand arrangement according to claim 1,~~ wherein an area of coverage of the radar-based system extends further out from the parking position than associated areas of coverage of said one or more additional systems as defined along a direction along which the approaching aircraft is expected to enter the stand area,

wherein the airport stand arrangement is configured to, based on output data from the radar-based system, detect and track the approaching aircraft in the area of coverage of the radar-based system for allowing the approaching aircraft to approach the stand and enter into the associated areas of coverage of the one or more additional systems, and

whereby the airport stand arrangement is configured to, based on output data from said one or more additional systems, detect and track the approaching aircraft within associated areas of coverage of said one or more additional system.

~~13~~11. The airport stand arrangement according to claim ~~12~~10, wherein the airport stand arrangement is further configured to, based on the output data from said one or more additional systems, determine an aircraft type and/or model of the approaching aircraft based on output data from said one or more additional systems.

~~14~~12. The airport stand arrangement according to claim ~~13~~11, wherein the airport stand arrangement is further configured, in response to the airport stand arrangement being unable to determine the aircraft type and/or model of the approaching aircraft, to provide further pilot maneuvering guidance information instructing the pilot to stop the aircraft.

~~15~~13. The airport stand arrangement according to claim ~~12~~10, wherein the airport stand arrangement is further configured to, by use of a laser-based

system of the one or more additional systems, detect a backscattering signal (560) originating from a volume at the stand area, and

in response to the airport stand arrangement being able to detect said backscattering signal:

provide further pilot maneuvering guidance information instructing the pilot to approach the stand,

determine if a signal pattern of the backscattering signal corresponds to at least one pre-defined signal pattern of a library of allowed signal patterns, and

in response to the airport stand arrangement being unable to determine if a signal pattern of the backscattering signal corresponds to the at least one pre-defined signal pattern of the library of allowed signal patterns:

detect and track the approaching aircraft based on output data from the radar-based system, and

in response to the airport stand arrangement being unable to detect said backscattering signal:

provide further pilot maneuvering guidance information instructing the pilot to stop the aircraft.

~~16~~14. The airport stand arrangement according to claim 1,

wherein said airport stand arrangement is further configured:

to, as a first determination step, determine whether an aircraft is present or not at said parking position based at least on output data from said one or more additional systems, and

to, in response to a negative determination in said first determination step and as a second determination step, determine whether an aircraft is present or not at said parking position based on output data from said radar-based system;

to transmit an aircraft-present-signal in response to a positive determination in any of said first and second determination steps; and

to transmit an aircraft-not-present-signal in response to a negative determination in both of said first and second determination steps.

~~17~~15. The airport stand arrangement according to claim 1, wherein said arrangement is further configured to detect and track other objects within the stand area.

~~18~~16. The airport stand arrangement according to claim ~~17~~15, wherein said arrangement is further configured to detect and track said other objects within the stand area in parallel with said detection and tracking of the approaching aircraft during said maneuvering of the approaching aircraft towards the parking position.

~~19~~17. The airport stand arrangement according to claim ~~18~~16, wherein said arrangement is further configured to predict if the approaching aircraft is on a collision course with any of said other objects, and, in response to a collision course being predicted, to provide further pilot maneuvering guidance information instructing the pilot to stop the aircraft.

~~20~~18. The airport stand arrangement according to claim ~~17~~15, wherein the airport stand arrangement is configured to, based on at least a speed and direction of each of said other objects and a speed and direction of the approaching aircraft, determine if said other objects are predicted to leave the stand area before the approaching aircraft is predicted to arrive, and, in response to determining that said other objects are not predicted to leave the stand area before the approaching aircraft is predicted to arrive: to provide further pilot maneuvering guidance information instructing the pilot to stop the aircraft.

~~21~~19. The airport stand arrangement according to claim ~~17~~15, wherein the airport stand arrangement is configured to identify an event at the stand area based on the detection and tracking of said other objects within the stand area.

~~22~~20. The airport stand arrangement according to claim ~~21~~19, wherein the airport stand arrangement is configured to identify an event at the stand area based on selectively detecting and tracking an object of said other objects at a specific location at the stand area, wherein said specific location is determined based on an aircraft type and/or model of the aircraft in the stand and output data from the combined system

~~23~~21. The airport stand arrangement according to claim ~~21~~19, wherein the event is one from the list of: arrival of a food delivery truck, arrival of a baggage delivery truck, arrival of stop chocks at a wheel of the aircraft, arrival of a fueling truck, arrival of a passenger bus, arrival of a cleaning company, arrival of water supply, arrival of a waste truck and arrival of a ground power unit.

~~24~~22. The airport stand arrangement according to claim ~~17~~15, wherein said detection and tracking of said other objects is based on output data from the radar-based system, and wherein said detection and tracking of the approaching aircraft is based on output data from said one or more additional systems.

~~25~~23. A method for detecting and tracking an aircraft within a stand area when said aircraft is approaching a stand within the stand area for parking at a parking position therein, wherein said detection and tracking is based on output data from a radar-based system and output data from one or more additional systems selected from laser-based systems only, the method comprising:

determining a visibility based on output data from one or more of said one or more additional systems,

in response to said visibility being lower than a first visibility threshold:

detecting and tracking the approaching aircraft based on output data from said radar-based system.

24. A method for detecting and tracking an aircraft within a stand area when said aircraft is approaching a stand within the stand area for parking at a parking position therein, wherein said detection and tracking is based on output data from a radar-based system and output data from one or more additional systems selected from laser-based systems only, the method comprising:

detecting and tracking the approaching aircraft based on a spatially resolved weighted average of combined output data from said radar-based system and from said one or more additional systems, wherein the weighted average is determined based on statistical weights for the radar system and the one or more additional systems, respectively,

providing pilot maneuvering guidance information on a display for aiding a pilot of the approaching aircraft in maneuvering the aircraft towards said parking position.

25. A method for detecting and tracking an aircraft within a stand area when said aircraft is approaching a stand within the stand area for parking at a parking position therein, wherein said detection and tracking is based on output data from a radar-based system and output data from one or more additional systems selected from laser-based systems only, wherein an area of coverage of the radar-based system extends further out from the parking position than associated areas of coverage of said one or more additional systems as defined along a direction along which the approaching aircraft is expected to enter the stand area, the method comprising:

based on output data from the radar-based system, detecting and tracking the approaching aircraft in the area of coverage of the radar-based system for allowing the approaching aircraft to approach the stand and enter into the associated areas of coverage of the one or more additional systems,

based on output data from said one or more additional systems, detecting and tracking the approaching aircraft within associated areas of coverage of said one or more additional systems,

providing pilot maneuvering guidance information on a display for aiding a pilot of the approaching aircraft in maneuvering the aircraft towards said parking position.

26. A computer-readable medium comprising computer code instructions which when executed by a device having processing capability are adapted to perform the method according to any one of claims ~~25~~23-25.