DRONE WITH MIRROR TO SUPPORT LIGHT AND DRIVER ASSISTANCE SYSTEMS FOR CARS

Daniel Hoppe
Bertrandt Ingenieurbüro GmbH

Follow this and additional works at: http://www.tdcommons.org/dpubs_series

Recommended Citation
Hoppe, Daniel, "DRONE WITH MIRROR TO SUPPORT LIGHT AND DRIVER ASSISTANCE SYSTEMS FOR CARS",
Technical Disclosure Commons, (October 26, 2017)
http://www.tdcommons.org/dpubs_series/770

This work is licensed under a Creative Commons Attribution 4.0 License.
This Article is brought to you for free and open access by Technical Disclosure Commons. It has been accepted for inclusion in Defensive Publications Series by an authorized administrator of Technical Disclosure Commons.
DRONE WITH MIRROR TO SUPPORT LIGHT AND DRIVER ASSISTANCE SYSTEMS FOR CARS

Technical task:
The object of the technical innovation is to provide a separate, external, additional and freely positionable mirror for various applications.

Initial situation:
Showcars have already been presented with drones for some functions. These functions are, among other things, to deliver packages or to record photos or videos. There are also many drones with cameras in the consumer market. These can already land on certain markers and dock. The integrated cameras and sensors, however, cause costs and additional energy requirements. A powerful lighting device, for example, would require a lot of energy, which in turn requires a heavy battery. Their weight influences the possible flight time. These drones often perform independent tasks and do not yet play any role in assisting driver assistance systems or lighting scenarios of the vehicle.

Solution:
A vehicle has one or more drones equipped with one or more mirrors. These drones are docked on the vehicle. They fly off as required and support, for example, lighting tasks and/or driving assistance systems by means of a mirror positioned in the air. The drones can always dock on the vehicle to recharge themselves.

Technical implementation:
The drone itself is built similar to the currently available drones. However, instead of a camera, it only contains a comparatively large, light and slightly convex mirror.

In order to be able to reflect the light from headlights or signal lights, it is useful to equip the vehicle’s light clusters with a movable reflector, which can also reflect the light upwards. This allows the drone with the mirror to better capture and reflect light.

Since the drone can freely fly in the air, it can always position itself in such a way that it can orient the mirror optimally, so that it can reflect light or an image. The mirror drone can help with parking. It can be positioned in such a way that the driver (or his driving assistance systems) can better recognize the traffic situation.

In the event of a breakdown on the motorway, the vehicle itself can make itself more recognizable. The drone can send a light beacon from the vehicle roof. The headlights or direction indicators of the vehicle radiate their light through the mirrors in the luminaire housing and the drone reflects it in the direction of the following traffic. As a result, the approaching vehicle drivers see the breakdown vehicle much earlier. The mirror can not only redirect the light of the vehicle, but also light from other vehicles. As a result, the mirror acts as transmitter and receiver at the same time.

Also conceivable would be a flexible mirror on the drone, which can focus the deflected light.

Advantages:

- More traffic safety.
- Lighter and easier than drones with their own cameras or sensors.
- Increased comfort by means of help with parking and parking.

Possible application:

- All vehicles with integrated assistance drones.
Technical innovation

Fahrzeugeigene Beleuchtungseinheit mit integriertem Umlenkspiegel