

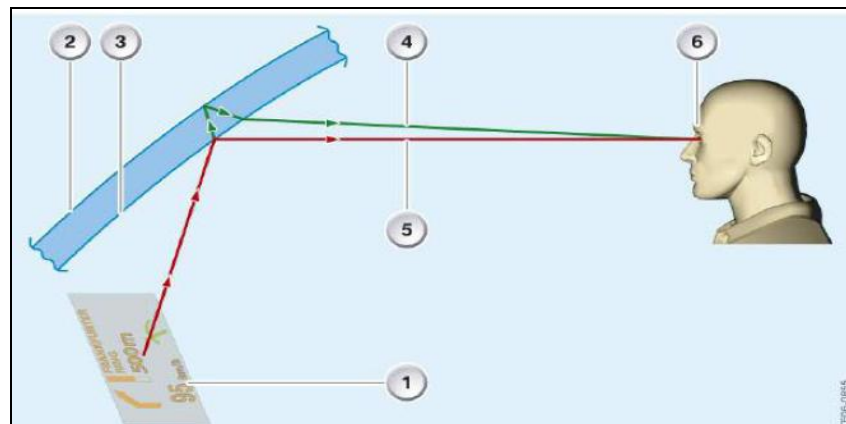


Cost-effective Solution to Eliminate Ghost Images in Head-up Displays

Problem

Head-up display (HUD) systems in automobiles are in increasingly high demand because they can project a substantial amount of critical information onto the windshield, enabling drivers to obtain information more quickly and naturally and thus significantly enhancing driving safety.

A windshield used for HUD devices plays a critical role in displaying the information to the driver. In conventional HUD device, the image coming from the light source is always reflected by the inner as well as outer surface of the windshield. Due to multiple reflections, two reflected images are generated and received by the driver as shown in the figure below.



The two reflected images are overlapped against each other and a ghost image is generated, which causes difficulty in identifying the image, as illustrated below.

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The most prevalent current solution to address this problem is a wedge-shaped windshield configuration. However, this method requires high manufacturing costs due to the need for a specialized wedge windshield.

Therefore, there is a need for a cost-effective solution to the ghosting problem that can be applicable for any HUD system and windshield.

360ip Partner's Solution

360ip's Partner has developed an optical film that can be applied on normal windshields for eliminating ghost images.



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The optical film is made of the following materials:

- Poly Vinyl Alcohol
- Triacetate Cellulose Film
- Pressure Sensitive Adhesives
- Adhesive Glue
- Release Film

The benefits of the Partner's technology as compared to alternative solutions include:

- **Better image quality:** The technology includes the use of optical film adjacent to substrate/windshield to reduce the ghost image resulted from multi-reflection. The optical film generates two differently reflected polarized images that are perpendicular to each other to minimize ghost images.
- **Easy fabrication:** Instead of coating, the optical film can directly be attached to the windshield for eliminating the ghost images. Attaching the film is much easier and achieves cost saving over coating processes for large-scale glass.
- **Compatible for all kinds of light sources:** The Partner's optical film technology can be integrated with all kinds of light sources.

360ip is seeking interested parties for the licensing and commercialization of this technology-based product.

For additional information, contact:

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