

Development Of Augmented Reality Lightguide

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Abstract

Augmented reality (AR) provides the unique ability to interact with virtual information, while also interacting with information in the real world. Lightguides can be used in the place of complicated freeform optics to make a light weight augmented reality device. In this paper this concept is clearly demonstrated as a typical system is finally optimized to dimensions that are compatible with human vision. COMSOL Multiphysics® Ray Optics Module provides a unique set of tools to render these kinds of designs very flexible, as one can study the design of the grating structure required to and the impact of the heat load accumulation that is typically associated with such devices. The design considered in this work is easily manufacturable, but can also be improved to achieved wider field of view and better immersion vision experience.

It is believed by many, that these technologies will provide unique way for users to interact with information that will outpace the usual touchscreen interface available today with smart phones. Since these technologies will eventually find great application in near future. There is significant interest in research in the design of these devices such that they overcome the setbacks that these devices have encountered so far.