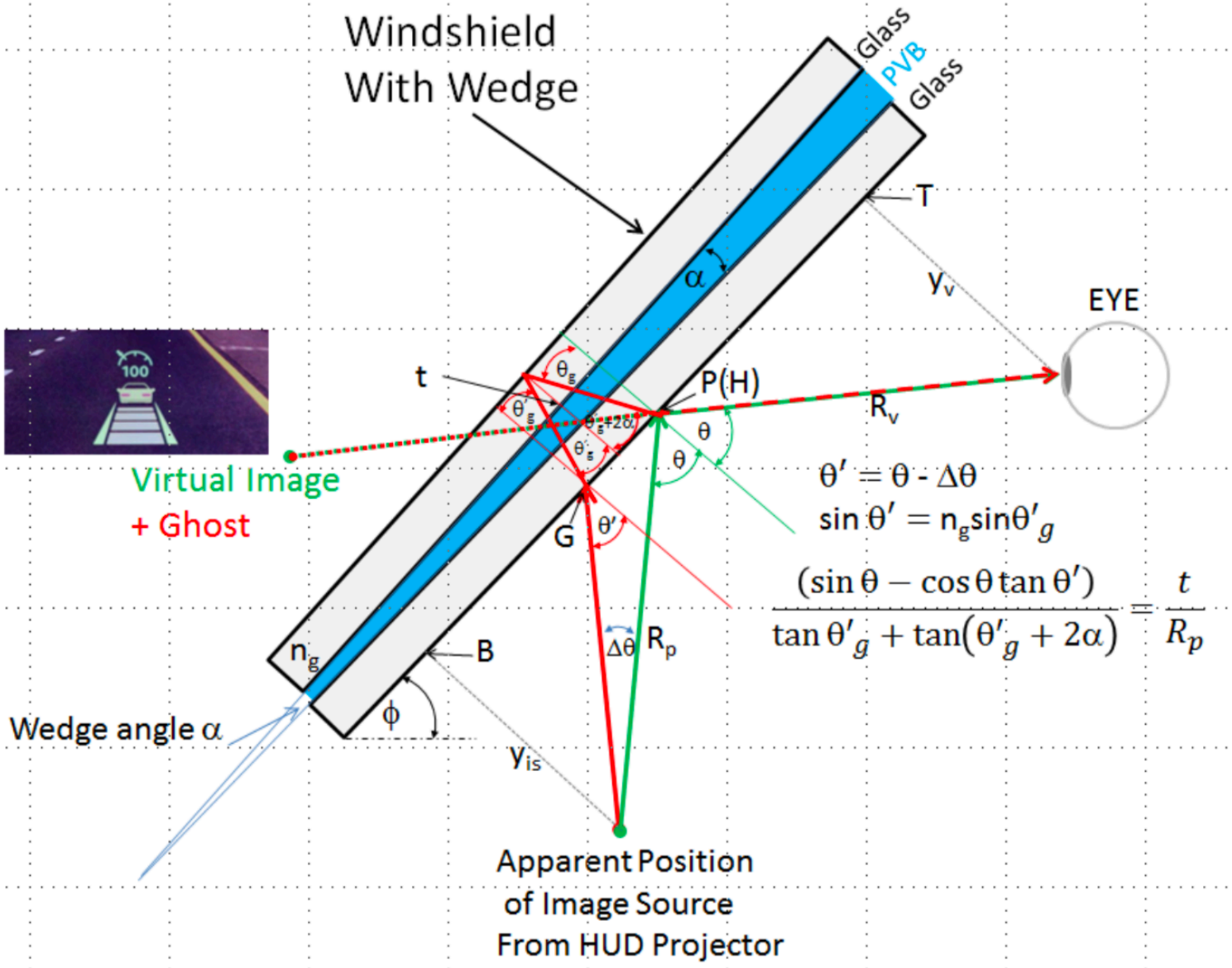

Figure 2. Schematic of a HUD windshield with a wedged windshield showing elimination of the ghost Image

n this case, equation (3) becomes

$$\frac{(\sin\theta - \cos\theta\tan\theta')}{\tan\theta'_g + \tan(\theta'_g + 2\alpha)} = \frac{t}{R_p} \quad [4]$$

where α is the wedge angle and t is the thickness of the glass *at the location* of viewing as shown in Figure 2. Equations 2 and 4 form a system that can be solved to find θ' and wedge angle α.

For example, when Rp = 2000mm, Rv = 750 mm, t = 4.9 mm, θ = 65° and n_g = 1.518, the best fit wedge angle is 0.013° for $\Delta\theta$ = 0.089°. The separation between the two images is therefore below the resolution of the eye, and driver observes a sharp image.

t is important to note, that HUD systems are designed for a nominal driver height and eye distance from the windshield. However, shorter and taller drivers will often experience less than optimal HUD clarity since the wedge angle is not optimized for heir viewing conditions.