Ultra Low Power Consumption Display for Next Generation Automotives: Spatially Imaged Iris-plane Head Up Display

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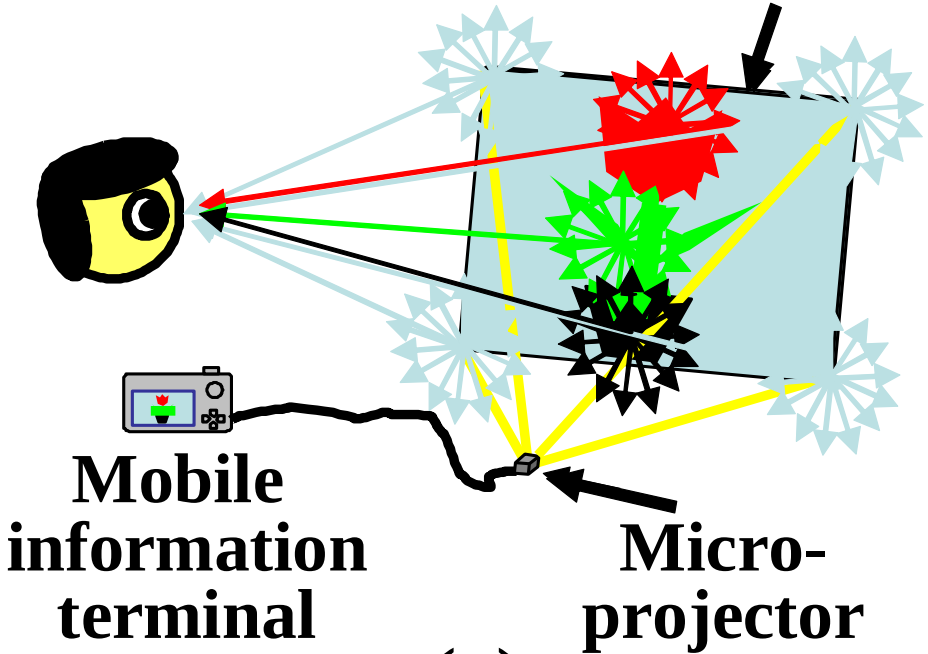
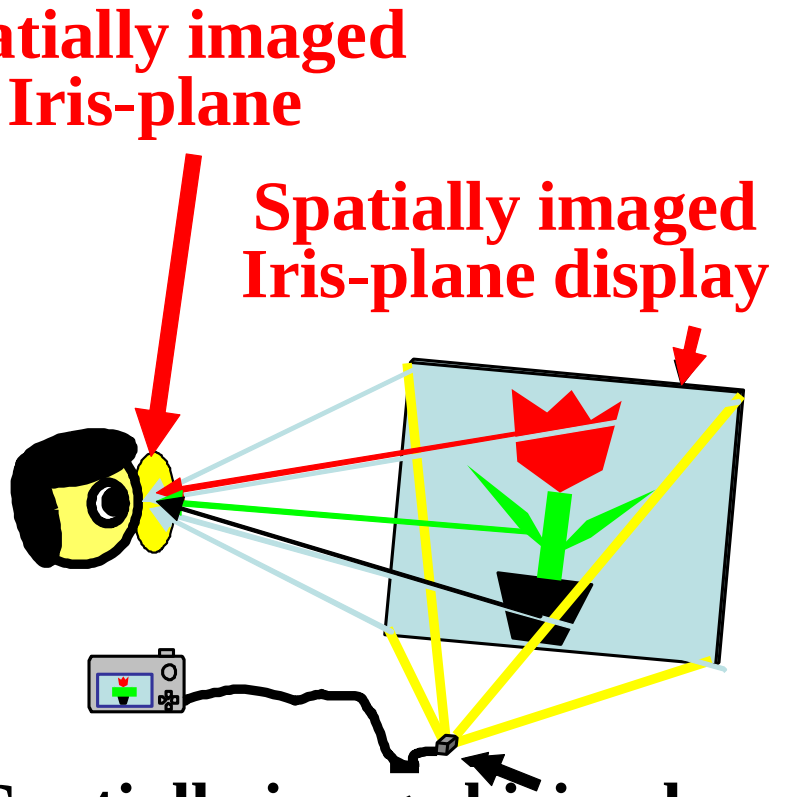
Concept



(a)

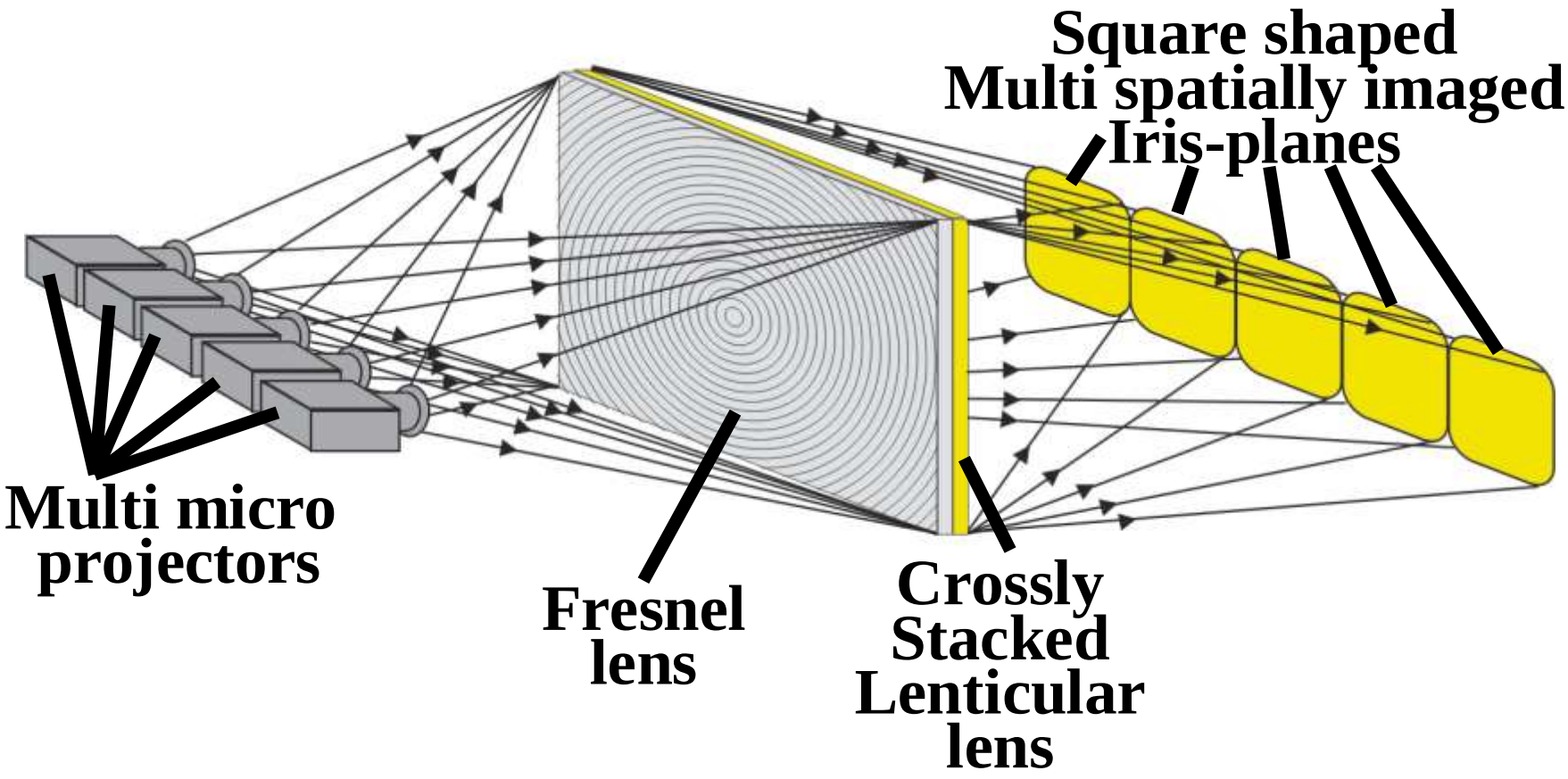
A conventional display



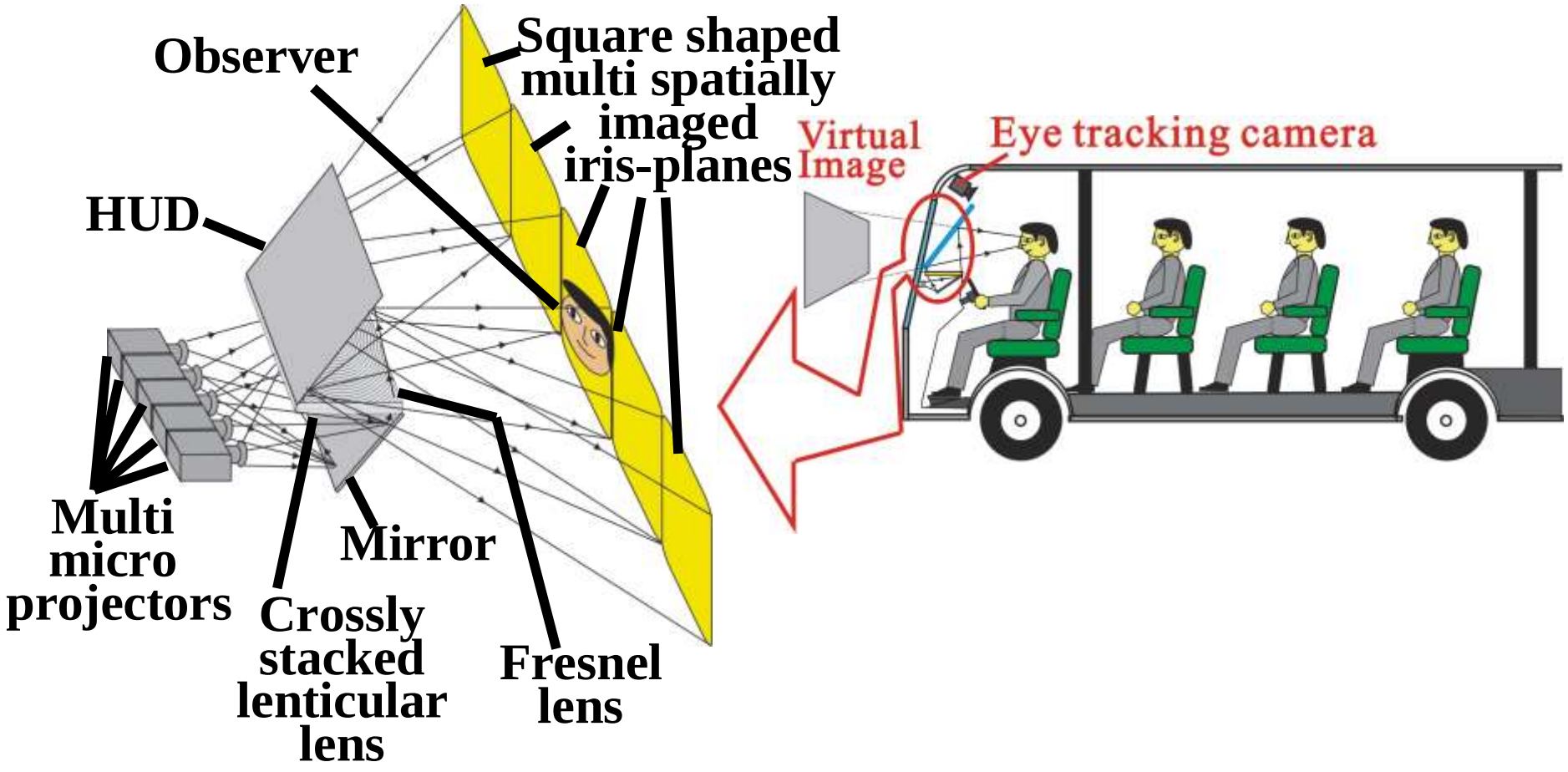
(b)

A spatially imaged
iris-plane display

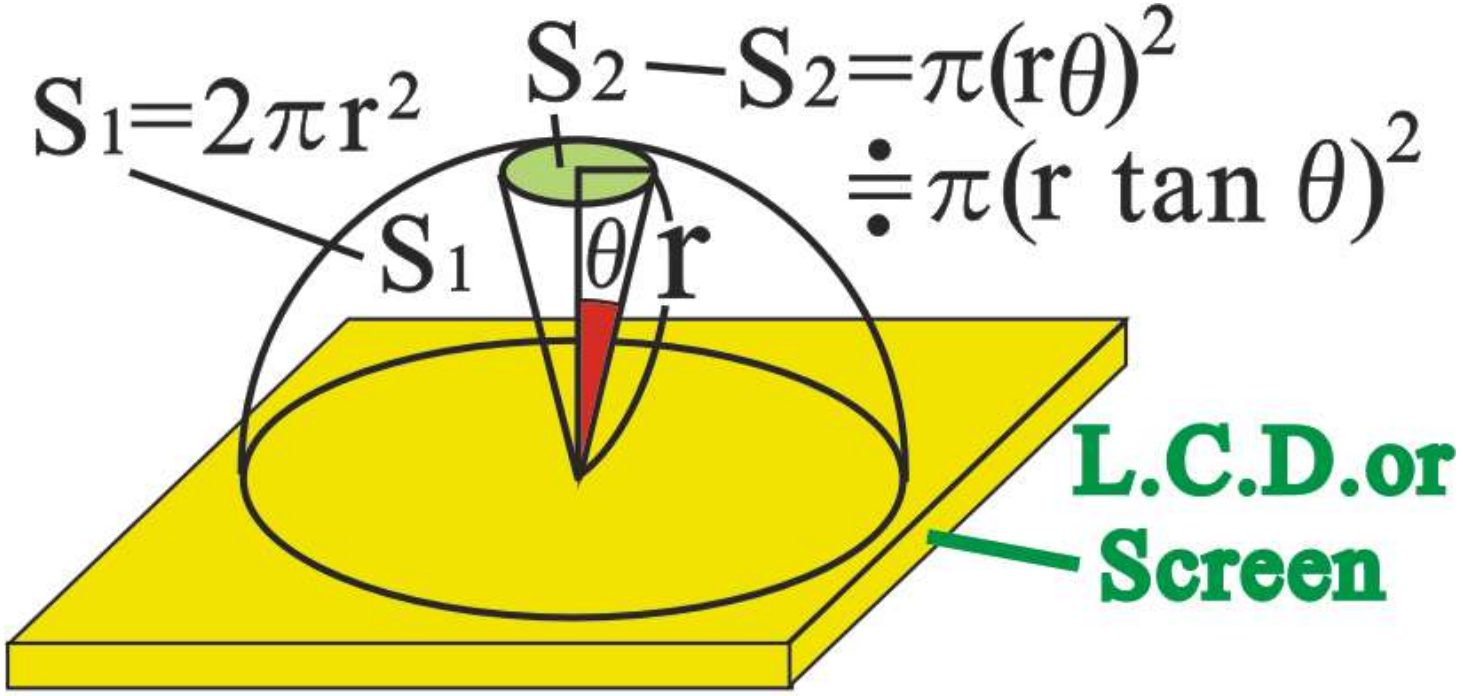
Non-mechanical eye-tracking system by multi-view display



Non-mechanical eye-tracking system by multi-view head up display mounted on bus

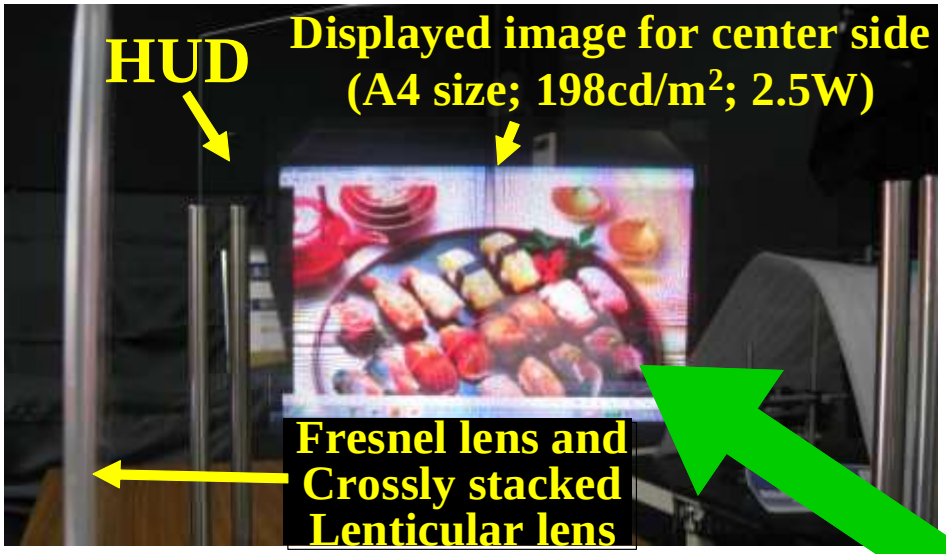


Effect of low power consumption by ratio of solid angle S_2/S_1

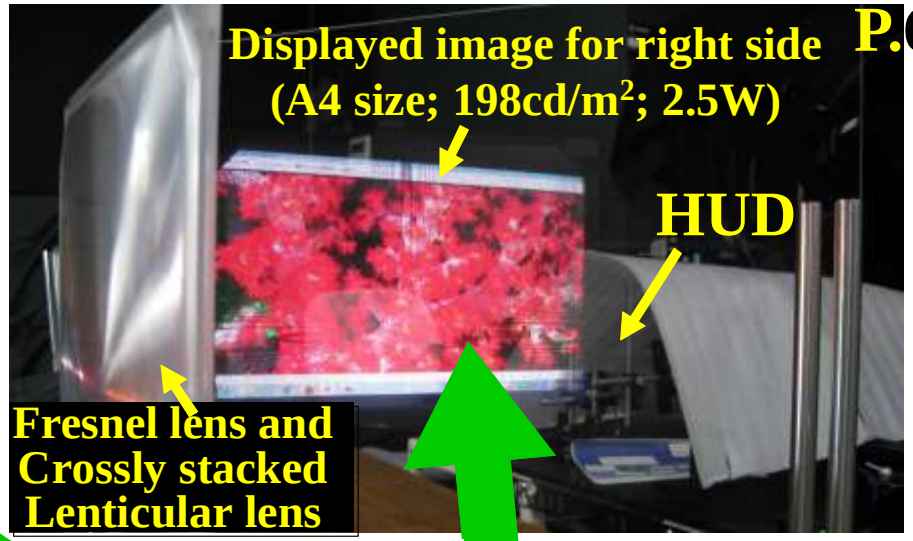


$$\text{Effect}=\frac{S_2}{S_1}=\frac{\pi(r\tan\theta)^2}{2\pi r^2}$$

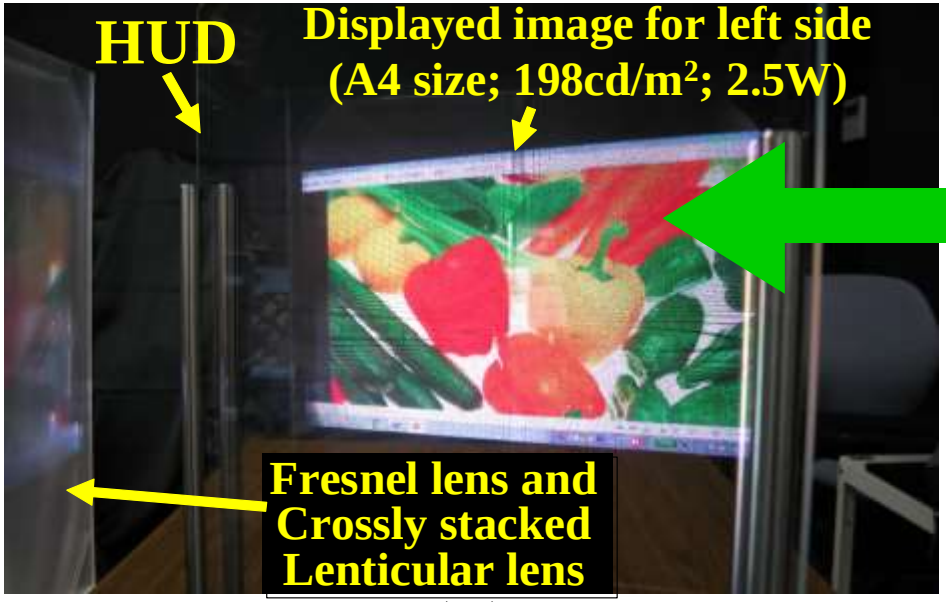
$$=\frac{1}{2}(\tan\theta)^2=1/10\sim1/100$$



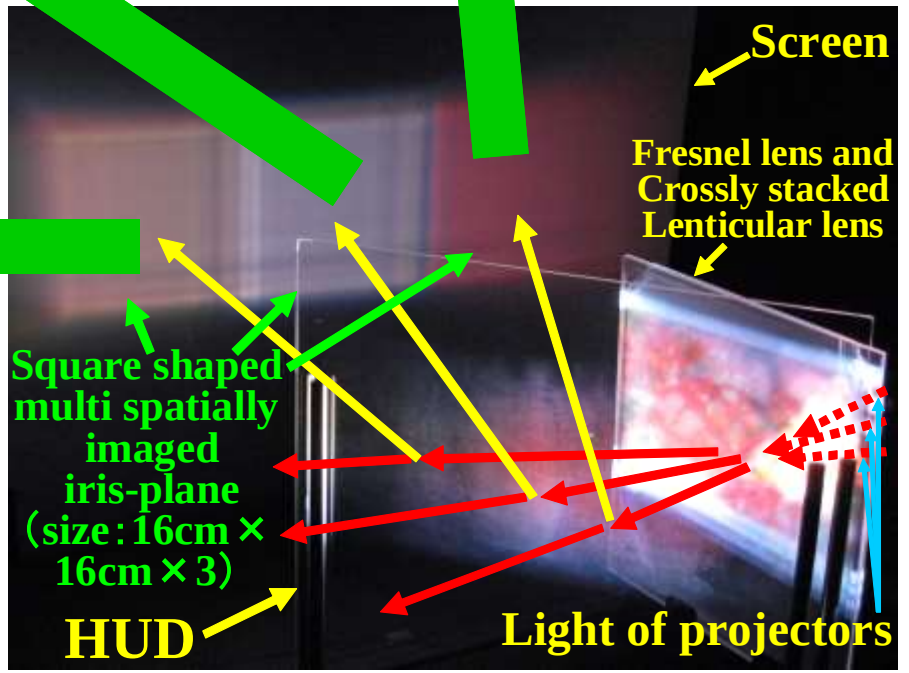
(a) Center side



(b) Right side



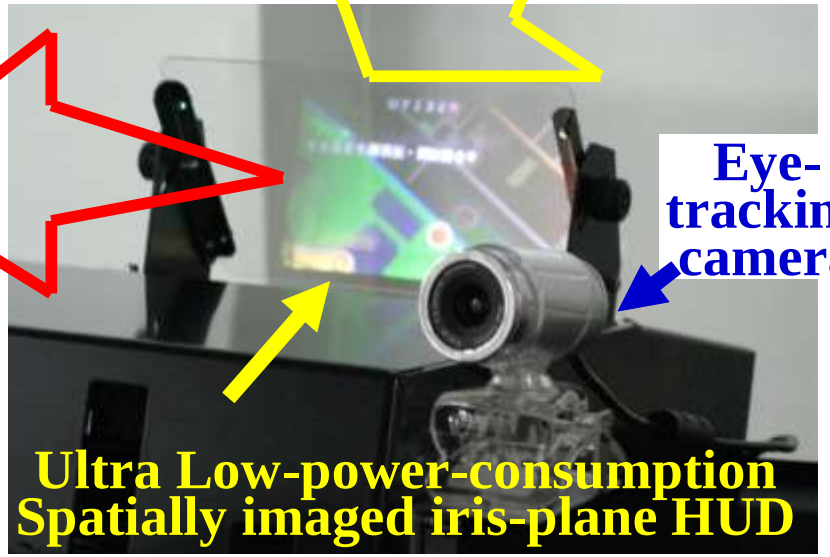
(c) Left side



(d) Multi-view HUD

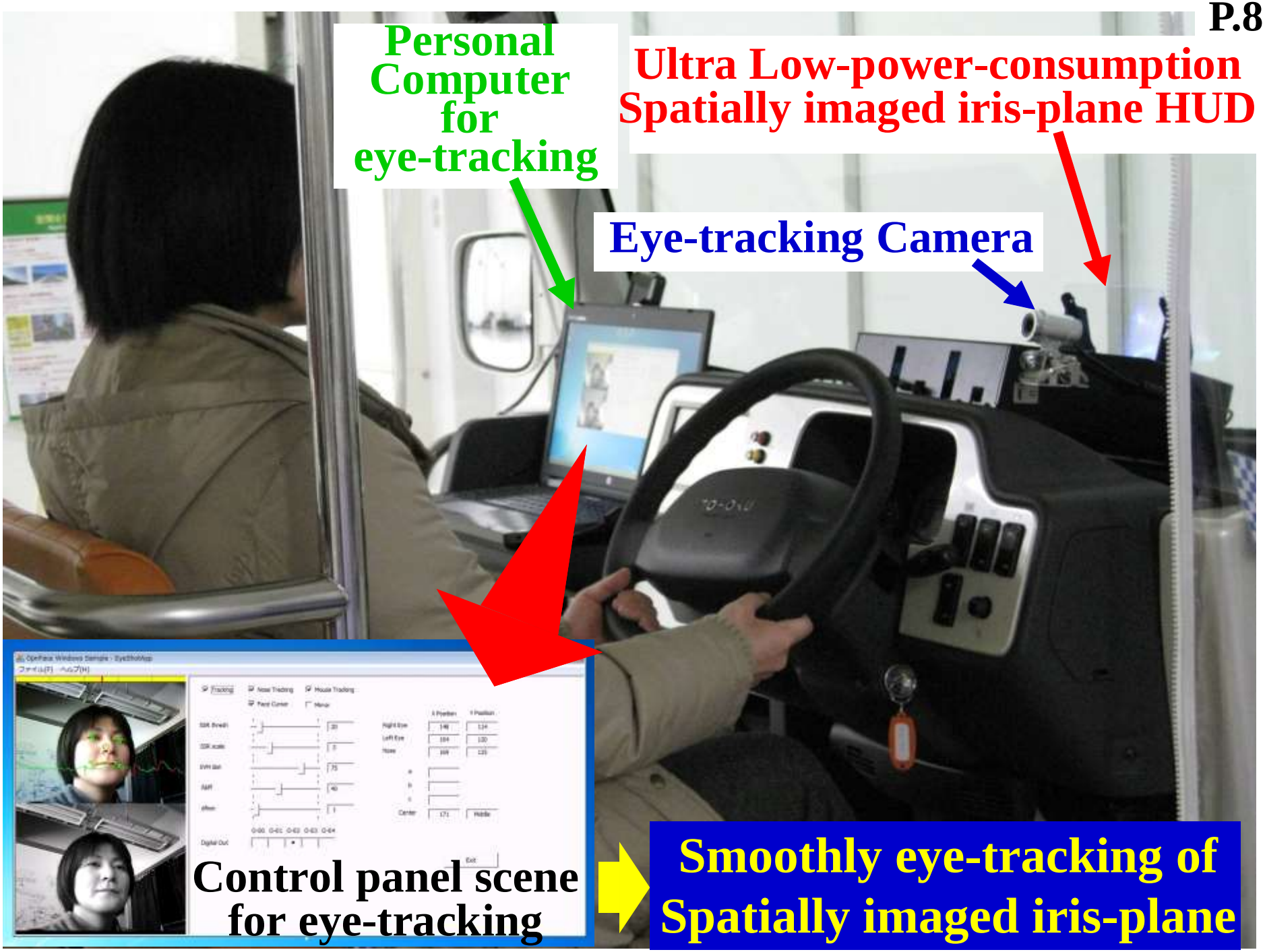
Electric Vehicle Bus

Displayed Image
(412cd/m^2, 2.5W)
1/16 times Low-power



Eye-tracking camera

Ultra Low-power-consumption
Spatially imaged iris-plane HUD


Personal Computer for eye-tracking
Ultra Low-power-consumption Spatially imaged iris-plane HUD
Eye-tracking Camera
Control panel scene for eye-tracking
Smoothly eye-tracking of Spatially imaged iris-plane