

LED Headlamp Illuminates New Automotive Uses

After proving their capabilities in automotive rear signal and brake lamps, LEDs have demonstrated their potential as vehicle headlamps. At the recent Geneva Motor Show in Switzerland, Italian car designer Fioravanti unveiled a concept vehicle named the Yak that incorporates an integrated headlamp, fog lamp, and front turn signal constructed entirely of high-brightness Luxeon LEDs from LumiLeds Lighting of San Jose.

This demo marks the first use of high-brightness LEDs in automotive forward-lighting applications (*see the photo*). The integrated lamp assembly consists of 36 LEDs for the headlamp and turn signal and 10 LEDs for the fog

lamp. White LEDs with an output of over 50 lumens are used for all lamp functions except the turn signal, which uses amber LEDs. Within the headlamp, the LEDs mate to a Fraen Corp. optical element to create a thin optical system controlled by software to generate different beam patterns.

This LED headlamp's power consumption resembles that of a high-intensity discharge (HID) lamp, which is commonly used in this application. Yet as light output increases in future LED generations, it will be possible to construct the headlamp using fewer LEDs. Future LED-style headlamps should then be more power-efficient than HID sources.

Headlamp cost will depend on several factors, including the light sources, drive electronics, optical elements, and thermal-management components. Commercialization of this technology could begin as early as next year.

For further information about LumiLeds' LED headlamps, call the company at (877) 298-9455 or visit www.lumileds.com.

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Car-designer Fioravanti's Yak concept vehicle demonstrates the potential of LED-style headlamps.