

The image shows a modern building with a large glass facade at dusk. The word "OSRAM" is illuminated in large, orange, three-dimensional letters on the glass. The building's interior lights are visible through the windows, and the sky is a deep blue.

# Effortless Adjustment of Light Distribution

Lori Brock, PhD, LC | 18 Nov 2015 | Portland, OR  
DOE SSL Technology Development Workshop

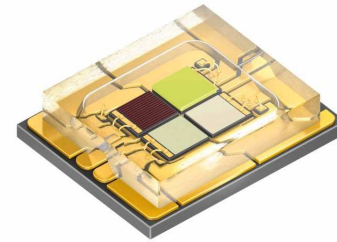


# Mind-Blowing Technology

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Marvelous LEDs:

bright, compact, efficient, ...



Awesome network with electronics, software, sensors, and connectivity:


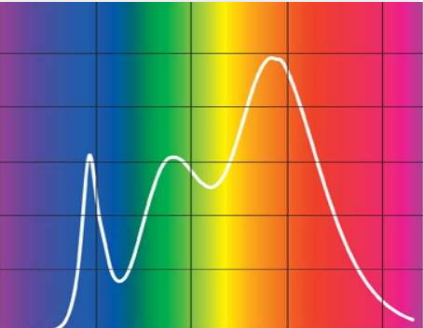

quick, inexpensive, reliable, ...



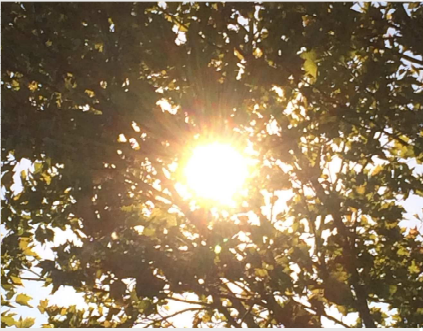
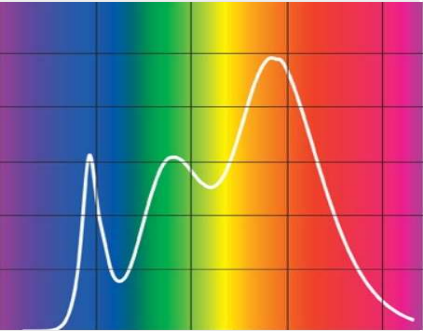

Ridiculously cool interfaces:

easy, user-friendly,  
everywhere, ...

# Technology Allows for Many Tunable Features

|   |           |  |  |
|---|-----------|--|--|
|    | Intensity | On/Off<br>Dimming<br>Modulation                                      | Examples:<br>Occupancy sensing,<br>Ambiance,<br>Data transmission,<br>Indoor positioning...                |
|   | Spectrum  | Hues<br>Color Temperature<br>Color Rendering<br>Application specific | Examples: Information,<br>Entertainment,<br>Circadian lighting,<br>Preference, Energy,<br>Food lighting... |
|  | Direction | Aim and point<br>Beam angle<br>Distribution<br>Shape                 | Examples:<br>Theatrical,<br>Entertainment,<br>General illumination   |

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## Why Focus on Direction?

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### Voice of the Customer Study on Tunable Lighting

#### Feature Ranking:

1. Intensity / dimming
2. Aiming / direction
3. Color temperature (warm, cool, ...)
4. Colors (red, blue, ...)

Result: Industry professionals state that

**the ability to aim and point light is more important**

than tuning the color and color temperature of the light in many applications.

## Wouldn't it be Nice

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- ... to be able to easily aim and point light?
- ... to not need to climb a ladder?
- ... to have infinite light distribution options from one source?
- ... to need fewer fixtures?
- ... to have a clean looking ceiling?

# What if We Could Instantly and Effortlessly Shape Light Output?

## Concept

An innovative solution (luminaire, driver, and software application) which enables users to instantly and effortlessly shape light output including

- Beam angle
- Direction
- Distribution / Shape
- Intensity

with an easy and intuitive touch-screen, wireless interface



## OmniPoint™: How it works

- Hardware: Array of individually controlled LEDs aiming out of a small aperture
- Software: Application operating on a WiFi enabled tablet
- Exquisite control of ambient and accent light simultaneously from one luminaire

# Effortless Adjustment of Light Distribution

## Concept

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## Benefits

### Better value:

- Fewer fixtures
- No ladders needed

### Enhanced design:

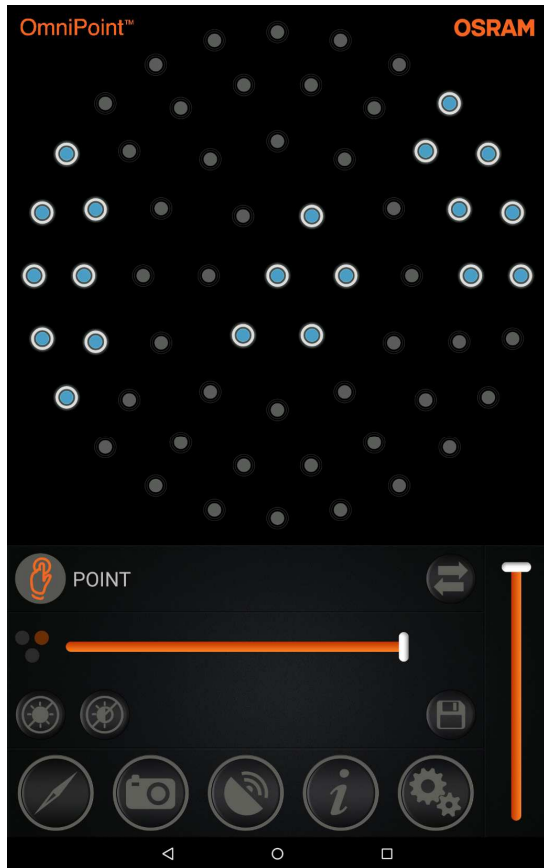
- Enables clean ceiling look
- No moving parts (silent & reliable)

### Highest flexibility:

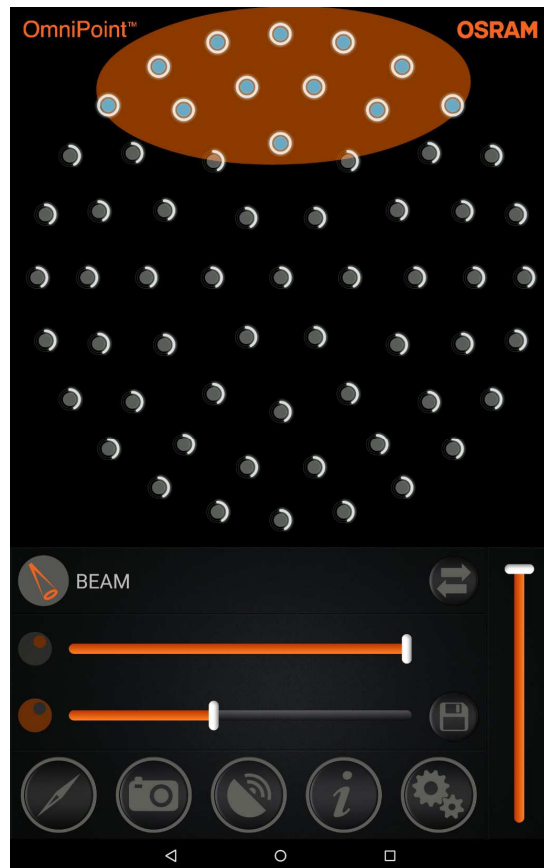
- 60+ individually controlled LEDs
- Infinite distribution options
- Ambient and accent light simultaneously from one luminaire
- Create multiple accents/spots & dynamic sequences
- Reconfigurable or multifunction spaces
- Live floor plan view via a WiFi camera



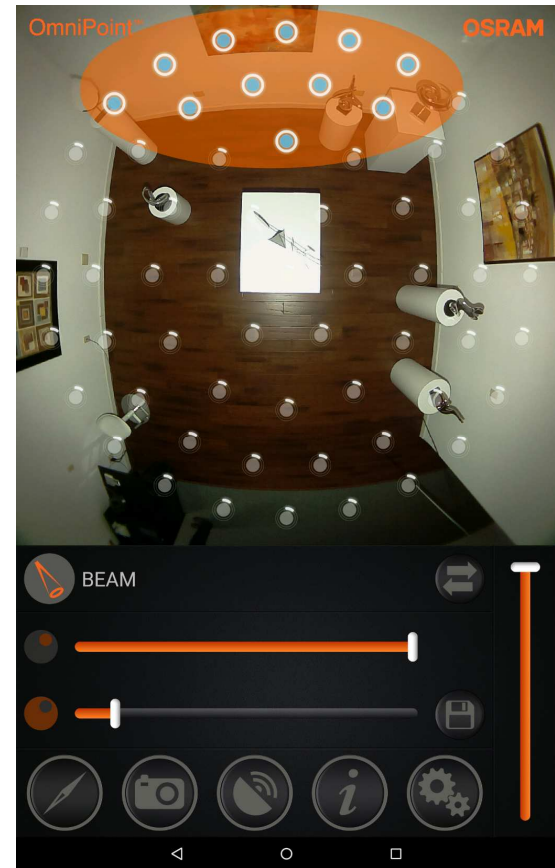
# User Interface



multiple accents



accent + ambient

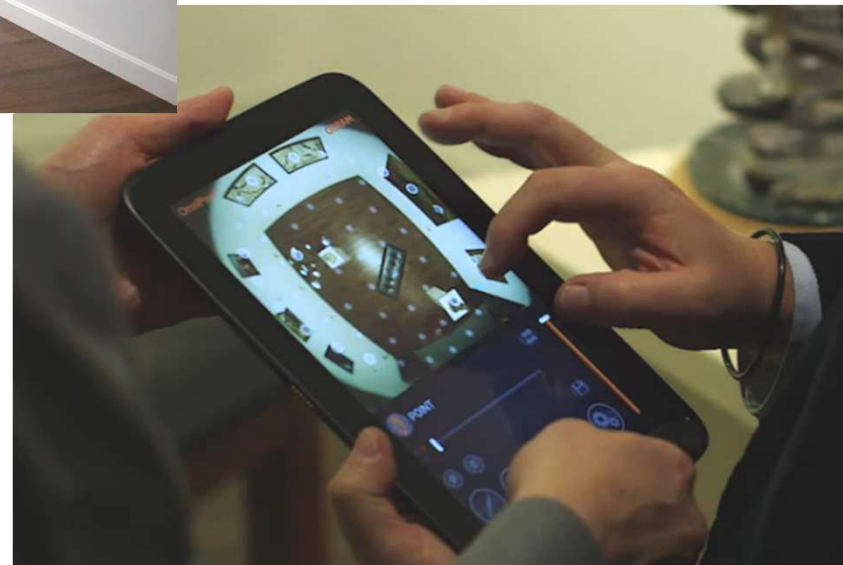


with WiFi camera

# Museum



One luminaire  
180 sq. ft.  
accent + ambient  
simultaneously

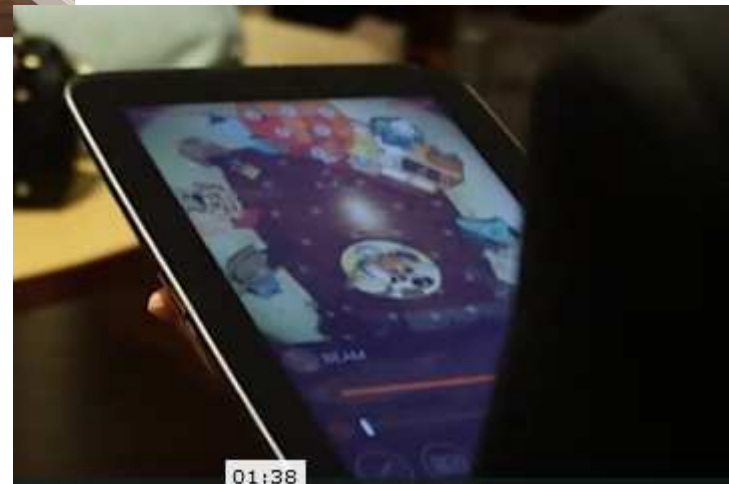


# Retail



## YouTube video

<https://www.youtube.com/watch?v=ueQ-1OtQ80A>



## Back to the Future

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Imagine infinite control of intensity, spectrum, and directionality from a luminaire

- Transform the design process
- Commissioning
- Monitoring
- Autonomous



Marty McFly: ***“Hey, Doc, we better back up. We don't have enough road to get up to 88.”***

Dr. Emmett Brown: ***“Roads? Where we're going, we don't need roads.”***