TreMonti

Distributed Control Method of LED Lighting Array

Method for controlling large arrays of LED's

Contact
Michael Kress
TreMonti Consulting, LLC
9302 Lee Highway, Suite 306
Fairfax, VA 22031
571-594-0835 - cell
mkress@tremonticonsulting.com

Inventors
Dr. Charles J. Kim

Field
Electronics, Lighting, Energy

Technology
Innovative array control for architectural LED lighting

Key Features
-Entire array of LEDs controlled by just one LED.
-Simplified control circuitry

Stage of Development
Concept stage, proof of principle has not yet been demonstrated

Status
Seeking an industry commercialization and/or development partner

Patent Status
Patent pending

Technology

Installation and control of a large array of LEDs for architectural, signage, and special purpose lightings are characterized by numerous lighting control devices and extensive wirings for controlling each individual LED from a single specialized controller. In particular, the expensive wiring is cumbersome and adds the structural burden to the LED lighting installations. A new technology of controlling LED arrays eliminates the need of the control wiring and thus reduces the installation burdens in terms of the weight and the construction time. The new control technology of LED array controls an array of LEDs in such a way that each individual LED of the array acts (turning on/off) by the action status of only a few or several neighboring LEDs of the array. From the automata of LED action status change in a small area of the array and its gradual spread to surrounding areas, the LED array as whole evolves into different lighting patterns. Each LED is equipped with, in addition to the usual power circuitry, an embedded controller which checks the neighboring LEDs and communicates with a computer. There are a large number of ways or rules for each individual LED to act, and the rules can be downloaded to each individual LED wirelessly or via power line communication method from the computer.

Potential Application

Applications such as architectural lighting, signage lighting, advertisement lighting to attract customers and, holiday decoration lightings could benefit from the LED array control innovation. The array of LEDs is controlled to produce numerous light designs and patterns in desired color and intensity by using less wiring and control as compared to other conventional LED array control schemes.

Opportunity

TreMonti

Localized Distributed Control Method of LED Lighting Array and its Fixture

Method for controlling large arrays of distributed LED's

Contact
David Lerch
TreMonti Consulting, LLC
9302 Lee Highway, Suite 306
Fairfax, VA 22031
571-594-0835 - cell
mkress@tremonticonsulting.com

Inventors
Dr. Charles J. Kim, Ph.D.

Field
Electronics, Lighting, Energy

Technology
Innovative array control for Light Emitting Diodes

Key Features
-Entire array of LEDs controlled by just one LED.
-Simplified control circuitry

Stage of Development
Concept stage, proof of principle has not yet been demonstrated

Status
Seeking an industry commercialization and/or development partner

Patent Status
Patent pending

INVENTOR:
Charles J. Kim, Ph.D.
Associate Professor
Department of Electrical and Computer Engineering

EDUCATION
Ph.D., Electrical Engineering, Texas A&M University, 1989
M.S., Electrical Engineering, Seoul National University, 1982

SPECIALTY
Power Electronics and Computer Applications, Power System Automation and SCADA, Predictive Maintenance and Diagnostics, Artificial Intelligence Applications,

RECENT PUBLICATIONS
No related work has been publicized.