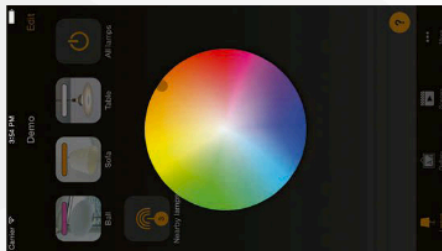
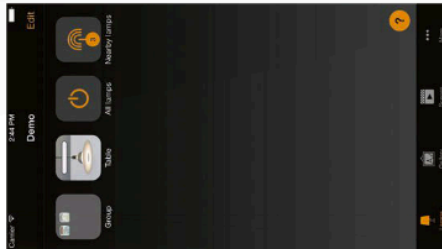




David Morgan looks at the Casambi app for smartphones and tablets that allows wireless lighting control while simultaneously integrating regular wall switches and sensors for dimming and scene control within the network.

BLUETOOTH THINKING



When a couple of former Nokia software veterans develop and launch an innovative lighting control system based on Bluetooth Low Energy technology, then the lighting industry is definitely moving towards a more connected, digital future.

Casambi was founded in summer 2011 by Timo Pakkala, CEO, and Jani Lehtimäki, CTO, with the belief that smartphone and wireless technologies can fundamentally change how we use everyday objects around us.

Casambi incorporates the Bluetooth Low Energy protocol, which is the wireless system originally developed by Nokia, and used in smartphones and other devices. Casambi was the first company to start to develop a wireless lighting control solution using this technology and therefore makes a good case for being ahead of the competition.

In addition to the Bluetooth Low Energy system, Casambi has developed a proprietary mesh network where all the intelligence of the system is replicated in every node creating a system with, they claim, no points of failure. Apparently a self-healing and self-organising wireless

mesh network of this type can control a large number of fixtures from any point. According to Casambi, their system is more reliable than existing Zigbee or WiFi based lighting control systems since it has no single point of failure and changes frequency regularly to avoid interference. An internet gateway will be introduced soon so that the Casambi system can be integrated into a larger building control system and also controlled from much greater distances. An internet browser will also enable Windows devices to work with Casambi.

The system was launched at Light+Building in Frankfurt in 2014 and so far around 150 companies in the European lighting market including luminaire, driver and LED lamp manufacturers have implemented Casambi technology. A version of the system for the US market will be available soon.

The Casambi system was originally intended for the consumer market. However there has been a great deal of interest from the professional sector so the focus of development has been adjusted towards fitting larger projects and commercial buildings.

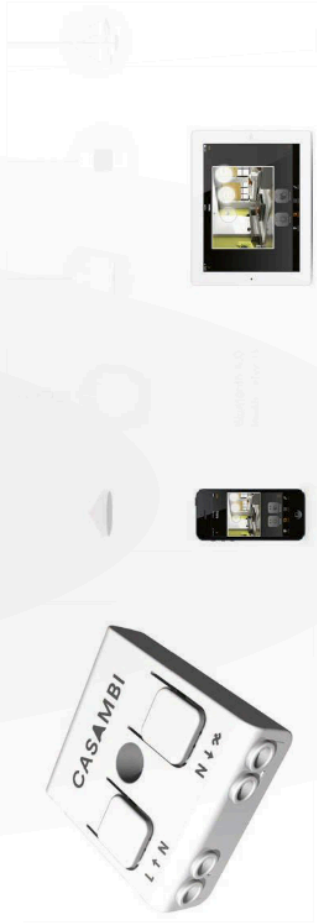
The current Casambi range consists of a series of modules to be used with, or built into, existing luminaires and a board level device for OEM use. The Casambi system can also be integrated into custom LED driver circuits to minimise size and cost.

A free downloadable app is loaded onto a smartphone or device to control the various modules wirelessly.

The 1-10V and DALI interface module is remarkably small and looks as though it could easily be fitted into most existing luminaires giving wireless control of 1-10V or DALI drivers.

An even smaller size module can be connected to existing lighting installations either at the lighting wall switch end or inside the luminaire. This module allows trailing edge dimmable lamps (LED and CFL) and luminaires up to 50W to be controlled either via the Casambi App or by flicking the wall switch a number of times. Apparently this module does not work with old magnetic LV transformers or incandescent lamps although high voltage halogen lamps up to 150W are shown as being compatible with this module.

Based on an initial test the free Casambi



CBULTEd is a Casambi enabled trailing edge dimmer for dimmable mains voltage powered loads. It can be installed behind traditional wall switches, into the casing or the ceiling connection of a luminaire and automatically forms a wireless mesh network (with Bluetooth Low Energy) with other Casambi products.

App seems to be fairly easy to set up but this process could be quite time-consuming for some projects. The system found and linked to the various luminaires I had prepared without any problems. Each luminaire can be named and associated with a photograph taken with the smartphone.

Up to four dimming / control levels can be set for each luminaire for use with a wall switch control. The luminaires can then be grouped and added to scenes containing up to 127 Casambi devices in each scene with a maximum number of 255 different scenes. Each Casambi linked luminaire can be controlled for dimming, colour or colour temperature for dynamic white luminaires. Dimming control is via a screen swipe along one axis and colour hue in the other axis.

For colour control of RGBW luminaires a screen wheel pops up and colours can be set and stored. Using an animation function the scenes can be programmed to change over time giving control over many variables including dimming, dimming time, colour and colour temperature.

One of the more appealing aspects of the Casambi App is the gallery feature. This enables a photograph of a space containing

the various luminaires to be taken and the luminaires dragged into position. The various luminaires within the scene can all be controlled via this photograph which once set up is quite intuitive.

The range of the system is stated to be up to 40 metres in internal spaces. Thick concrete walls will diminish the range but every Casambi module in the mesh network acts also as a repeater so longer distances are achieved by using multiple Casambi units. Since this is a radio system it depends on the luminaire enclosure being transparent to radio waves. If the Casambi modules are enclosed in an earthed metallic luminaire then an additional aerial might be required.

At the moment controlling the Casambi system is achieved via a smartphone, tablet, Apple Watch or other similar device while in range or with a wall switch with it's rather clunky click interface if the smartphone is not available. I am not sure that this is an ideal approach and the best lighting control interface, when entering a room, is still probably a wall plate with a number of labelled buttons for pre-set dimming scenes along the lines of the iconic

Lutron Graphik Eye.

The wireless lighting control market is becoming quite crowded with both existing companies and new entrants developing interesting systems. The easy to use App, miniature size of the modules and the possibility of integrating the technology with driver circuits gives Casambi some great advantages but additional elements of the system will be required to ensure the widest adoption by specifiers and users. I will definitely be investigating in more detail how to use Casambi in our new luminaire developments.

www.casambi.com

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