

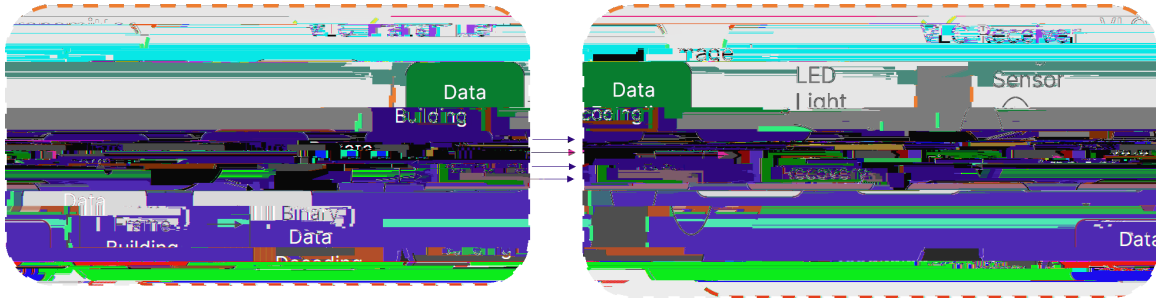






## VLC Applications

Light communication will of course never replace RF communication. It is a complementary technology that, in many use-cases, will co-exist or even cooperate to achieve the most optimal results in the application.



**Figure 3. Example VLC Implementation**

## Indoor Positioning

One of the main applications of VLC is indoor positioning systems in an industrial environment using the technology to identify a location of a package or an asset such as a forklift.



**Figure 4. LED Ballast with Unique ID**

As shown in Figure 4, each LED ballast has a unique identifier that indicates the position within a building – the LED ballast signals through visible light to a receiver. The receiver detects the code and calculates the position. The receiver can be a sensor camera module or a photodiode.

In its simplest form, the mobile units can have a pre-programmed floorplan. The floorplan database contains unique IDs and luminaire positions – the luminaire transmits its unique ID continuously. The robot optical sensor or camera module captures IDs while the robot application triangulates position. Accuracies down to 10~15 cm, in three dimensions, are achievable in the field.

## Conclusion

Light communication is opening the door to many new applications, overcoming some of the limitations of RF implementations today. With highly integrated and efficient LED drivers from **onsemi**, VLC is emerging as valuable additional technology for expanding information and location services.

**onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**