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.

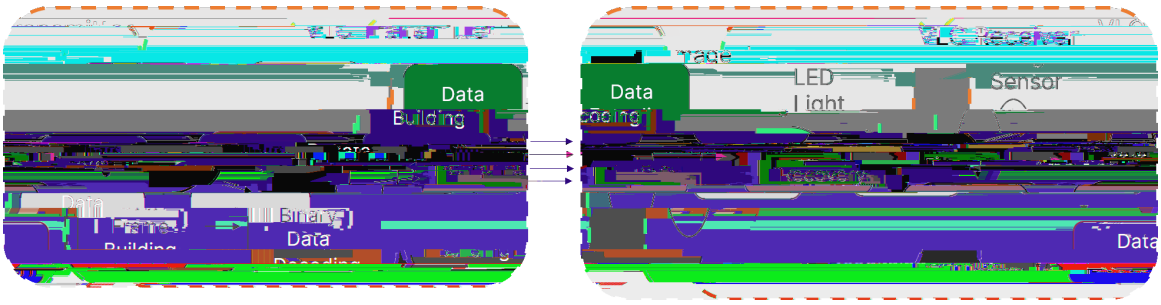

Figure 3. Example VLC Implementation

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.

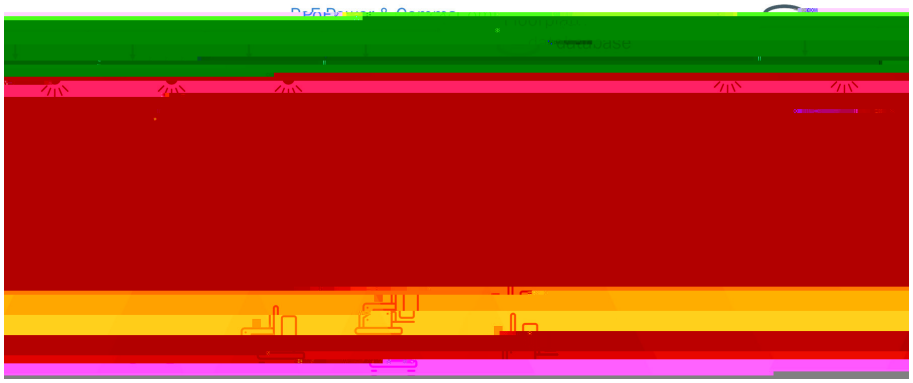

Figure 4. LED Ballast with Unique ID

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 it's 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.