# compology

**EMA** | **Design Automation**®

# Customer Success
## Firsthand user experiences

## Introduction

Compology has developed a complete dumpster monitoring system that uses rugged sensors and advanced software to help waste haulers spend less for every pound they haul. Typically, waste-hauling companies pick up from their customers on set weekly schedules, regardless of container fullness, resulting in unnecessary trips to barely filled dumpsters. The Compology system enables these companies to remotely monitor all of their dumpsters in real-time to know precisely when each is full and ready to be emptied. Dynamic routes are generated daily based on which containers actually need to be serviced. This reduces trips to empty containers and saves waste haulers' time and money.

A key part of Compology's solution is a sensor device that retrofits onto trash, recycling, and organic waste dumpsters. Initial prototypes of the sensor, used for proof-of-concept purposes, were comprised of mostly off-the-shelf components. As Compology expanded, they needed to redesign the sensor from scratch to make it more commercially viable.

## Design Challenge

- Multi-year battery life requirement
- Custom cellular communications and optics
- Lower level control of the hardware
- Compatibility with external design team

## The Solutions

Compology chose three tools from the OrCAD tool suite to develop their PCB designs.

> "Our design team at Compology considers OrCAD as the industry standard and we wanted to step up from our free PCB software to a robust, professional PCB design package."
>
> - Ben Chehebar,
>   Co-founder, Compology

### OrCAD Capture CIS®

OrCAD Capture CIS integrates the schematic design application with the features of a component information system (CIS) to streamline production and help users design more intelligently.

### OrCAD Component Information Portal® (CIP)

The Component Information Portal offers Cadence OrCAD Capture CIS users a comprehensive, "off-the-shelf" CIS management environment that includes distributor integration and a component library with a predefined set of fields.

### OrCAD PCB Designer®

OrCAD PCB Designer is a tiered, scalable PCB design solution that delivers advanced capabilities and highly integrated flows. The powerful, tightly integrated PCB design technologies include schematic capture, librarian tools, editing and routing, Constraint Manager, and optional mixed-signal circuit simulation.

## OrCAD Benefits for Compology

Compology had been using an outside product development team that was proficient with OrCAD and already had some libraries built out that would shorten the development time.

*Jay Longson and Ben Chehebar installing a WasteOS Sensor.*

> "Now that we have finished with the design of our first product, we've seen the benefits of using the OrCAD PCB methodology and we're looking forward to using OrCAD even more with our next design."
>
> - Jay Longson
> Lead Electrical Engineer, Compology

Using OrCAD also meant that designs could be transferred back and forth with their development partner without any redesign or translation required.

"One of the biggest improvements we have seen in the design process is better control over the BOM by using CIP," said Jay Longson, lead electrical engineer at Compology.

OrCAD Capture CIS and OrCAD CIP together allow Compology to manage their component information in a relational database, allowing all Compology engineers to work from the same data that is easy to sort and search. The base component set provides 5,000 commonly used components.

When new components are required for the design, OrCAD CIP offers the ability to search multiple distributor databases for components that meet the new requirements. This is not only a quick way to find components, but it automatically copies all component information, such as parametric data, cost information, datasheet, and so on. This is not only a time saver for Compology, but it eliminates data entry and cut/paste errors.

As new components are added, they go through a well-defined process ensuring that all components are approved and contain all data necessary for purchasing and manufacturing. That means when the project design is complete, Compology engineers can create a BOM that pulls all required purchasing and manufacturing information from the database. This push-button operation saves Compology time and reduces errors that might otherwise occur at the end of the design process where they are very difficult and expensive to fix.

"Other useful features are those centered around design reuse. In particular, the place and replicate feature and exporting components from one design to another," added Longson.

One capability of particular interest to Compology is OrCAD PCB Editor's place and replicate feature. This allows a PCB designer to copy a portion of already placed, routed, and tested work and replicate it in the current design. It's another example of how Compology uses OrCAD to get their design work done faster.

Because OrCAD is so widely used, Compology has found a number of sources, including YouTube, to help with software questions. Additionally, EMA provides phone support as a part of product maintenance, so Compology was able to resolve early issues and get up to speed quickly allowing them to focus on their design rather than the tools.

## About Compology

Compology builds WasteOS: the only dynamic routing system built exclusively for the waste industry. Rugged sensors and software are used to monitor the volume of waste in front-load and roll-off containers to more efficiently route collection trucks. Learn more about Compology at: www.compology.com

## About EMA Design Automation

EMA Design Automation offers leading product development solutions including electronic design automation software, engineering data management, consulting services, training, and support. EMA is a Cadence® Channel Partner supporting OrCAD, PSpice®, and Allegro®. EMA also develops TimingDesigner®, CircuitSpace®, EDABuilder®, and Enterprise Link to complement the Cadence PCB design suite.

## Sales, Technical Support, and Training

For more information, please contact EMA Design Automation, a Cadence channel partner.

877.362.3321
info@ema-eda.com
www.ema-eda.com

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