



# John Deere

## Front panel integration



### The challenge

---

The leading manufacturer of commercial farming equipment, John Deere struggled with the display quality of screens used in tractor cabs. As the company has grown to offer more advanced tractor technology to its customers, it had issues with the integration of display technologies for its environment — specifically their touchscreen displays. The displays play an important role tracking where land has been plowed or seeded, and more, in addition to also offering GPS display and materials and operation controls. The display offered poor sunlight readability due to glare, had condensation problems and more.

### Project goals

---

- **Improve sunlight readability**
- **Consolidate integration to one supplier and streamline manufacturing — display, touchscreen, bonding and plastic housing**

### The solution

---

Shortly after having continued issues with its displays, John Deere contacted touchscreen manufacturer and their supplier, Panjit America, who recommended GMN's front panel integration capabilities. At the time GMN's only user interface capabilities were membrane switches, key panels, and some touchscreen integration. Thanks to GMN's strong relationship with touchscreen supplier, Panjit America, the company quickly researched and developed a new process offer a quality solution to John Deere.

After evaluating options for touchscreen to display integration, GMN Technologies identified a possible solution available through Dupont™. The GMN team met with Dupont to learn more about their Liquid Optically Clear Adhesive (LOCA) process and product. After work-

CASE STUDY

ing with Dupont, they decided to license the Dupont Vertak® process to offer a solution to John Deere.

The LOCA process eliminates the air gap between the display and touchscreen or cover glass where reflection, yellowing, and condensation could form. By filling the gap with adhesive, sunlight readability, durability, contrast, clarity, mechanical resistance, and shock resistance is greatly improved. The adhesive is also re-workable, which reduces scrap and per part cost.

NEARLY  
**50%**  
REDUCED  
REFLECTANCE

The overall solution involved other GMN technologies as well. Our Oregon division injection molds the plastic bezels which house the bonded displays. In addition, GMN developed a comprehensive testing process for the displays. By developing these processes, GMN fulfills the role of multiple

suppliers – streamlining John Deere’s supply chain and improving overall traceability.

For John Deere the LOCA process has greatly improved the overall quality of their displays. GMN continues to produce these displays to John Deere, and in a variety of sizes as well. The work has led to the development of GMN’s display characterization light lab, and many other front panel integration successes. This year, GMN was named one of John Deere’s Supplier of Year for 2013. To date, GMN has been honored with a total of 3 major supplier awards from John Deere.

NEARLY  
**300%**  
IMPROVED IMPACT  
RESISTANCE

