Density

Customer Story

UNIVERSITY OF NOTRE DAME

How Notre Dame Reimagines the Campus Experience with Real-Time Data

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Background

The University of Notre Dame is a leading higher education institution, ranked among the Nation's Top 25 Universities by the U.S. News and World Report. Founded in 1842, Notre Dame is known for its iconic campus that attracts students and tourists alike. The school enrolls over 12,000 students; 80% live on the 1250 acre campus.

Category: Higher Education

Use case: Campus Experience

Challenge

Notre Dame's historic campus has been regularly updated over its 177 year-old history. In the past decade alone, dining facilities and the library have undergone major renovations. The renovations were so successful that the updates also make the spaces more crowded. Students often waste time spanning the floors of the library looking for an available spot to study, or arrive at the cafeteria only to find a line out the door. Danielle Galvao, a Computer Science major at Notre Dame, noticed the problem first hand. "My friends and I have talked about how crowded [the cafeteria] gets right after class. I spend so much time just waiting to get in, I could be more productive during that time."

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>
> – Danielle Galvao, Computer Science major

The high foot traffic at popular spots on campus poses unique challenges for administrators as well as students. Senior Analyst for Student Dining and Residency, Stephen Weaver, explains how the number of students that visit a dining facility impacts his ability to prepare appropriately. "We feed about 10,000 people a day... Either you're spending too much or you're overpreparing and you're throwing away a lot food."

> *“The sensors gave us accurate counts, and real-time occupancy of a popular student study area. We then started thinking about where else on campus we might install Density’s technology.”*

– Paul Turner, Director for Learning Programs for the Office of Information Technology

Solution

There was a clear need for occupancy data for students and administrators alike, but finding an accurate solution wasn’t easy. Notre Dame needed to validate that technology would work first before rolling it out to multiple campus locations. As part of a proof of concept, the team installed Density’s Depth Processing Units (DPUs) at the library. Using on-device machine learning, Density’s solution began anonymously counting every person who entered and exited the space.

Paul Turner, Director for Learning Programs for the Office of Information Technology was impressed by the accuracy of the solution. “We initially put two Density sensors in the basement of the library. We validated that the technology was useful. The sensors gave us accurate counts, and real-time occupancy of a popular student study area. We then started thinking about where else on campus we might install Density’s technology.”

Results

After the library installation validated the Density solution, Notre Dame expanded the installation to its most popular dining facility. The Student Dining team installed the Density solution at every entrance and exit. The number of people that people enter and exit has proven to be a core part of dining operations.

Senior Analyst for Student Dining and Residency, Stephen Weaver, has been able to use data from Density devices as a part of his food preparation efforts. “You want to be able to track how many people are eating so you have an idea of where your spending needs to be... The cost per meal is important because it’s a direct comparison on the number of meals you’re serving versus how much you’re spending on food.” With an accurate count of people who visit the cafeteria, the dining team is able to provide a better dining experience. “We like Density because it’s a way for [dining services] to build a better brand,” Stephen explains.

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> – Stephen Weaver, Senior Analyst for Student Dining and Residency

The data collected from Density is also being used to address the problem of overcrowding on campus. Danielle Galvao, the Computer Science major who noticed the problem, has been working for The Office of Information Technology to integrate real-time occupancy from Density into the school's mobile app.

"I've been working on getting the data from the Density API and transforming it into something that students can use. It was super easy to access the data... I can easily look at occupancy for the library basement, versus the dining hall, and how many people are currently in our lab. I think this technology has actual application and students will find it useful."

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> *Density is useful for Notre Dame and can be useful to other educational institutions, not only for dining but for the whole campus study experience.*

– Paul Turner

What's Next

The next installation will be at South Dining facility, which was built in 1927 and is often compared to the dining hall in The Harry Potter series. The installation will be a part of the facility's renovation and will preserve its rich history while modernizing it with state-of-the-art technology.

With Density installed, students will be able to see how busy the South Dining location is compared to other dining facilities directly from a mobile app. Stephen from Student Dining and Residency explains, "We want to integrate this with our Mobile ND app and put this information in the hands of [students] so that they know how to navigate the dining system better."

The hope is for students to be able to eventually better navigate the entire campus. Paul from the Office of Information Technology explains, "Density is useful for Notre Dame and can be useful to other educational institutions, not only for dining but for the whole campus study experience."

About Density

Density is the new occupancy analytics platform. Using proprietary sensors and software, the platform accurately measures foot traffic throughout buildings. Enterprise teams use Density to eliminate underutilized real estate, deliver exceptional in-store experiences, and strengthen physical security. Unlike alternatives—which are either invasive or imprecise—Density is both anonymous by design and the industry's most accurate system.

Together, Density's customers manage over 100 million square feet of corporate real estate. Density was founded in 2014, with offices in San Francisco, New York City, and Syracuse, New York.

Want to Learn More?

Get a Demo at density.io

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