A DRONE’S-EYE VIEW OF FLORENCE

Faces of people standing in the piazza look up, peering into the sky to find the source of a buzzing sound. Some are local residents drawn out onto the Piazza del Carmine and into the March sunshine by curiosity. Others are students in the University of Hartford’s Master of Architecture program in the College of Engineering, Technology, and Architecture.

“Here it comes,” yells one of the students as they practice maneuvering the drone over the area of the Piazza del Carmine. The drone comes with an app that allows one of the students to use a smartphone to direct the camera on board. Another student uses a remote control to guide the drone. After a bit of practice, they have learned to coordinate their adjustments. The students are in Florence, Italy, on an assignment for their graduate architectural design studio course, taught by Imdat As, assistant professor of architecture.

Twenty-one graduate architecture students spent spring break 2015 studying centuries-old structures using 21st-century technology. In addition to the assignment at Piazza del Carmine, the students also traveled to nearby Fiesole, an Etruscan town north of Florence that was founded in the ninth to eighth centuries BC; visited an archaeological site and a Roman theater; and hiked to the pietra serena (sandstone) quarries of Monte Ceceri, which were mined beginning in the Etruscan period.

The group visited approximately two dozen different piazzas in the city of Florence before settling on the Piazza del Carmine for study. When they arrived, the underutilized piazza was functioning primarily as a neighborhood parking lot—something the city of Florence wanted to change. The primary goal of the assignment was to rethink the use of the piazza and come up with new plans.

In the past, the students would have taken photographs of the piazza, measured distances by hand with tapes, and made sketches. All that changed when they unpacked the drone, which arrived in the mail the day before the group set off for Florence.
It was Professor As who suggested incorporating a camera-mounted drone. As it turned out, there were multiple benefits.

“With the drone, the students were able to take elevations on all the surrounding buildings quite easily and even from the rooftops, which normally would not be possible,” says As. “The drone took photographs and video, and greatly improved the accuracy of the measurements while saving time.”

“The drone is a new tool that allows architects to render the built world that they work in,” agrees Michael J. Crosbie, professor and chair of the Department of Architecture. “This technology is already becoming indispensable for architecture students to capture views of existing buildings and urban spaces, survey sites, replicate building details, and see architecture in new and exciting ways.”

The students were divided into four teams—one team surveyed the site, prepared building-use and building-height maps as well as landmark, open-space, and public-transit maps and the like; another team prepared digital 3D models and did digital surveys; the third team built the physical model; and the fourth traced the history of the site by collecting historical maps and photos to show the site’s development over time.

Notable among the historic buildings surrounding the piazza is the medieval Church of Santa Maria del Carmine (begun in 1268), from which the piazza takes its name. Also present are retail shops, residences, and commercial businesses.

One of the project requirements was to solve the need for parking by designing an underground garage with the capacity for 200 cars. Many of the students also incorporated a performance space on the piazza for concerts.

After returning from Italy, the students spent the rest of the semester completing their designs. They used software to stitch together photos taken by the drone to create 3D images. Those images were used to print 3D models, based on their plans, using the 3D printers in the architecture studio. Students each developed a separate plan, and their work was reviewed by a jury of faculty and working architects at the end of the semester.