

## RESEARCH

### The Intelligent Transportation Systems Resource Center (ITSRC)



**Aerial Data Collection Device**

**Ground Control**

Established at NJIT in 2013 through the New Jersey Department of Transportation (NJDOT), the Intelligent Transportation Systems Resource Center (ITSRC) is the primary research and technology resource for the NJDOT's Intelligent Transportation Systems (ITS) Engineering bureau. Directed by Professors Lazar Spasovic and Steven Chien, the primary mission of ITSRC is to assist NJDOT in enhancing the performance and efficiency of New Jersey's surface transportation systems. There are several ITS projects that have been subcontracted to industry partners and university centers such as Cambridge Systematics, Parsons Brinckerhoff, Vanasse Hangen Brustlin, AECOM Technical Services, CH2M Hill, CoVal Systems, Math Factory Corp, Maser Consulting, P.A. and the Rutgers University Center for Advanced Infrastructure and Transportation (CAIT).

One of the many vital, ongoing ITSRC projects is one headed by Joyoung Lee, a CEE assistant professor. Dr. Lee's research explores the applicability of small aerial data collection devices for traffic surveillance and roadway incident monitoring. These devices have garnered significant attention from the public as they are easy to control, safe, cost-effective and flexible in flight. Using two quadcopters equipped with video capturing and wireless communications transmission devices and a ground station unit, Lee has conducted several pilot tests to study the effectiveness of quadcopters for traffic surveillance and incident monitoring. Compared to existing traffic data-collection practices, a quadcopter appears highly useful in its ability to cover a wide range of data-collection sites and capture traffic data from every approach to an intersection from a single device. Capabilities also include the measurement of queue length and delays at intersections. Equipped with long-range wireless video streaming devices utilizing commercial 4G networks to connect the ground station to the devices, results from pilot tests clearly demonstrate the quadcopter collective device would be suitable for real-time roadway incident monitoring.