Abstract

Waggle is an attentive sensing platform that brings together physically distributed Internet-enabled sensing and computing devices, and a cloud-enabled storage, control, and data dissemination infrastructure. The Array of Things (AoT) project uses Waggle platform to support urban-scale, interdisciplinary research and development by employing a network of sensors to provide environmental data about the city of Chicago. Currently, AoT nodes record information on conditions including light intensity, particulate matter, chemicals in the air, and the meteorological parameters of their surroundings. In an effort to expand the breadth of information available through the Waggle platform, we have integrated and tested new commercially off-the-shelf water level, soil moisture, and airborne particulate matter sensors. These devices are connected to one of two commercially available Internet of Things modules, the Photon and the Electron, which, respectively, send information to the Particle cloud over wireless networks and cellular data. A subscriber client pulls the sensors' data off the cloud and directs it towards the Waggle infrastructure. In the coming weeks, we will analyze the data collected thus far, deploy and test a current sensor and rain gauge, and ultimately work towards integrating the new sensors into the Waggle system.