

Reducing Commercial Food Waste: Developing an Application for the Economically Viable Transportation of Food Waste from Source to Compost Facility via Private Contractors

Gerhard, Michael (School: College Park High School)

Jolly, Kabir (School: College Park High School)

The growing amount of food waste is a serious environmental threat, with over 25 million tons of food waste ending up in landfills annually. Once in landfills, food waste rapidly decomposes, releasing large amounts of methane into the atmosphere. In response to this problem, the goal of the project was to develop an application to coordinate food waste transportation from a waste producer to a compost facility via a privately contracted hauler (anyone with a pickup truck or trailer). In this way, food waste could be diverted from landfills, reducing harmful greenhouse gas emissions. The student researchers created a smartphone application in Xcode and programmed it to have three different modes depending on the type of user: waste producer, hauler, or compost facility. A database service was also integrated for user authentication and remote storage of data. Next, the application was implemented at a local level to test its viability in reducing food waste. The student researchers found that the app and service ended up saving over 4 tons per month from a local supermarket chain. This proved to be a successful diversion of food waste - especially from a single location - and was later implemented into additional establishments, increasing waste diversion to 5 tons with the addition of 3 local restaurants. The applications of this project are twofold: first, this presents a novel solution to combating commercial food waste, and second, this type of design model can be easily adapted to handle other waste streams such as recyclables or biofuel.

Awards Won:

ASU Rob and Melani Walton Sustainability Solutions Service: Award of \$1,000

Third Award of \$1,000