The goal of NASA’s Edison Demonstration of Smallsat Networks (EDSN) mission is to demonstrate interactive satellite swarms capable of collecting, exchanging and transmitting multi-point scientific measurements. Satellite swarms enable a wide array of scientific, commercial and academic research not achievable with a single satellite. The EDSN satellites are scheduled to be launched into space as secondary payloads on the first flight of the Super Strypi launch vehicle no earlier than Oct. 29, 2015.

EDSN consists of a group of eight satellites in a loose cluster arrangement that will be deployed approximately 310 miles (500 kilometers) above Earth. Each EDSN satellite is a 1.5-unit (1.5U) CubeSat measuring about 4 inches x 4 inches x 6.5 inches (10 centimeters x 10 centimeters x 16 centimeters) and weighing approximately 4.5 pounds (2 kilograms). EDSN satellites were developed to leverage recent advancements in small spacecraft and commercial off-the-shelf hardware and software to reduce cost and development time. The EDSN satellites employ a commercial smartphone processor first tested on a series of NASA Phonesat missions in 2013-14. EDSN uses the same Android smartphone technology to perform many of the spacecraft functions normally accomplished with expensive, customized electronics components. The satellites use time and orbital knowledge provided by GPS data to autonomously plan activities including recording sensor data, exchanging inter-satellite data and downlinking data to a ground station.
potential to provide flexible data correlation and distribution, system redundancy, simplification of satellite operations and the enabling of new multi-satellite science investigations through distributed architectures, sensor webs and disaggregated systems. These architectures can provide enhanced scientific data collection for industry, university researchers and NASA scientists.

The EDSN project is based at NASA's Ames Research Center at Moffett Field, California. EDSN project partners include NASA's Marshall Space Flight Center in Huntsville, Alabama; Montana State University; and Santa Clara University.

The EDSN project is funded by NASA's Small Spacecraft Technology Program (SSTP), which is chartered to develop and mature technologies to enhance and expand the capabilities of small spacecraft with a particular focus on communications, propulsion, pointing, power, and autonomous operations. SSTP is one of nine programs within NASA's Space Technology Mission Directorate.

For more information about the SSTP, visit: http://www.nasa.gov/smallsats

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Completed EDSN Flight Units with Engineers Inspecting EDSN Flight Spares