



NOTE:

4 or 5 different Sprites were flown on KinkSat-2, 3 are represented on this model kit at 1/1 scale.

Sprite: The First Spacecraft-On-A-Chip

The Sprite Spacecraft: The Sprite is a tiny (3.5 by 3.5 centimeter) single-board spacecraft. It has a microcontroller, radio, and solar cells and is capable of carrying single-chip sensors, such as thermometers, magnetometers, gyroscopes, and accelerometers.

Demonstrating a new type of space technology, 105 of the world's smallest free-flying satellites have orbited the Earth, sending short telemetry signals received by a ground station at Cornell.

An engineering team from Stanford University and NASA Ames first made contact with the payload of tiny satellites, called Sprite ChipSats, on the night of March 19, 2019 one day after they were deployed from their carrier spacecraft, KickSat-2, a shoebox-sized CubeSat.

The Sprites successfully transmitted data before reentering the atmosphere.

KickSat-2 represents the largest, single number of free-flying satellites ever deployed at once. At less than \$100 in parts.

KickSat was a small-satellite (femtosatellite) project inaugurated in early October 2011, to launch a large number of very small satellites from a 3U CubeSat. The satellites have been characterized as being the size of a large postage stamp. The mission launch was originally scheduled for late 2013 and was launched April 18, 2014.

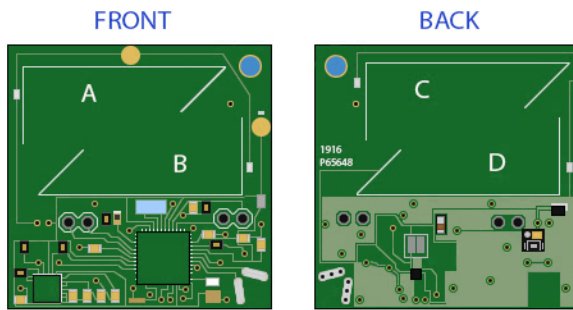
Kicksat-1 was successfully launched and was to deploy the Sprites 16 days after launch, but radiation induced reset of the timer postponed the deployment to a time after the likely reentry date of Kicksat-1.

A problem in the powersystem also rendered the command receiver inoperable, so that no override could be sent to deploy the Sprites by command. Kicksat reentered the Earth's Atmosphere between 13 and 14 May 2014 before any sprites could be released.

A reflight of this mission, KickSat 2, featuring improved avionics and power systems, is planned to be ready for launch in August 2014.

Eventually it was launched on board of the Cygnus CRS-10 cargo mission and was deployed on 13 February 2019 from the spacecrafts external deployer after departing from the ISS. On 19 March 2019 the signal to deploy the sprites was sent. All 105 Sprites were sprung out into low Earth orbit, where they began communicating with each other and (just barely) to ground stations.

Sprite ChipSat 1



Glue both to 2 layers of cardstock, cutout the blue circles, glue back-to-back. Color edges green



Glue these to cardstock



Assemble and glue to the 2 gold circles on the FRONT

Cut 2 plastic broom straws at 2.5 mm long, colored the same color and glue to the dark spots on top.

Glue to 2 layers of cardstock
Glue to the matching graphic on the FRONT

Glue to cardstock, then glue to matching shapes on the BACK.



Glue to two layers of cardstock

Glue to 2 layers of cardstock, glue to the gold rectangle on the FRONT

Cut two Plastic broom straws or very thin wires at 60mm long colored light grey or silver for the antennas.

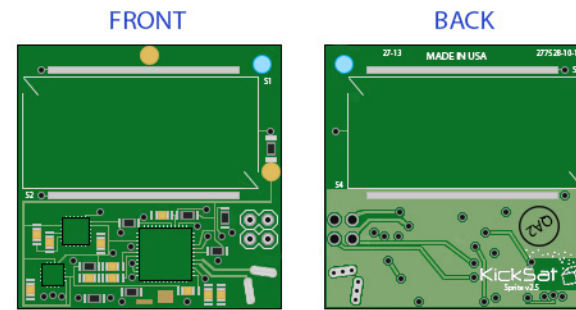
Optional Detail Parts

Glue to cardstock, Glue to the matching graphic at the center-bottom

Glue to cardstock
Glue to the 11 matching graphics

Glue to cardstock
Glue to the 6 black rectangles on the FRONT

Sprite ChipSat 2



Glue both to 2 layers of cardstock, cutout the blue circles, glue back-to-back. Color edges green



Glue these to cardstock



Assemble and glue to the 2 gold circles on the FRONT

Cut 2 plastic broom straws at 2.5 mm long, colored the same color and glue to the dark spots on top.



Glue to two layers of cardstock

Glue to 2 layers of cardstock, glue to the gold rectangle on the FRONT



Cut 4 plastic broom straws at 2.5mm long, colored silver. Glue to the 4 black dots on the 4 grey circles on the FRONT.

Cut two Plastic broom straws or very thin wires at 60mm long colored light grey or silver for the antennas.

Optional Detail Parts

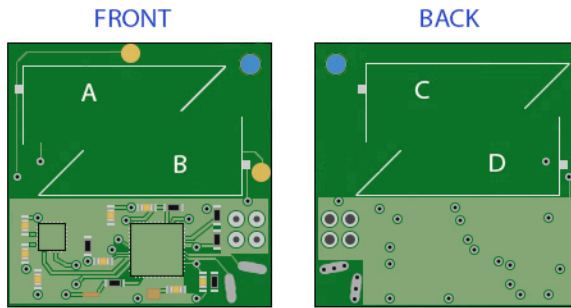
Glue to cardstock, Glue to the matching graphic at the center-bottom

Glue to cardstock
Glue to the 11 matching graphics

Glue to cardstock
Glue to the 8 black rectangles on the FRONT



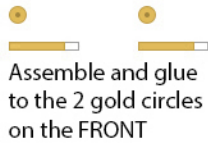
Sprite ChipSat 3



Glue both to 2 layers of cardstock, cutout the blue circles, glue back-to-back. Color edges green



Glue these to cardstock



Cut 2 plastic brooms straws at 2.5 mm long, colored the same color and glue to the dark spots on top.



Glue to 2 layers of cardstock, glue to the gold rectangle on the FRONT

Optional Dertail Parts

Glue to cardstock, Glue to the matching graphic near the bottom on the FRONT

Glue to cardstock
Glue to the 8 matching graphics on the FRONT

Glue to cardstock
Glue to the 6 black rectangles on the FRONT

Cut 4 plastic broom straws at 2.5mm long, colored silver.
Glue to the 4 black dots on the 4 grey circles on the FRONT.

Cut two Plastic broom straws or very thin wires at 60mm long colored light grey or silver for the antennas.