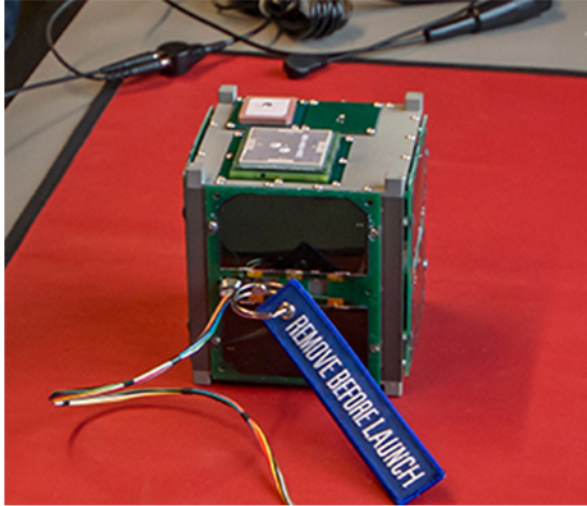
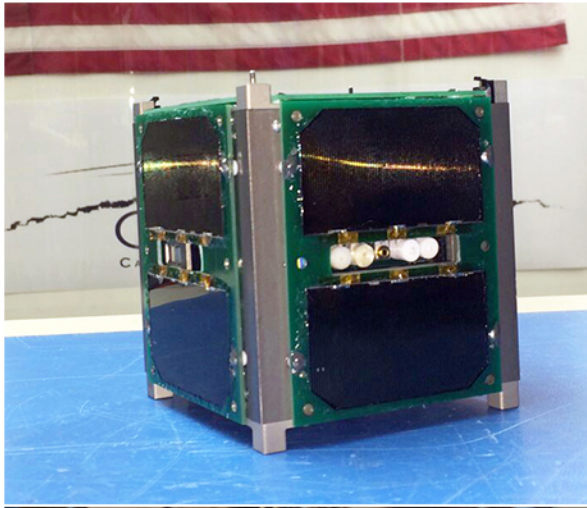


MakerSat-0



MakerSat 0 is a 1U CubeSat designed at Northwest Nazarene University for a technology demonstration of a fully 3D printed satellite structure with a common power, control, computing, and radio communication architecture connected to four science boards that integrate into the platform in a modular manner to allow it to host payloads from different operators.

Not only a first for Idaho, the 3D printed CubeSat is the first satellite ever to be sent to space for the explicit purpose of gathering data and information about how 3D printed polymer materials react and can endure when exposed to the harsh environments of outer space.

More specifically, the CubeSat will be deployed for several years and will gather real-time information about samples it carries of ABS, PLA, nylon, and PEI/PC ULTEM, all common plastic-based 3D printing materials. This information will be important in determining what kinds of parts have the potential to be additively manufactured in space.

This is the first of two MakerSat missions that we're launching in partnership with Made In Space," explained Dr. Stephen Parke, NNU engineering professor. "The MakerSat missions will provide the space community with invaluable test data on how these materials react to oxygen plasma, ultraviolet and ionizing radiation, vacuum, extreme temperatures, and micrometeorite collisions.

The MakerSat concept will be demonstrated with two satellites: MakerSat-0 and MakerSat-1. MakerSat-0 will be completely manufactured and assembled on Earth and launched into a sun-synchronous polar orbit through the ELaNa program via Virgin Galactic's LauncherOne vehicle.

The frame will be 3D printed in Made In Space's terrestrial AMF. The objective of this launch is to provide a test-run for the eventual launch of MakerSat-1.

MakerSat-1 will be completely manufactured, assembled, and launched from the ISS. Efforts to make the necessary arrangements for the assembly and launch of MakerSat-1 are ongoing.

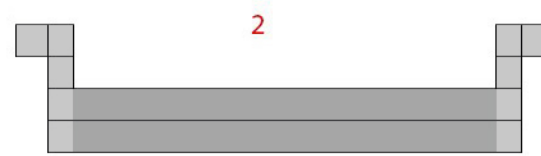
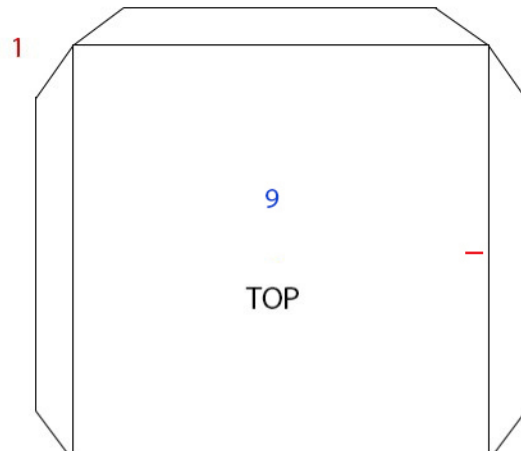
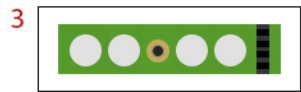
In summary, MakerSat-1 is the first CubeSat specifically designed to be additively manufactured, assembled by an ISS crew, and deployed, all in a microgravity environment.

The concept is to 3D print a satellite frame (uploaded from earth) on the ISS and assemble the CubeSat from a cache of core electrical boards and up to four experiment boards provided by students, teachers, and start-up companies. In this way, a CubeSat can be configured and assembled on-demand with significantly reduced development time.

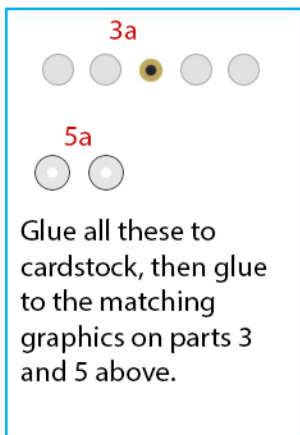
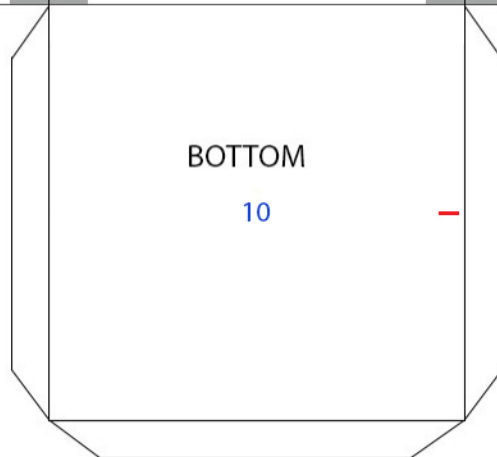
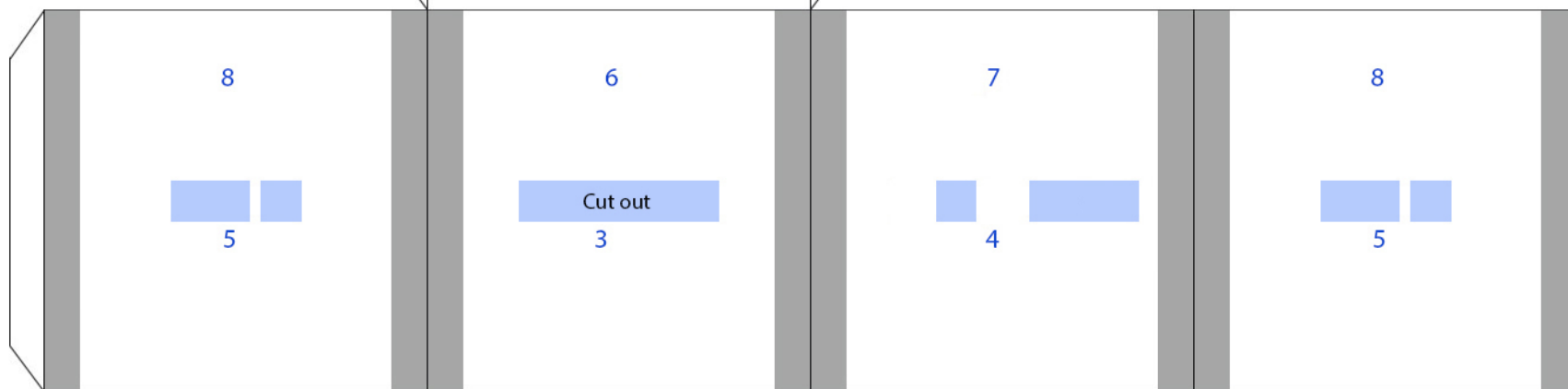
MakerSat-0 will serve as a test-run for the eventual launch of MakerSat-1 from the ISS. MakerSat-1 will be completely manufactured, assembled, and launched from the ISS.

MakerSat-0 was launched into orbit on November 17, 2017 aboard a Delta II rocket.

MakerSat-0



Cut out all blue areas



6

7 Cut out all blue areas

8

9

10

Glue these six panels to cardstock,
color edges green
Cut out all blue areas

11

Glue to three (3)
layers of cardstock
Color edges green

12

Glue to two layers
of cardstock

13

Glue these to two layers
of cardstock

14

15

16

Glue to four (4)
layers of cardstock

Optional Detail parts

