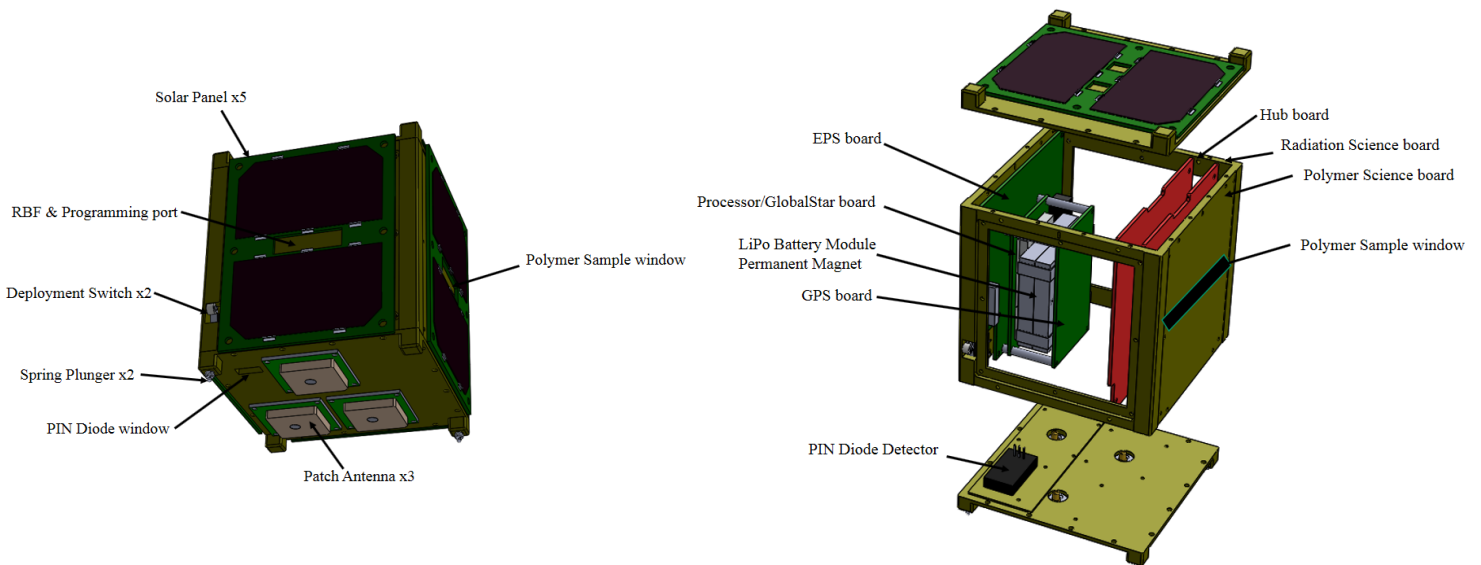


MakerSat-0 – Northwest Nazarene University – 1U



MakerSat-0 will study the viability of various 3D printed polymers for in-space manufacturing of spacecraft structures. It will also demonstrate a multi-user architecture for sharing the satellite core systems among several science team payloads.

Upon deployment from the P-POD, MakerSat will power up and start a 50 minute time after which its GlobalStar radio will be activated. Health beacon data will be transmitted every 50 minutes and science payload tests will be run round robin on a 100 minute cycle.

The CubeSat structure is made of Aluminum 6061-T6. It contains all standard commercial off the shelf (COTS) materials, electrical components, PCBs and solar cells. The GlobalStar radio uses ceramic patch antennas. Four half gram samples of ABS, Nylon, PLA, and ULTEM plastic are inside one science experiment.

There are no pressure vessels, hazardous or exotic materials.

The electrical power storage system consists of common lithium-polymer batteries with over-charge/current protection circuitry. The lithium polymer batteries and circuitry are from Tenenergy 3.7V 2200mAh (925050) Battery - UL Listed.

MakerSat-0 has two payloads: a polymer experiment and a PIN diode particle counter. The polymer experiment has five tiny 3d printed plastic masses on the ends of five tiny cantilevers that are vibrated by a small cellphone motor and resonant frequencies are measured.

NNU owns them. They are NOT controlled by the Globalstar simplex radio link. Their data is transferred from the on board computer to the simplex downlink via handshaking. There is no up link of any kind to this satellite.