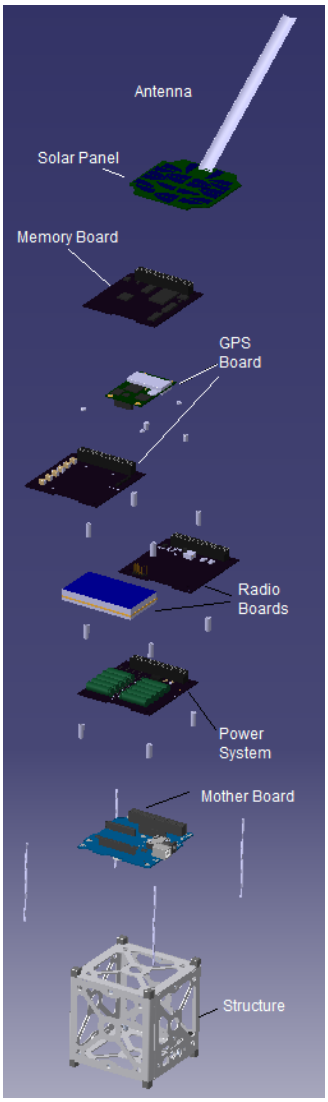
EagleSat-1 – Embry-Riddle Aeronautical University, Prescott – 1U



EagleSat-1, a 1U satellite built by the Embry-Riddle Aeronautical University EagleSat Satellite Design Team, will attempt to measure the decay of the satellite's orbit over time by the means of an unlocked GPS receiver while gauging the effect of radiation and other natural phenomenon on flash based memory technologies in the space environment. The major scientific payload will be the flash based memory testing. The major subsystems comprising the satellite are structures, power, communications, memory experiment, gps experiment and on board computer (OBC). The radio transmitter within the satellite has been donated by Wood & Douglas of the UK.

Upon deployment from the P-POD, EagleSat-1 will enter sleep mode and begin to charge its energy bank until a charge threshold is reached. After this threshold is met, the satellite will begin a 60 minute countdown. After 60 minutes, the antenna

will deploy, followed by a repeating UHF beacon. Ground station operators will attempt communication after a beacon is received at the ground and will verify system health for the first few passes. Normal satellite operation and occasional data downlink will continue for at least one year.

The CubeSat structure is fabricated from 5052-H32 aluminum sheet metal. It contains all standard commercial off the shelf (COTS) materials, electrical components, PCBs, and solar cells. The UHF radio uses a deployable tape measure antenna that stows along the surface of the structure. Deployment occurs with the heating of a resistor which cuts a piece of thread.

There are no pressure vessels, hazardous or exotic materials contained within the CubeSat.

The electrical power storage system consists of a parallel-series bank of supercapacitors. The capacitors carry the UL-listing number BBBG2.MH46887.