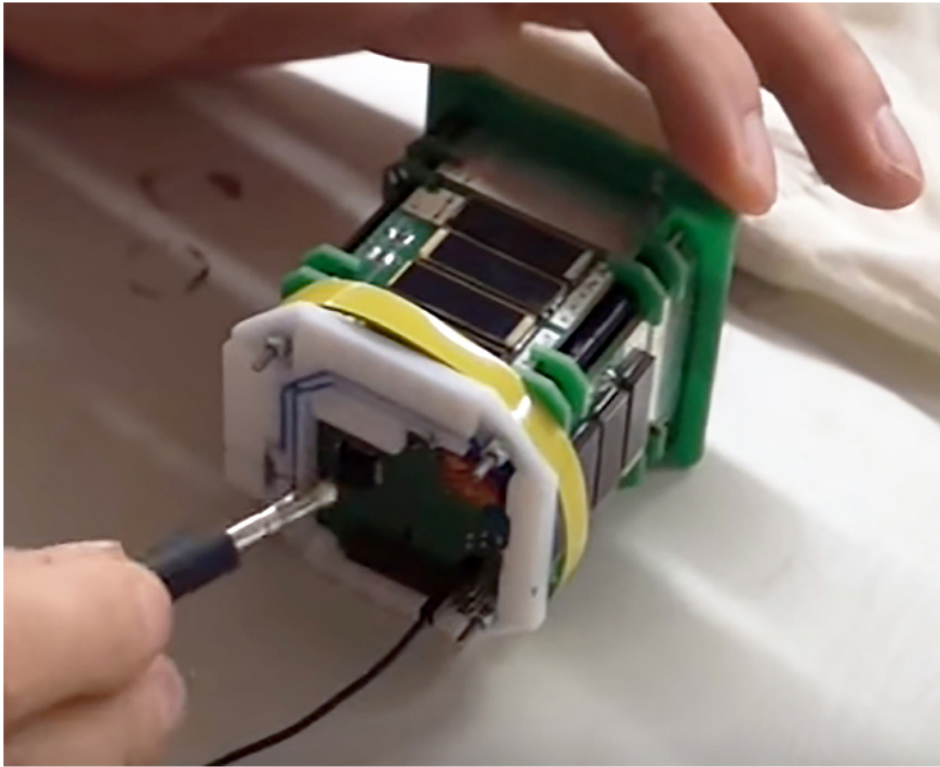




PocketQubes are pico-class satellites (mass between 0.1 and 1 kg) invented by Professor Robert J. Twiggs (Morehead State University) that are envisioned to fly in constellations and perform a variety of functions from communications to Earth remote sensing and space research.

A PocketQube is a type of miniaturized satellite for space research that usually has a size of 5 cm cubed, has a mass of no more than 180 grams, and typically uses commercial off-the-shelf components for its electronics.

Beginning in 2009, Morehead State University (MSU) and Kentucky Space developed the PocketQube specifications to help universities worldwide to perform space science and exploration. While the bulk of development comes from academia, several companies build PocketQube, such as PocketQube Shop. PocketQube projects have even been the subject of Kickstarter campaigns. The PocketQube format is also popular with amateur radio satellite builders.



The PocketQube specification accomplishes several high-level goals. Simplification makes it possible to design and produce a workable satellite at low cost. Encapsulation of the launcher-payload interface takes away the prohibitive amount of managerial work that would previously be required for mating a piggyback satellite with its launcher. Unification among payloads and launchers enables quick exchanges of payloads and utilization of launch opportunities on short notice. PocketQube is similar to Cubesat in this regard.

First proposed in 2009 as a solution to the increasing costs of Cubesat launches to Low Earth Orbit, the world's first 4 PocketQube Satellites were launched on 21 November 2013 aboard the Italian UniSat 5 microsatellite. They were The Wren, T-Logoqube (Eagle-1), \$50Sat (eagle2) and Qubescout-S1.

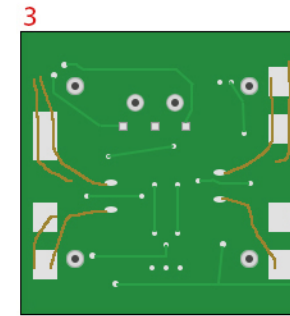
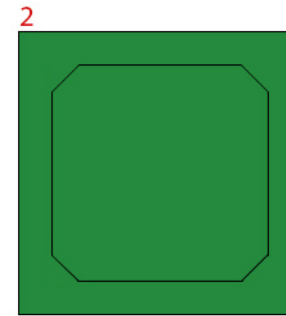
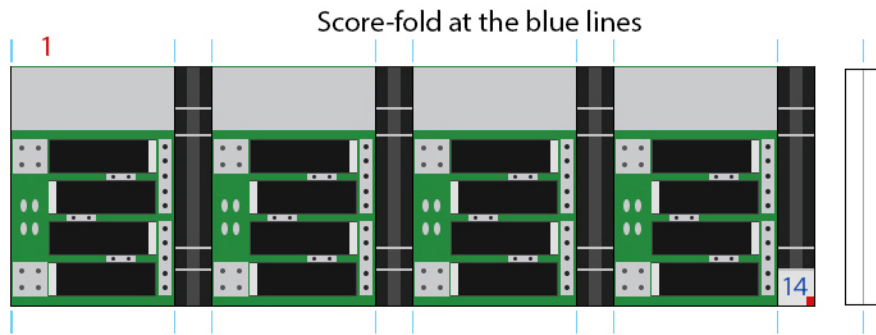
This model you're building:

Produced by German startup STADOKO UG, this 1P PocketQube is the smallest and one of the most advanced satellites of its class. It has 4 pulsed plasma thrusters, a 3 axis reaction wheel and a color camera.

WREN is just 5x5x5.5 cm yet is equipped with a camera for Slow Scan TV (SSTV) using the Martin-1 format, a gyro, a magnetic field sensor, momentum wheels and pulsed plasma microthrusters. The camera has an image processing system which can find the position of the Sun and the Earth automatically.

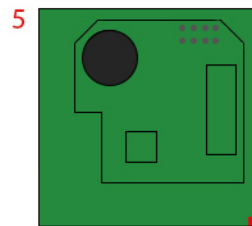
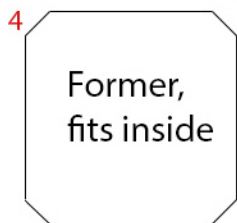
The WREN Decoder/Commander App uses the RTS pin of the comport to trigger TX of the radio (we use an ICOM 910h) for commanding. Decoder and Commander in one package.

Wren

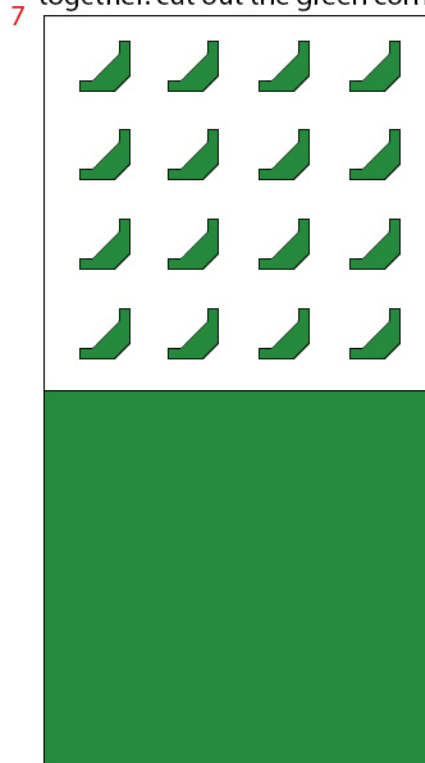


Glue these two back-to-back

Glue to cardstock



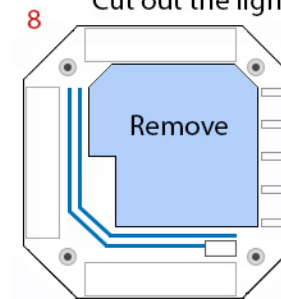
Fold back-to-back and glue together. cut out the green corners.



6 Glue these to cardstock



Glue all these to two layers of cardstock, Cut out the light blue area.



Glue to cardstock



Glue to two layers of cardstock, cut out the light blue circle



14

Antenna - Color the back side the same color

