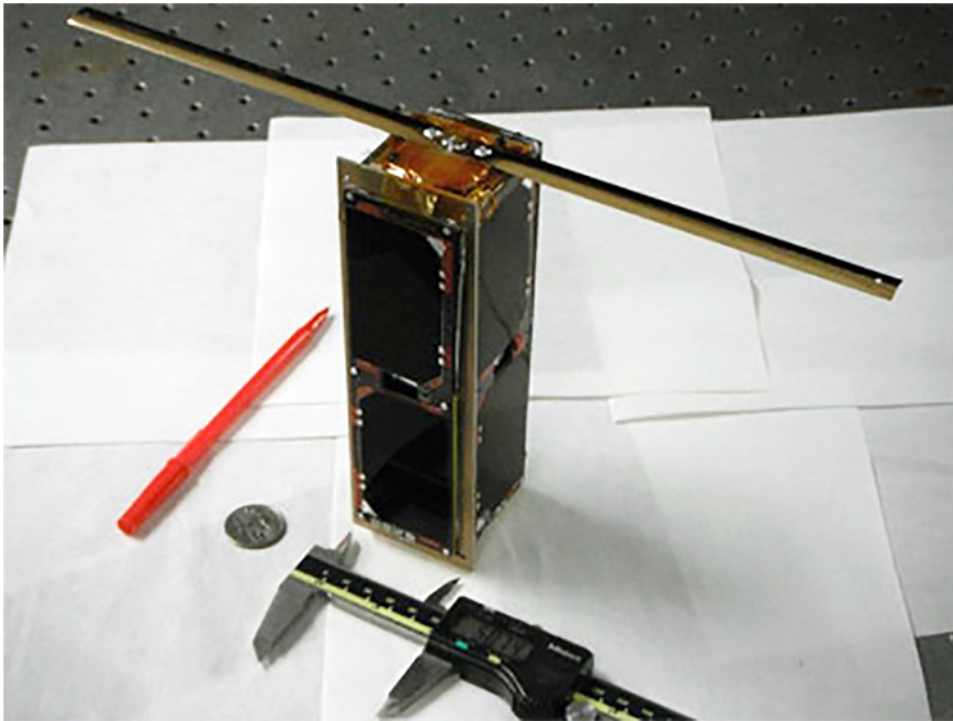




PocketQubes are pico-class satellites (mass between 0.1 and 1 kg) invented by Professor Robert J. Twiggs (Morehead State University) that are envisioned to fly in constellations and perform a variety of functions from communications to Earth remote sensing and space research.

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.

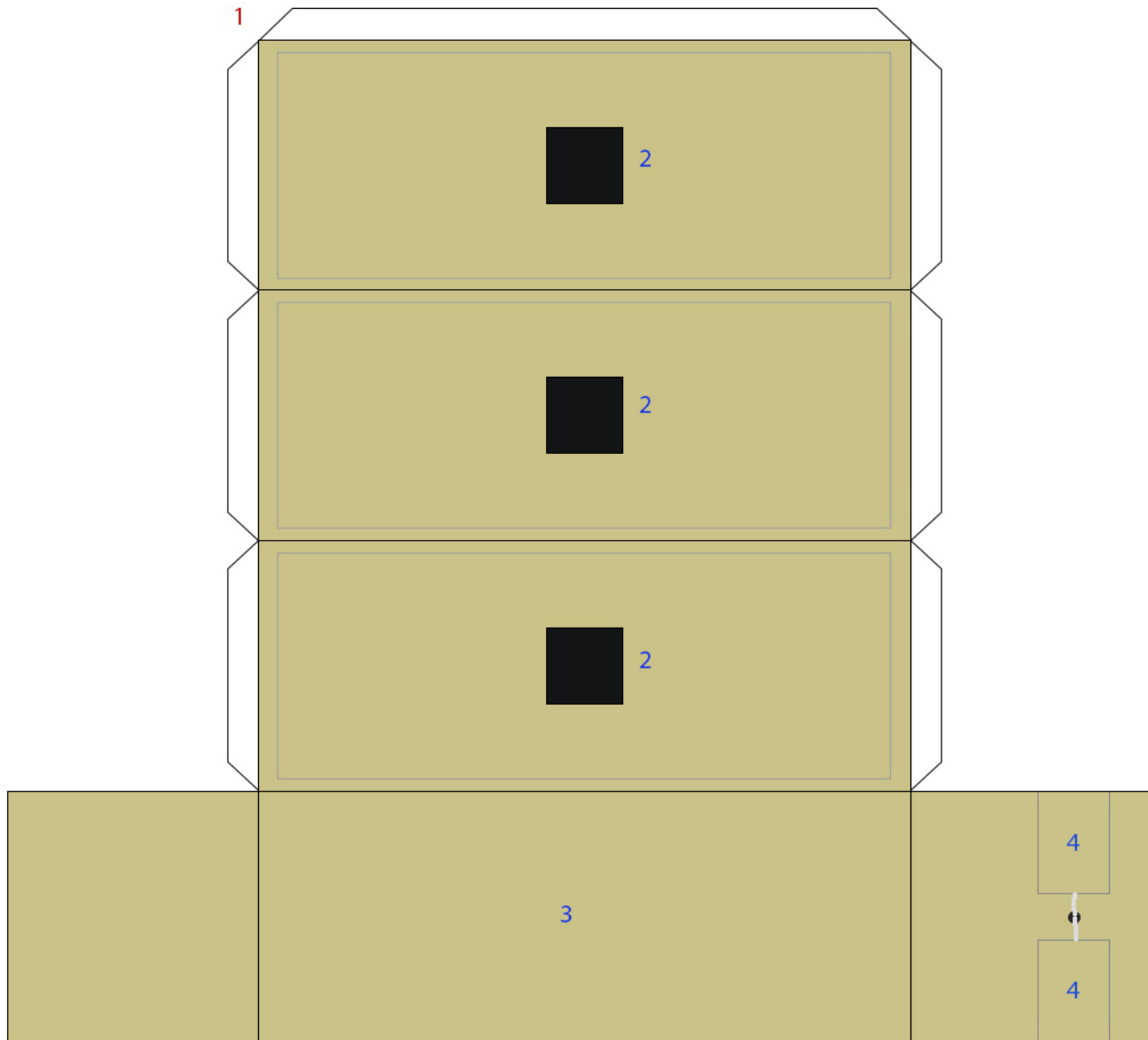
The PocketQube specification accomplishes several high-level goals. Simplification makes it possible to design and produce a workable satellite at low cost. Encapsulation of the launcher-payload interface takes away the prohibitive amount of managerial work that would previously be required for mating 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:

Qubescout-S1 is a 2.5p PocketQub that was built as a joint venture between the University of Maryland, Baltimore County and STC. Qubescout-S1 measures 2 in x 2 in x 5 in. The satellite was built from scratch by students in less than 3 months (less than one semester) prior to delivery to the launcher. The total cost, including launch, was less than \$100K. The satellite is a technology test of a micro sun sensor developed at UMBC as well as an innovative drag design system. Qubescout-S1 was launched from the Yasny, Russia on a Dnepr LV rocket as part of the Unisat-5 payload. The launch took place at 0710 UTC November 21, 2013.

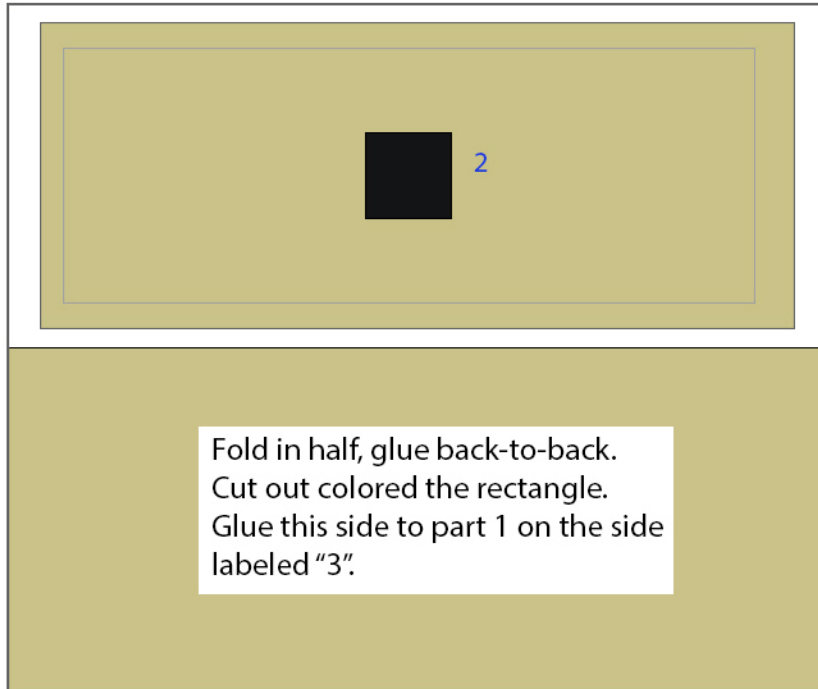
The orbit is sun-synchronous with an orbit altitude of 616 km (382 miles). UMBC students have been monitoring the satellite's performance. The use of student engineers, COTS parts, and a very aggressive schedule kept the cost very low. While the risk is high for this type of satellite, the potential payoff is substantial.



Color the other side the same color

Qubescout-S1

3



5



2

Glue these to two layers of cardstock
Cut out the light blue rectangle

