

Uglo 7 System Description

1. SPECIFICATIONS

The Uglo 7 UA is a small foam aircraft. It consists of a 12.7 mm (0.5") thick Divinycell H80 foam wing with essentially an inverse Zimmermann planform, to which another 12.7 mm thick foam fin and fuselage has been bonded. It has an electric tractor motor in the nose, two elevons each controlled by one servo, a speed controller and a battery. To this has been added an autopilot, a small battery, a GPS antenna and a communications antenna. The Uglo 7 UAS will be flown in the same flight envelope as intended for the RC planes.

Wing span: 0.95 m (37.4 in)

Wing area: 0.609 m² (944 in²)

Mass: 1.4 kg – 2 kg (3 lb – 4.4 lb)

2. MODIFICATIONS

Since the Uglo 7 is structurally equivalent to radio controlled foam airplanes, standard tools used by Lehigh University Composites Lab are used to assemble the aircraft. The following components are used:

BP A2826-4 brushless outrunner motor

APC 13" x 6.5" fixed pitch propeller

BP 60A electronic speed controller

One lithium polymer battery, 11.1V, 3300mAh, for the motor

One lithium polymer battery, 7.4V, 700mAh, for the autopilot

Cloud Cap Technologies Piccolo SL autopilot module

GPS antenna

Communications antenna

2.1. Performance (measured)

	1.4 kg	2 kg
Maximum speed (V _{ne})		35 m/s
Minimum speed (V _s)	9 m/s	10 m/s
Speed for best L/D	18 m/s	18 m/s
Minimum turn radius at best L/D speed	8 m	12 m
Maximum turn rate at best L/D speed	130 deg/s	90 deg/s
Maximum climb rate at best L/D speed	15 m/s (2953 fpm)	15 m/s (2953 fpm)