

Proposal for Attempt of Record Flight

**World Smallest RC Ornithopter**

Submitted to

Organizing Committee of the 3rd US-European Competition and Workshop on Micro Air Vehicles and the 7th European Micro Air Vehicle Conference and Flight Competition.

Submitted by

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An ornithopter competition was added to the Annual International MAV Competition in 2004. This competition involves flight demonstration of the smallest radio-controlled ornithopters that can fly laps around a pylon course in 2 min. The winner of the 2004, 2005 and 2006 competitions demonstrated 28 cm, 20 cm and 15 cm vehicles, respectively.

Our interest in flapping wing aircraft (ornithopter) stems from the fact that this apparatus is the closest one to natural fliers (birds and insects). In order to further promote the state-of-the-art, we propose to organize an attempt(s) for the **World Smallest RC Ornithopter Record Flight** during upcoming MAV-07 Competition.

Proposed rules

Category: Remotely Controlled Ornithopters

Record type: The smallest remotely controlled ornithopter to complete the mission

Description: The ornithopter mission must be completed with remotely controlled ornithopter. The size of an ornithopter is used as a measure of record.

Definitions:

Ornithopter Mission – consists of at least one complete lap around two, 12 m apart pylons with flight duration of at least 1 min.

Remote control – no direct mechanical influence of operator on flying vehicle is allowed. All control signals are transmitted by electromagnetic, sound or other waves. At least one control channel is required.

Ornithopter – flying vehicle, which utilizes aerodynamic principle of flight using flapping wing (wings). Flapping wing (wings) must be used to generate the major part of lift (tail is allowed) and 100% of thrust. No other propulsion is allowed.

Flapping wing – moving surface with at least one fixed point. Flapping wing may have up to 3 rotational degrees of freedom – flapping, rotation and folding. On any degree of freedom no spinning is allowed – the motion pattern must have oscillatory behavior with amplitude not exceeding 360 degrees.

Size – the size of ornithopter is defined as the largest distance between any two points of ornithopter. Flexible antenna is excluded.