

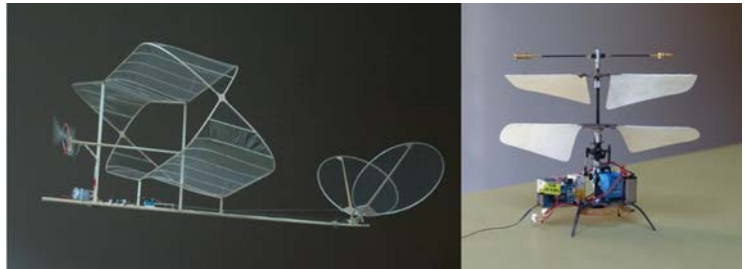
ICT Proposers´ Day Budapest, Jan 22th 2009

Institution/Company (name, address):

Technische Universität Berlin
Department Bionik und Evolutionstechnik,
Ackerstrasse 76, Ack1
D-13355 Berlin

Contact Person:

Ulrich Berg
Email: BERG_Ulrich@web.de
Phone: +49(0)30- 0175 45 80 380
Projects: Micro aerial vehicles



Expertise:

The development of unmanned, partly independent aircraft, controlled by remote control (UAV: unmanned aerial vehicles) designed to explore, measure and observe has provoked growing interest amongst scientific researchers in recent years. The extraordinary ability of insects to navigate caves and crevices in pursuit of nourishment and habitat, using highly sensitive antennae to locate minute substances, whilst communicating with each other in network formation, proves particularly useful to bionic research; to the design of Micro aerial vehicles (MAV`s). MAV`s equipped with cameras and sensors could operate in dangerous environments or those inaccessible to people, environments badly polluted or extra – terrestrially located.

Our main objective is to design small light models modeled on insects which operate indoors or not too far off outside. To date we have developed various indoor types, the "Loopwing – Doubledecker", "Flappers" and currently "Helicopter".

Topics (project idea, fields of interest):

Our aim therefore is to design a small electrically – charged helicopter operated by remote control to be employed by Emergency Services. It would be able quickly and closely to assess damage or pollution levels as well as to locate casualties consequent to fire or catastrophes.

We are particularly interested in miniscule electronic components for the following purposes:

- the remote control of mini – helicopters,
- the transfer of data (photographs and measurements for example),
- the detection of toxic and radioactive substances, body – heat detection to locate human life,
- the automatic correction of flight trajectories.

Key words:

Artificial insects; flying at minimal Reynolds number; Exploratory robots (MAV`s and UAV`s); Artificial intelligence; Network – communication; Sensor – networks; Control of autonomous flight trajectories.