Biobots

Bozkurt et al. reported on radio-controlled insect biobots by directing the flight of Manduca sexta through neuromuscular activation. Early metamorphosis insertion technology was used to implant metal wire probes into the insect brain and thorax tissue. Inserted probes were adopted by the developing tissue as a result of the metamorphic growth. A mechanically and electrically reliable interface with the insect tissue was realized with respect to the insect's behavioral and anatomical adoption. Helium balloons were used to increase the payload capacity and flight duration of the insect biobots enabling a large number of applications. A super-regenerative receiver with a weight of 650 mg and 750 muW of power consumption was built to control the insect flight path through remotely transmitted Electrostimulation pulses. Initiation and cessation of flight, as well as yaw actuation, were obtained on freely flying balloon-assisted moths through joystick manipulation on a conventional model airplane remote controller [1)]

1)
Bozkurt A, F Gilmour R Jr, Lal A. Balloon-assisted flight of radio-controlled insect biobots. IEEE Trans Biomed Eng. 2009 Sep;56(9):2304-7. doi: 10.1109/TBME.2009.2022551. PubMed PMID: 19692306.