

WINGED MICROCHIP



Issue

Researchers have created an electronic microchip with the size of a grain of sand. The microchip has the capability of flight.

Details

- The device has neither an engine nor a motor. It catches flight on the wind in a way maple tree's propeller seed does.
- The research team has designated the micro-flying device as the smallest-ever human-made flying structure.

Inspiration from maple tree

- The prototype was developed after studying seeds of maple tree and many other wind-dispersed seeds.
- The aerodynamics is in such a way that when it is dropped at a high elevation, it falls at a slow velocity in a controlled manner.
- This feature allows the seeds dispersal over a broad area and increases the amount of time it interacts with the air.

Applications

- These devices can be fitted with ultra-miniaturised technology, including sensors, power sources, antennas for wireless communication and embedded memory to store data. It makes it suitable for monitoring air pollution and airborne disease.

The development phase

- Scientists developed many prototype devices to arrive at a perfect structure. A three-winged device was made and the same angle was used as the wings on a tristellateia seed.
- Computational modeling allowed studying air flows around the device to mimic the tristellateia seed's slow, controlled rotation. It was then tested in labs.
- The biggest advantage of the device is that electronic waste is reduced. The device is made with materials that dissolve in water over time.

Applications

Large numbers of such devices can be dropped from a plane or building and broadly dispersed to monitor levels of air pollution at various altitudes as well as remediation efforts after a chemical spill.

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