

Tinkering lab – Innovative Project

Project Title: Medium Altitude Long Endurance' URAV (Unmanned Reconnaissance Aerial Vehicle)- 'Magellan 1'

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Abstract:

This project aims at the design, analysis and fabrication of a 'Medium Altitude Long Endurance' URAV (Unmanned Reconnaissance Aerial Vehicle) - 'Magellan 1', envisaged to be implemented with a hybrid propulsion system such that it retains its dynamic directional stability even in adverse weather conditions.

Magellan 1 will demonstrate an IC engine forward propulsion system with a tractor configuration and EIGHT electrically driven rotors in an Octa-Quad-H configuration. UAV systems equipped with electro optic sensors, hyper spectral imager, air data sensors and with similar equipment, have been used extensively IN civil applications such as aerial reconnaissance, coastline survey etc. The civil applications mentioned above require UAVs that are operable from a limited runway and demand quick responses in mobile environments.

'Magellan 1' will be designed for portability and deployment, in both military and civilian sectors. It will demonstrate high cruise speed hybrid UAV with Vertical Takeoff and Landing (VTOL), and capability to hover in constrained spaces, with slow and precise movements. Magellan 1 will support Type 2 autonomy. The design of 'Magellan 1' will be done in Solidworks® 2017, and the simulation analysis of the UAV's aerodynamics will be conducted in VSPAERO.

