

Development of multiple configuration flying wing UAV

ABSTRACT

This paper discusses the development of a fixed-wing Unmanned Aerial Vehicle (UAV) platform that can be customized into multiple configurations. This platform will be designed based on several requirements; low material cost, low manufacturing cost, portability for field operation, and stable flight design. Initially, a UAV platform is designed and manufactured for flight testing purposes. The first configuration was built for a twin tractor propulsion system. The prototype is built based on the design parameters using two types of foam core as based material. It is then fabricated using a CNC hot wire cutter machine. To reinforce the UAV structure, an advanced composite process is used by using fiberglass wet lay-up and vacuum bagging. The flight controller and its associated avionics system are then installed inside the UAV. Based on the flight test of the first configuration, the developed UAV has successfully flown in stable condition.

Keyword: UAV; VTOL; Flying wing; Drone configuration; Fixed-wing