abstract

For a conventional quadcopter system with 4 planar rotors, flight times vary between 10 to 20 minutes depending on the weight of the quadcopter and the size of the battery used. In order to increase the flight time, either the weight of the quadcopter should be reduced or the battery size should be increased. Another way is to increase the efficiency of the propellers. Previous research shows that ducting a propeller can cause an increase of up to 94% in the thrust produced by the rotor-duct system. This research focused on developing and testing a quadcopter having a centrally ducted rotor which produces 60% of the total system thrust and 3 other peripheral rotors. This quadcopter will provide longer flight times while having the same maneuvering flexibility in planar movements.