ABSTRACT

DESIGNING ADDITIONAL POWER SUPPLY SYSTEM ON UNMANNED AERIAL VEHICLE USING SOLAR CELL

Unmanned aircraft have grown rapidly which including commercial, industrial and government areas as well as education. Unmanned aircraft has a deficiency in terms of performance due to limited power which means the unmanned aircraft must land to recharge the battery. The greater the battery capacity, the more effective the work done but to increase the battery capacity also affects the smaller the total weight of the load that can be carried by this unmanned aircraft.

In this final project the author will design an additional power supply system for unmanned aircraft using monocrystalline solar cells. The output power of solar cells is used to add power to the drone system through a charger module and lipo battery which is the main unit of unmanned aircraft.

From this study it was found that unmanned aircraft with additional power supply using solar cells compared to unmanned aircraft without additional power supply, in sunny conditions added an average power of 38.9% and increased the working duration by 75.2% in static test and in flight test added flight duration of 73.23%. In cloudy conditions add an average power of 23.17% and increase the duration of work by 25.2% in static test and in flight test increase the duration of flight by 16.9%. In overcast conditions additional power supply using solar cells does not generate power and does not increase the duration of work and duration of flight.

Keywords: unmanned aircraft, solar cells, batteries