

GP1004	Design and Development of an Unmanned Air Vehicle for Long Endurance Surveillance		
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Design and development of long endurance unmanned radio controlled aircraft is the objective of this project. At present, many battery operated unmanned aerial vehicles are available but they fly for very short duration. Here to improve the endurance, gliding was used and the throttle in frequently in flying was cut down. Survey of available aircrafts which give long endurance for the available battery power were done to know the current trends in the long endurance radio controlled flights. Literature survey also gives types of motors, servos, electronic speed controller, battery power and its types especially for long endurance flight. Design data such as aspect ratio, length, wing span, aerofoil sections were obtained through literature survey.

Design calculations were done to estimate the dimensions, thrust required and weight of the aircraft which gives better endurance. Performance calculations were also done to estimate the required lift, stall speed and take off speed, and other important parameters. Fabrication of the model using fine thermocol and depron were done to have very light weight structure. Carbon fibre rods, composite adhesive tapes were used to strengthen the structural components of the aircraft wherever necessary.

Aircraft was designed to launch from the hand and for grass landing. Experienced radio controlled flying model pilot flew the model. It was giving 20 minutes duration for the 2200 mAh battery which is very high endurance obtained when compared to other radio controlled aircrafts which gives 10 minutes duration for the same battery capacity.



Fabrication

Assembly

Glide test & flying

Development stages of Unmanned Air Vehicle: Model and its construction