

Project proposal for Altbird Robotics PLC



PROJECT TITLE

Design of hexa multirotor
drone for mining application

PROJECT SCOPE

1. Design of the hexa multirotor drone with the placement of important components (Lidar, RTK camera, single point parachute and dust protection cover)
2. Standardizing the Bill of material
3. 3D printed 1/5th scale model
4. Documentation

PREREQUISITES

1. Details and dimensions of Payload and functional components that fits on the drone

TASKS

Priority index	Tasks	Process	Outcome
1	Load calculation for hexa mult drone	<ul style="list-style-type: none"> - Overall drone weight will be decided - Payload weight known 	<ul style="list-style-type: none"> - Weight limits will be known
2	Selecting cross section for drone arm based on thrust requirement	<ul style="list-style-type: none"> - FEA analysis will be conducted to check the viability of market available CF extrusion 	<ul style="list-style-type: none"> - Optimum arm length will be decided - Span circle of the entire drone is known (motor shaft to motor shaft)
3	Selection of optimum propeller	<ul style="list-style-type: none"> - Once the span circle is known, propeller diameter can be determined 	<ul style="list-style-type: none"> - Suitable propellers in the market can be identified
4	Design retractable landing gear assembly	<ul style="list-style-type: none"> - Single retractable landing gear will be designed and prototyped for testing 	<ul style="list-style-type: none"> - Landing gear design is fixed
5	Design payload and functional components mountings (essentially the center part of the drone)	<ul style="list-style-type: none"> - Payload and other functional components(except motor and propellers) need to purchased by this point 	<ul style="list-style-type: none"> - Center component housing design will be ready
6	Design dust cover for the drone	<ul style="list-style-type: none"> - Centre part of the drone will be sealed according to IP65 	<ul style="list-style-type: none"> - Testing of the protection without payloads
7	Design for 3D printing	<ul style="list-style-type: none"> - Design changes are required to make the model 3D printable 	<ul style="list-style-type: none"> - Model ready for 3D printing
8	3D print the design		

DELIVERABLES

1. 3D printed 1/5th scale model of the hexa multirotor drone

DELIVERABLES – DOCUMENTATION

1. Design CAD files in .stp format
2. Technical drawings in .pdf format
3. Design report in .pdf format

LOOKING FORWARD TO WORK WITH YOU