GROUND CONTROL USER MANUAL

Welcome to Ground Control, A program for Generating and manipulating survey paths to create photographic aerial maps. This user manual will explain the functions and display elements of the program.

FUNCTIONS

Ground Control has 2 main functions, manually drawing and/or generating flight paths

- To manually draw a flight path, switch to the flight path tab in the input window (top left of screen), and press the begin path button. This will switch the program into flight path drawing mode. Points can then be added to the path in two ways, they can be placed on to the map using the mouse or the coordinates can be entered into the latitude longitude input boxes. Pressing the End path button will then add a red marker on the final point to signify the end and returns the program into idle mode.
- To generate a survey polygon, switch to the survey polygon tab in the input window and click the begin poly button. This will switch into polygon drawing mode. Points in the polygon can be generated in the same way as a flight path. When the polygon is completed, press the end poly button, this will save the polygon and will begin generated the flight path. Based on the parameters in the numerical selectors a path will then be generated with straight segments at the assigned spacing and angle, and these segments are filled with points at the assigned point spacing. once the path is generated, changing the parameters will adjust the flight path in real time. The flight path generated from this function can be used to aerially map the given survey area.

The only other functions are export to text file and the "new"

- The export to text file function can be accessed through the File tab at the top left corner of the screen. this will export the flight path to a .txt with the following tab delimited formatting:

  [QGC WPL <VERSION>] - 1st line

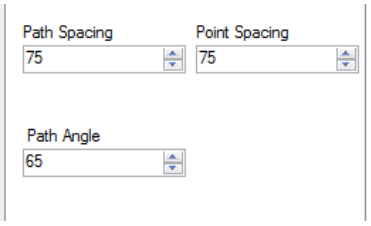
  [<INDEX> <CURRENT WP> <COORD FRAME> <COMMAND> <PARAM1> <PARAM2> <PARAM3> <PARAM4> <PARAM5/X/LONGITUDE> <PARAM6/Y/LATITUDE> <PARAM7/Z/ALTITUDE> <AUTOCONTINUE>] - one line per waypoint

  This format is suitable for use with "Mission Planner" the open source software that uses a USB telemetry radio to communicate with various types of Unmanned Vehicles (aerial, ground, water based).

- The "new" button is accessed from the same File drop down menu as export to text, and activates a simple function that will clear all existing points , paths, polygon, markers, and lists,

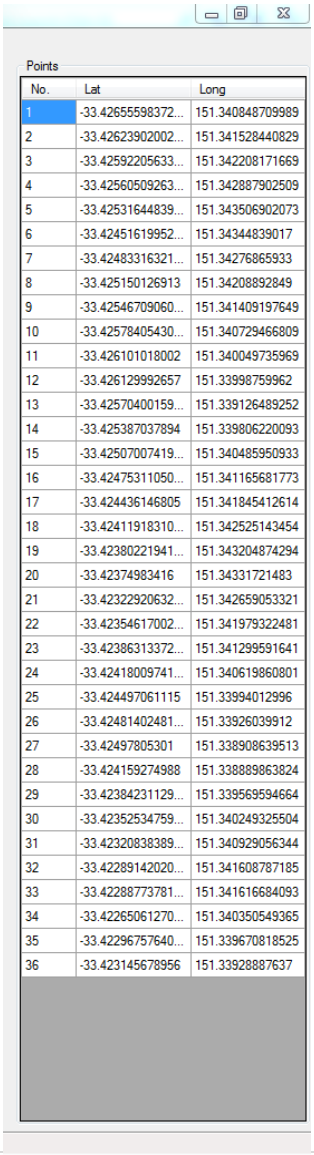
DISPLAY

There are 3 areas that display information in Ground Control



- On the left side of the screen the only information displayed is the parameters for generation of the flight paths
- In the center of the screen the interactive map displays satellite imagery and any points, paths or polygons that have been placed on the map.

- On the right side there is a table that displays all of the points in the flight path that is currently on screen, the first column is the point index(1 to number of points) the second column is Latitude and the third is Longditude.



Points

No.	Lat	Long
1	-33.42655598372...	151.340848709989
2	-33.42623902002...	151.341528440829
3	-33.42592205633...	151.342208171669
4	-33.42560509263...	151.342887902509
5	-33.42531644839...	151.343506902073
6	-33.42451619952...	151.34344839017
7	-33.42483316321...	151.34276865933
8	-33.425150126913	151.34208892849
9	-33.42546709060...	151.341409197649
10	-33.42578405430...	151.340729466809
11	-33.426101018002	151.340049735969
12	-33.426129992657	151.33998759962
13	-33.42570400159...	151.339126489252
14	-33.425387037894	151.339806220093
15	-33.42507007419...	151.340485950933
16	-33.42475311050...	151.341165681773
17	-33.424436146805	151.341845412614
18	-33.42411918310...	151.342525143454
19	-33.42380221941...	151.343204874294
20	-33.42374983416	151.34331721483
21	-33.42322920632...	151.342659053321
22	-33.42354617002...	151.341979322481
23	-33.42386313372...	151.341299591641
24	-33.42418009741...	151.340619860801
25	-33.424497061115	151.33994012996
26	-33.42481402481...	151.33926039912
27	-33.42497805301	151.338908639513
28	-33.424159274988	151.338889863824
29	-33.42384231129...	151.339569594664
30	-33.42352534759...	151.340249325504
31	-33.42320838389...	151.340929056344
32	-33.42289142020...	151.341608787185
33	-33.42288773781...	151.341616684093
34	-33.42265061270...	151.340350549365
35	-33.42296757640...	151.339670818525
36	-33.423145678956	151.33928887637