Welcome to Our presenta tion

Stop Deforestation and Forest Monitoring

Using Drone

Modern Mapping Platforms



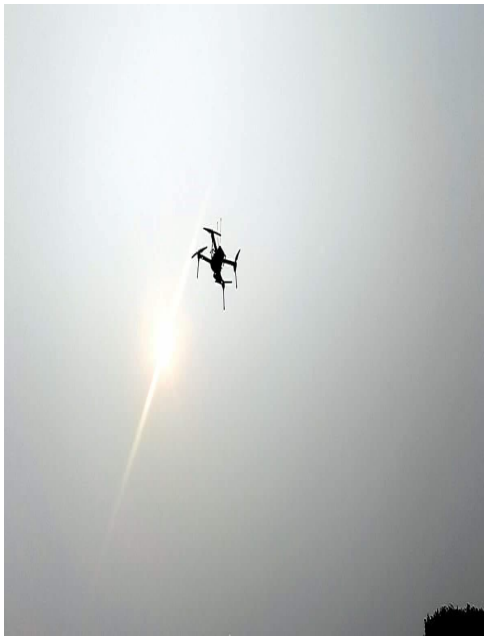
WHY DRONE MAPPING FOR DEVELOPING NATIONS FOREST AREA MAPPING



$800 million dollars , Cost of forest monitoring satellite



Climate change effects for remote sensing . (Incise Carbon Dioxide Layer)

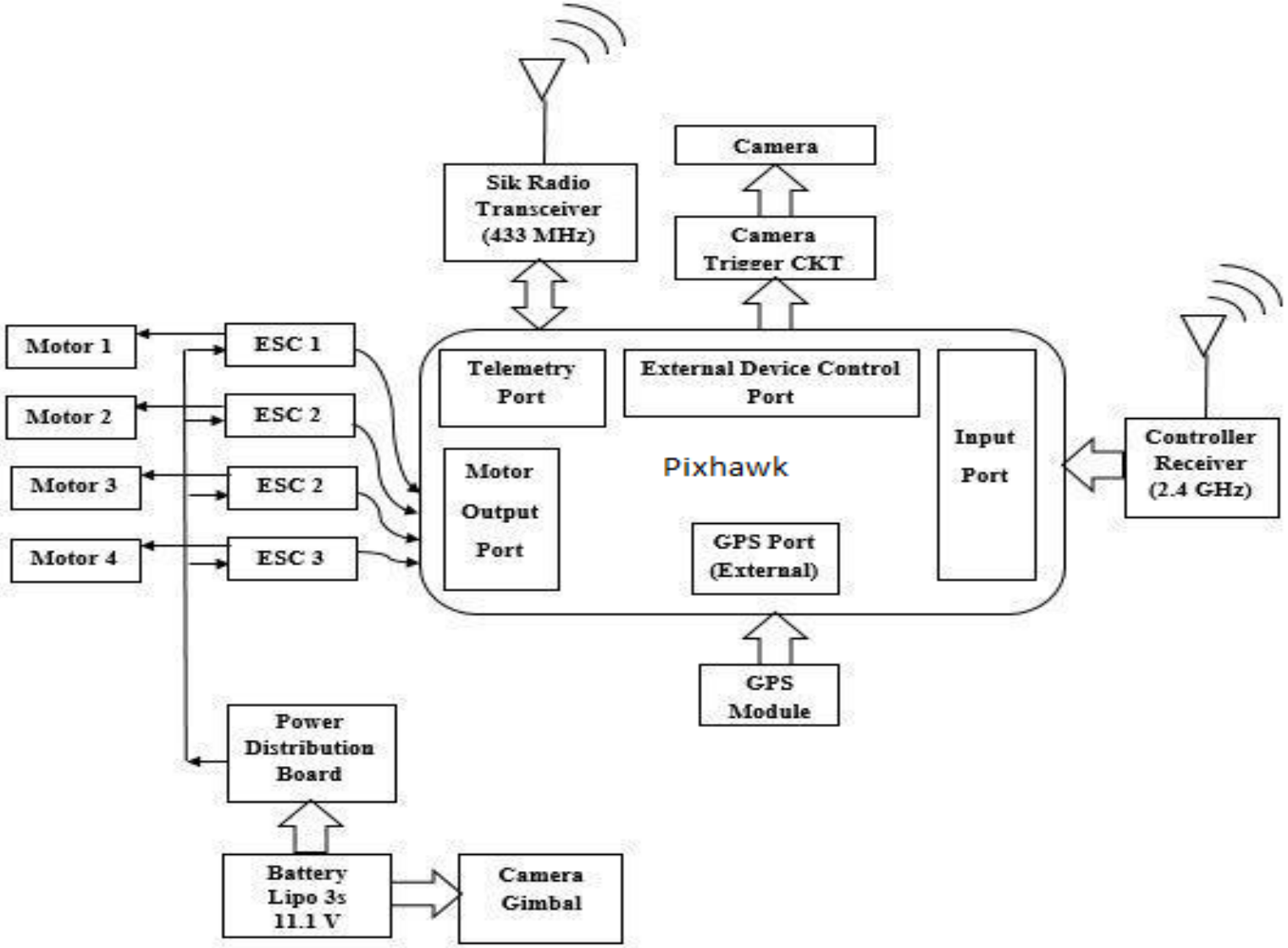


Low Cost and Quality Full mapping

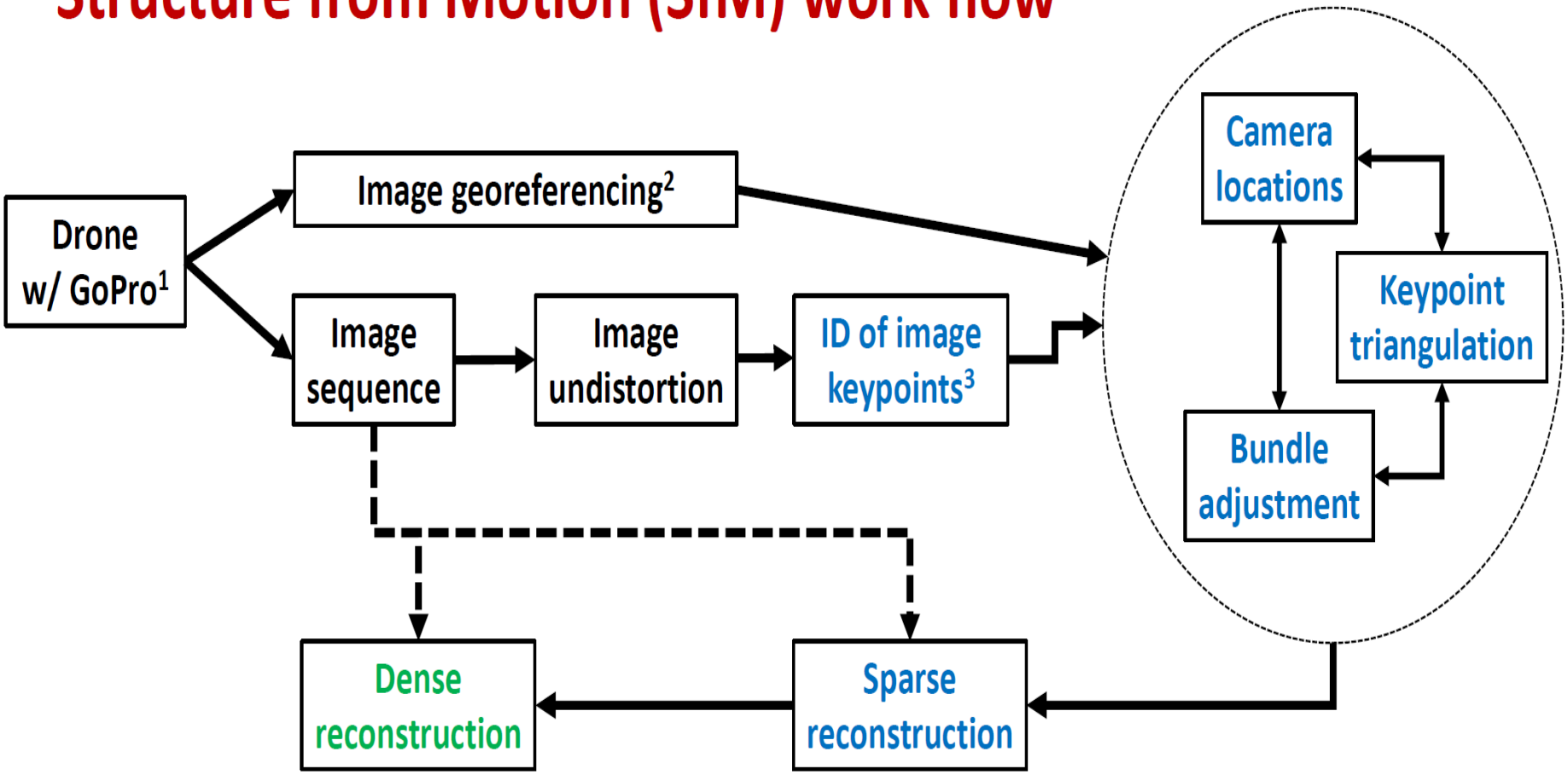
Lower Cost And Quality

	Satellite-1 Landsat 8	Satellite-2 RapidEye	Satellite-3 GeoEye-1	Drone
Area	1 sq.Km	1 sq.Km	1 sq.Km	1 sq.Km
Resolution	30m	5m	50cm	3.63cm
Cost	0.80(USD)	1.28(USD)	23(USD)	0.20(USD)

Connection Diagram



Structure from Motion (SfM) work flow



[1] Determine optimal drone speed, elevation, trajectory

[2] Using onboard GPS

[3] Based on user-specified parameter values

Computed using VSFM. Wu C. 2013. Towards linear-time incremental structure from motion. In Proc 2013 IEEE International Conference on 3D Vision-3DV, pp 127–134.

Computed using PMVS. Furukawa, Y. 2010. Accurate, dense, and robust Multiview stereopsis. IEEE transactions on pattern analysis and machine intelligence, 32(8):1362-1376.

Our Small Lab For Drone Making



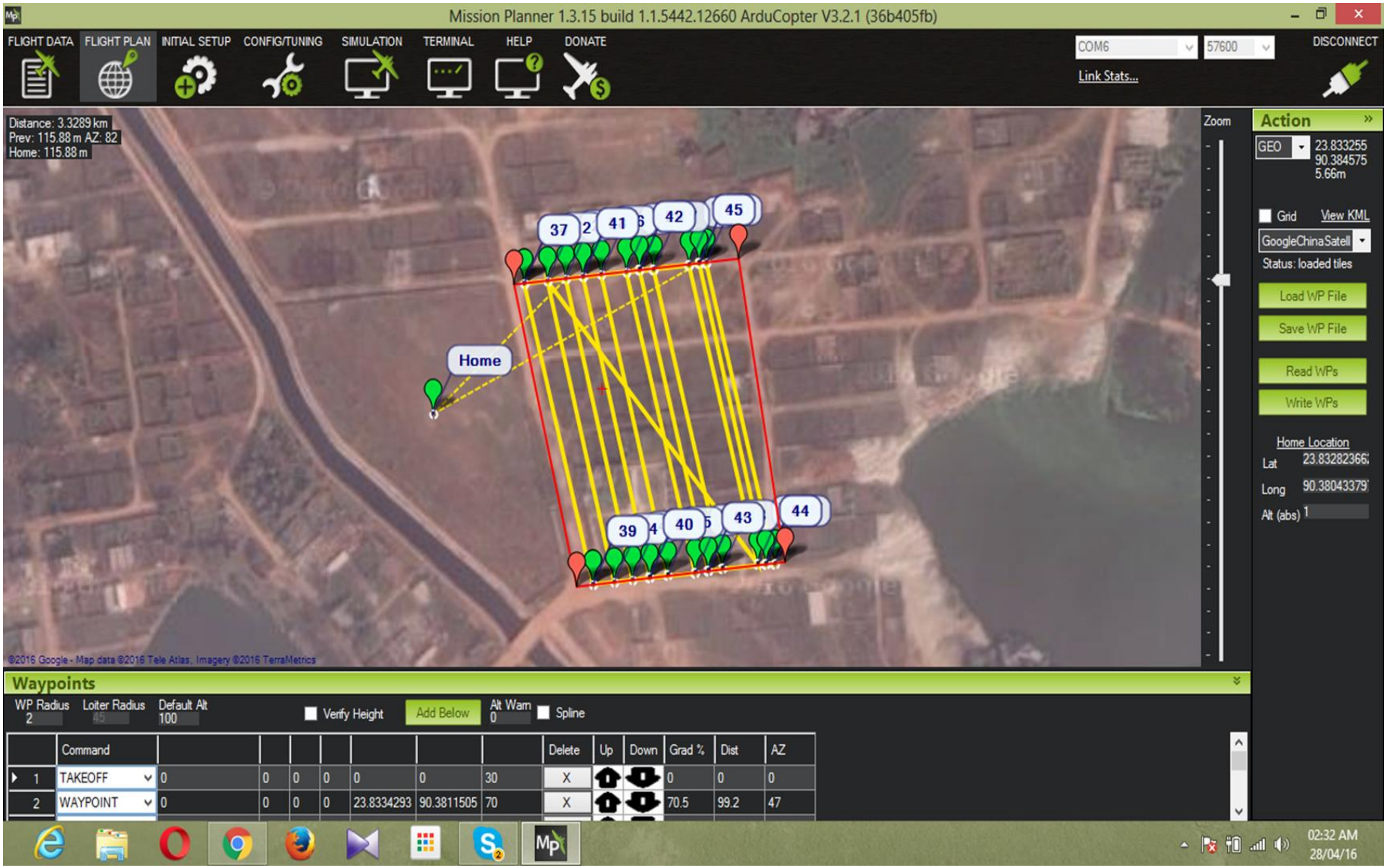
Our Drone And Its Ability



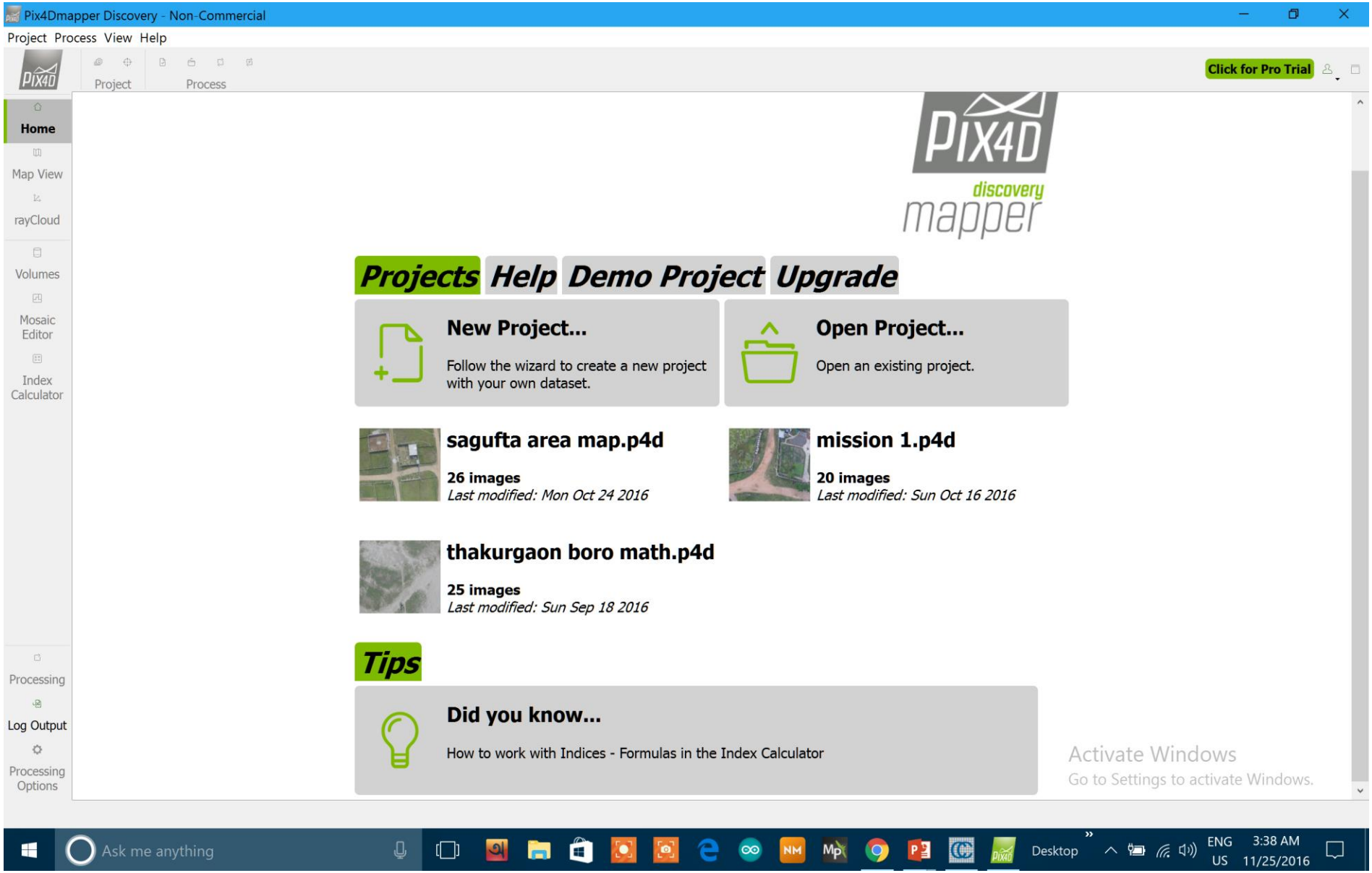
Drone Types	Multirotor (QUAD)
Flying Speed MAX	20m/s
Drone Weight	1500gm
Drone Flying Time	15 Minuets
Mapping Coverages Area Maximum	4 Square Kilometers
Camera	Gopro Hero 4
Battery	3S , 4200mAh , 20C
Maximum Altitude	150M

SOFTWARE

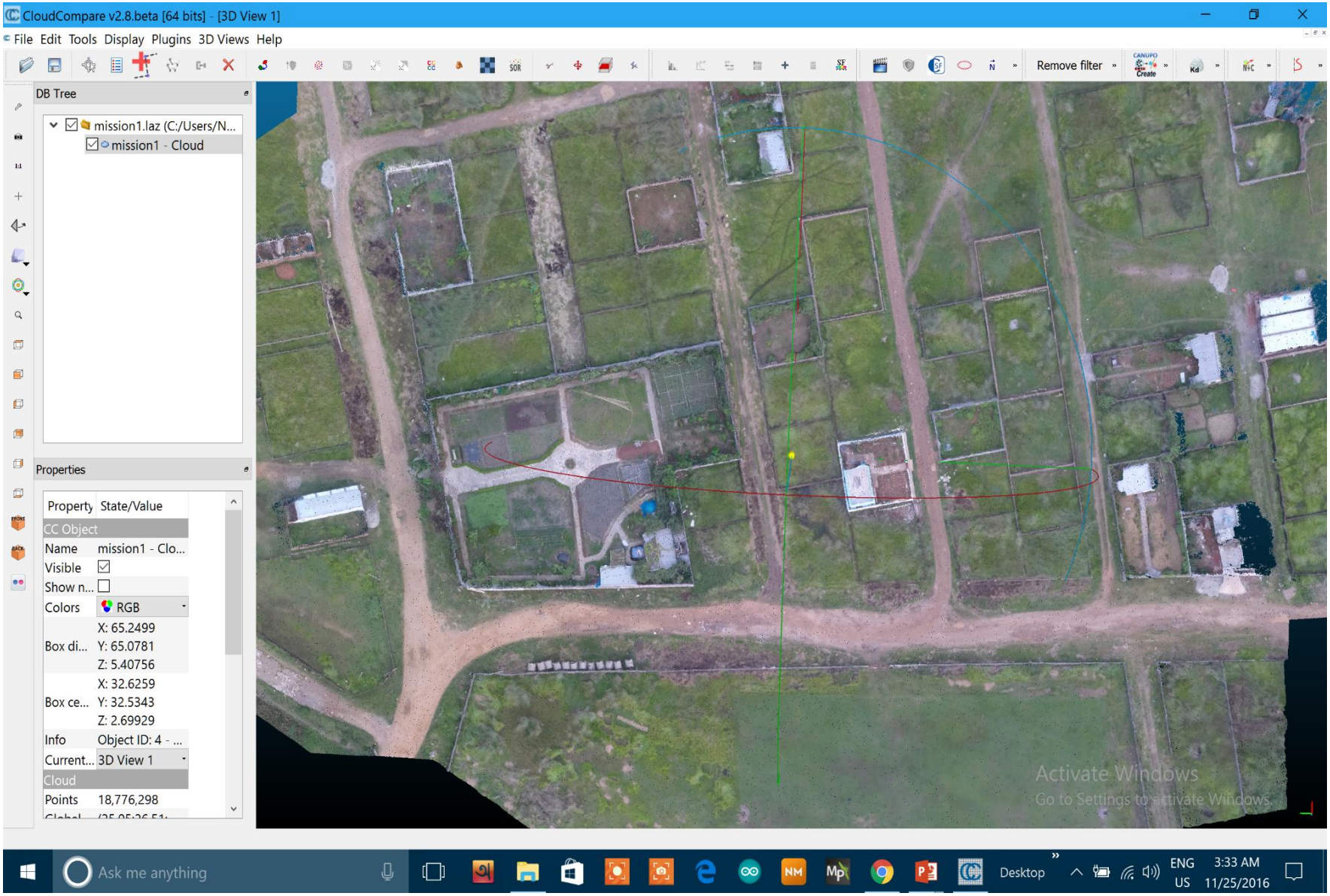
Mission Planner



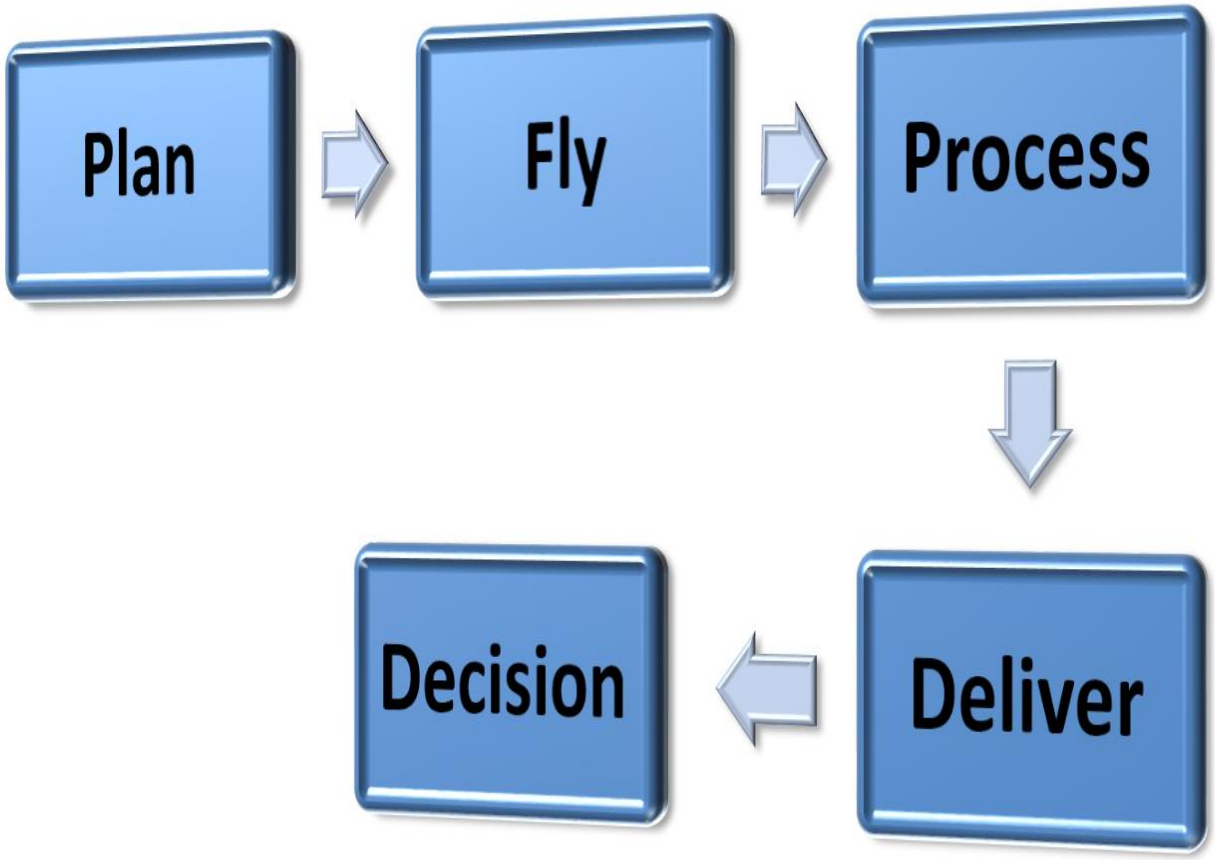
Pix4Dmapper



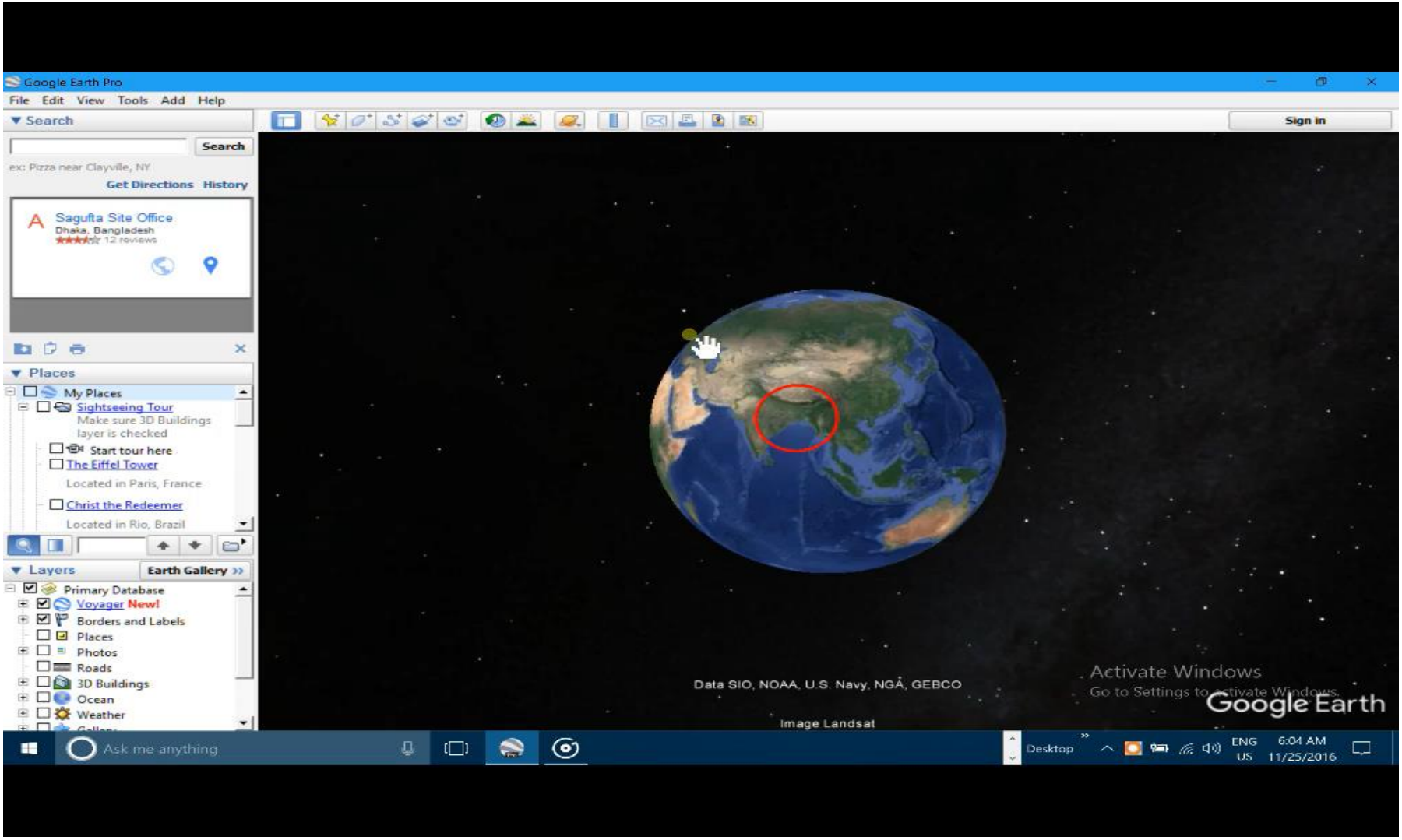
Cloud Compare



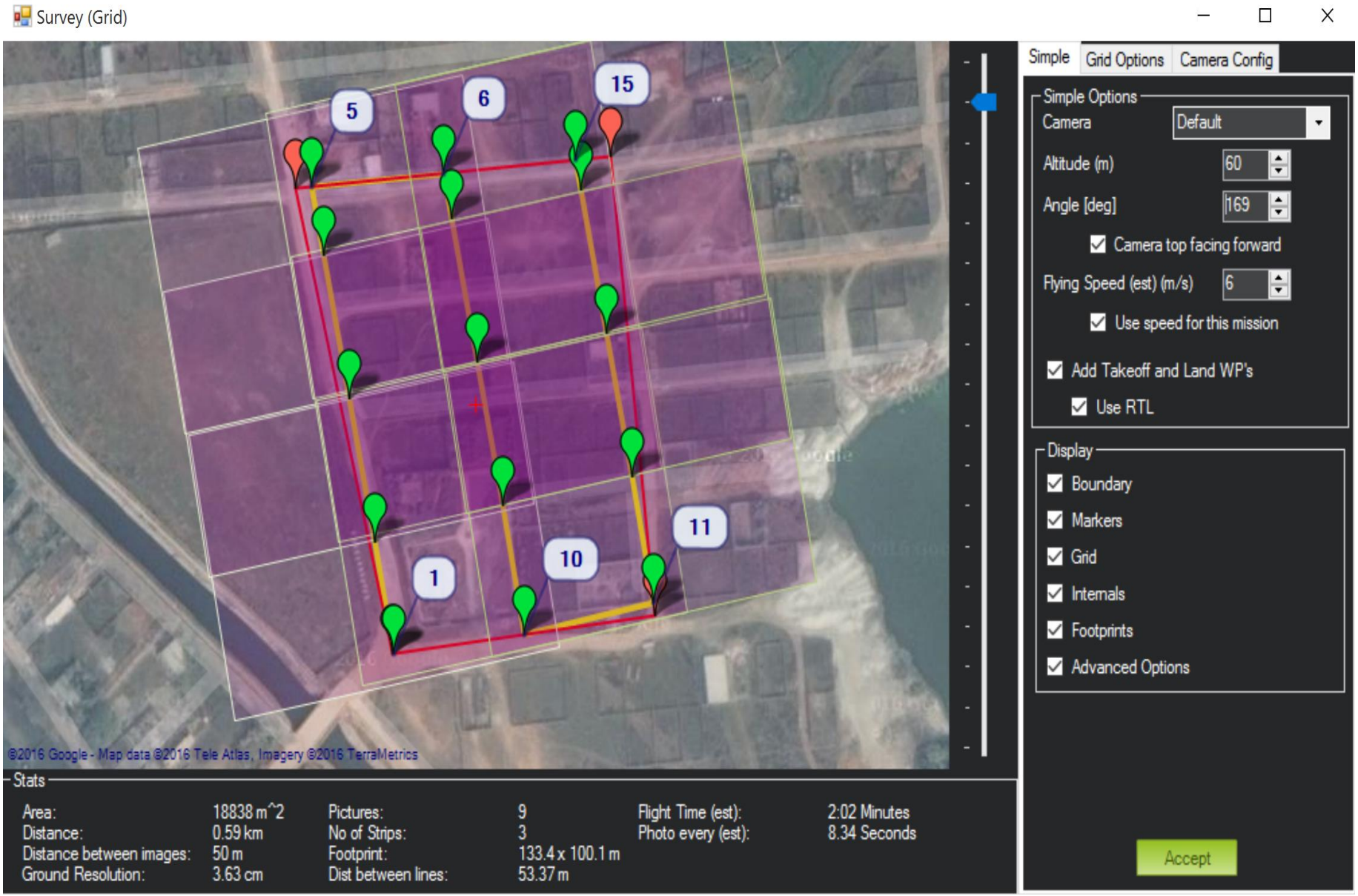
WORKING PROCEDURE


Plan
Fly
Process
Deliver
Decision

Project Mapping Area (Sagufta Mirpur 12, Dhaka , Bangladesh)



Mission Preparation

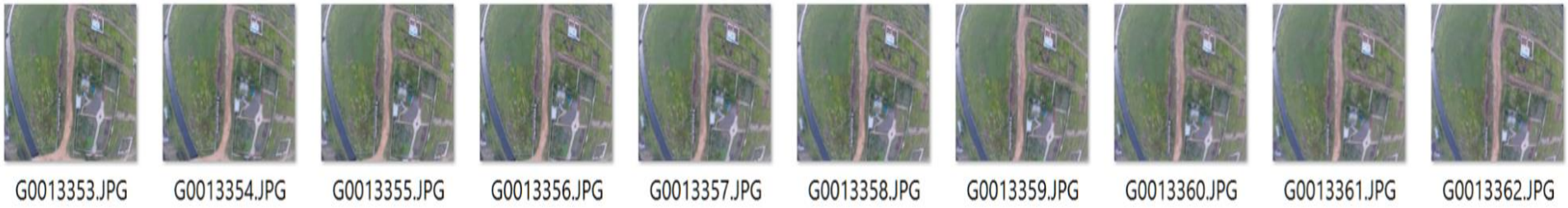


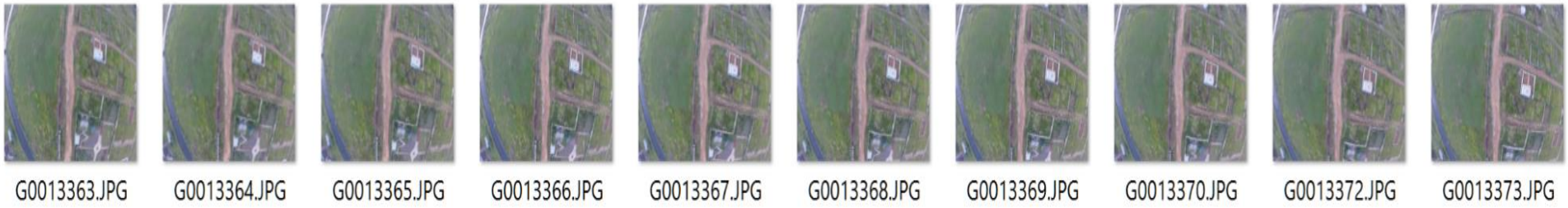
Output Value of Mission Planner	
The area of the mission path	18838 m^2
Distance	0.59 km
Distance between images	50 m
Ground Resolution	3.63cm
Pictures	9
Number of strips	3
Footprint	133.4x100.1 m
Distance between lines	53.37 m
Flight time	2.02m Minutes
Photo every (est)	8.34 seconds

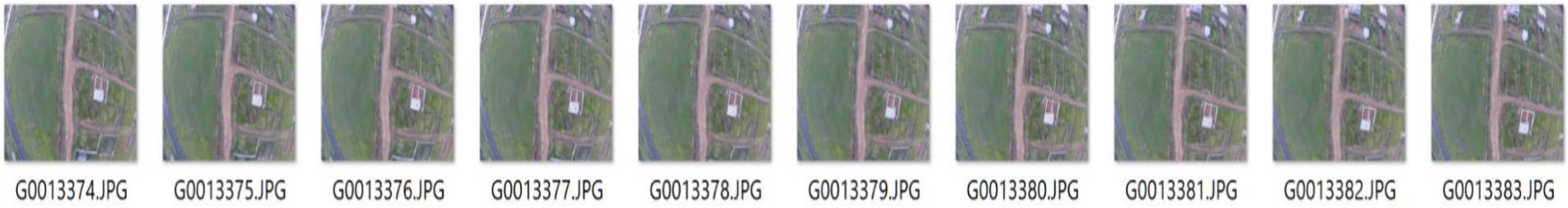
FLYING DRONE

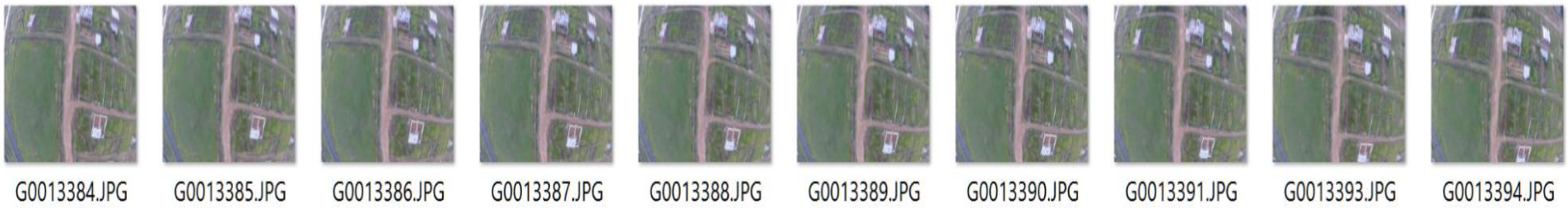


Collect Image From Drone Camera


G0013353.JPG G0013354.JPG G0013355.JPG G0013356.JPG G0013357.JPG G0013358.JPG G0013359.JPG G0013360.JPG G0013361.JPG G0013362.JPG


G0013363.JPG G0013364.JPG G0013365.JPG G0013366.JPG G0013367.JPG G0013368.JPG G0013369.JPG G0013370.JPG G0013372.JPG G0013373.JPG

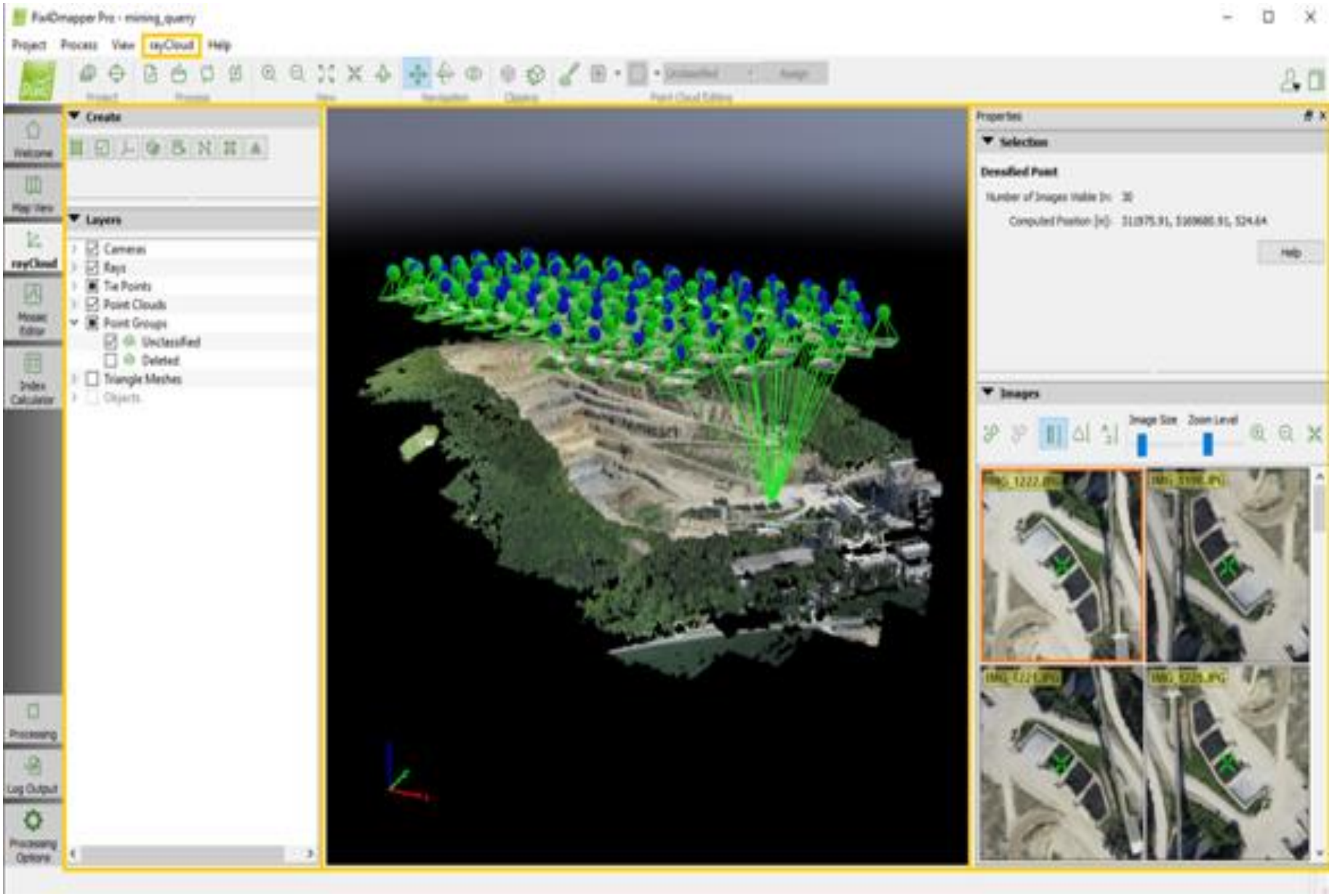

G0013374.JPG G0013375.JPG G0013376.JPG G0013377.JPG G0013378.JPG G0013379.JPG G0013380.JPG G0013381.JPG G0013382.JPG G0013383.JPG


G0013384.JPG G0013385.JPG G0013386.JPG G0013387.JPG G0013388.JPG G0013389.JPG G0013390.JPG G0013391.JPG G0013393.JPG G0013394.JPG

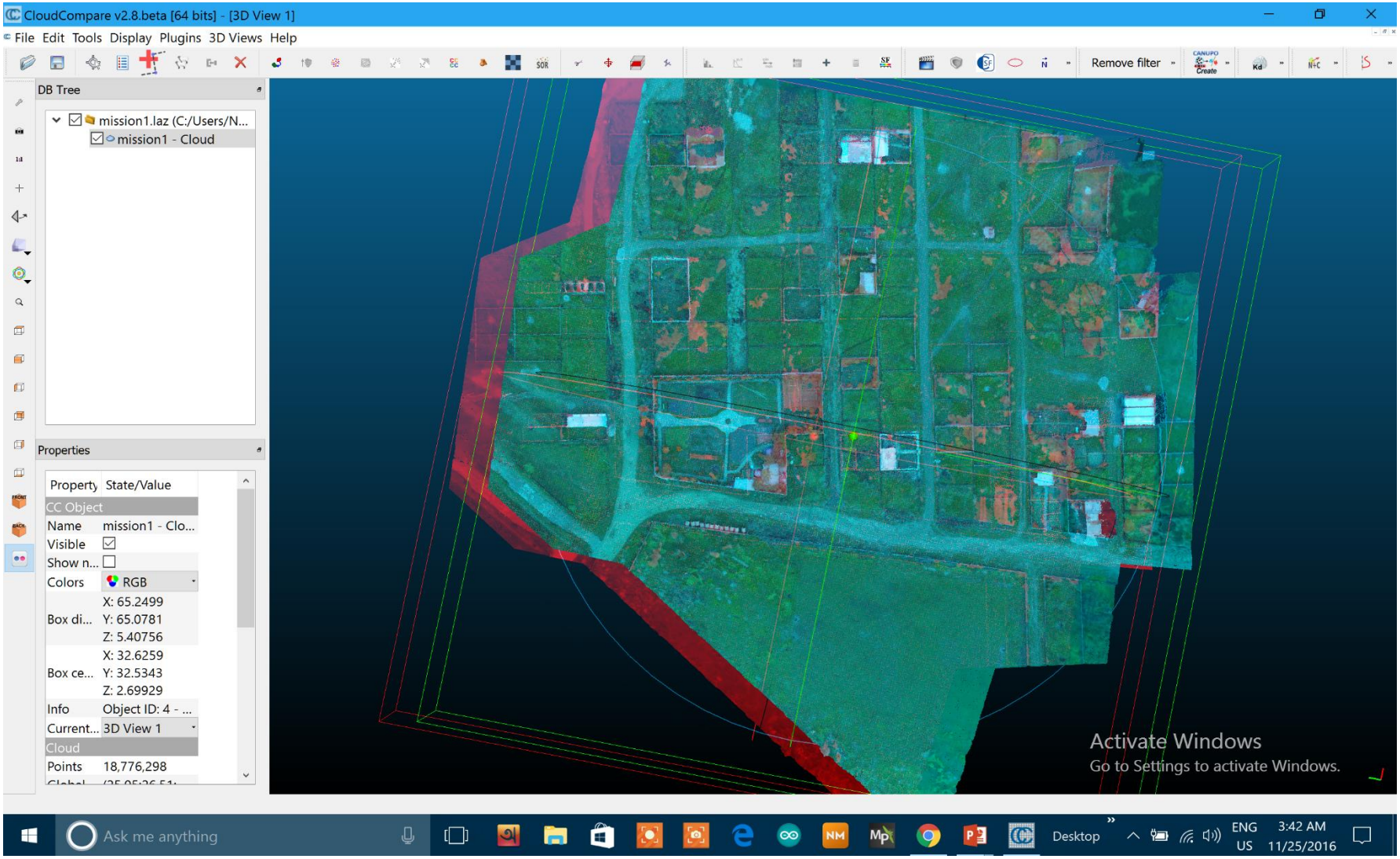
Collect GPS DATA LOG From Flight Controller

0	1	0	16	0	0	0	0	26.030315	88.466666	100.000000	1
1	0	3	22	0.000000		0.000000		0.000000	0.000000	0.000000	0.000000	30.000000	1
2	0	3	178	0.000000		5.000000		0.000000	0.000000	0.000000	0.000000	0.000000	1
3	0	3	16	0.000000		0.000000		0.000000	0.000000	26.030996	88.467109	50.000000	1
4	0	3	206	41.696751		0.000000		0.000000	0.000000	0.000000	0.000000	0.000000	1
5	0	3	16	0.000000		0.000000		0.000000	0.000000	26.031177	88.465738	50.000000	1
6	0	3	16	0.000000		0.000000		0.000000	0.000000	26.030787	88.465620	50.000000	1
7	0	3	16	0.000000		0.000000		0.000000	0.000000	26.030507	88.467745	50.000000	1
8	0	3	16	0.000000		0.000000		0.000000	0.000000	26.030112	88.467659	50.000000	1
9	0	3	16	0.000000		0.000000		0.000000	0.000000	26.030396	88.465502	50.000000	1
10	0	3	16	0.000000		0.000000		0.000000	0.000000	26.030006	88.465384	50.000000	1
11	0	3	16	0.000000		0.000000		0.000000	0.000000	26.029718	88.467572	50.000000	1
12	0	3	206	0.000000		0.000000		0.000000	0.000000	0.000000	0.000000	0.000000	1
13	0	3	20	0.000000		0.000000		0.000000	0.000000	0.000000	0.000000	0.000000	1
14	0	3	22	0.000000		0.000000		0.000000	0.000000	0.000000	0.000000	30.000000	1
15	0	3	178	0.000000		5.000000		0.000000	0.000000	0.000000	0.000000	0.000000	1
16	0	3	16	0.000000		0.000000		0.000000	0.000000	26.030281	88.467683	60.000000	1
17	0	3	206	50.036098		0.000000		0.000000	0.000000	0.000000	0.000000	0.000000	1
18	0	3	16	0.000000		0.000000		0.000000	0.000000	26.030459	88.465559	60.000000	1
19	0	3	16	0.000000		0.000000		0.000000	0.000000	26.029986	88.465436	60.000000	1
20	0	3	16	0.000000		0.000000		0.000000	0.000000	26.029807	88.467568	60.000000	1
21	0	3	16	0.000000		0.000000		0.000000	0.000000	26.030756	88.467798	60.000000	1
22	0	3	16	0.000000		0.000000		0.000000	0.000000	26.030933	88.465682	60.000000	1
23	0	3	206	0.000000		0.000000		0.000000	0.000000	0.000000	0.000000	0.000000	1
24	0	3	20	0.000000		0.000000		0.000000	0.000000	0.000000	0.000000	0.000000	1

Pix4Dmapper (Paid Software)



Cloud Compare (Open source)



GEO- Referencing Prove At Google Earth



Before 6 Months



After 6 months , again we collected image at the same place.



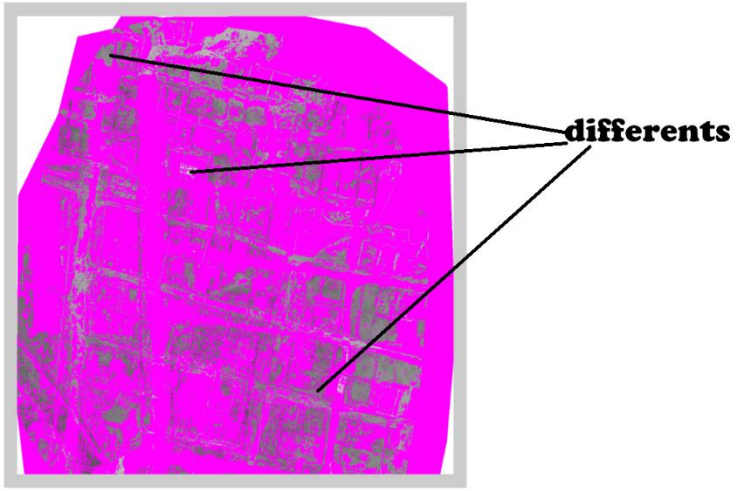
Primary Image Compare Result



Compare two images?

Drop two images on the boxes to the left. The box below will show a generated 'diff' image, pink areas show mismatch. This example best works with two very similar but slightly different images. Try for yourself!

Don't have any images to compare? Use example images



Ignore nothing | Ignore less | Ignore colors | Ignore antialiasing

Use original size | Scale to same size

Pink | Yellow

Flat | Movement | Flat with diff intensity | Movement with diff intensity

Slide Compare



Area Selection For 3D Data Analysis



3D Video DATA





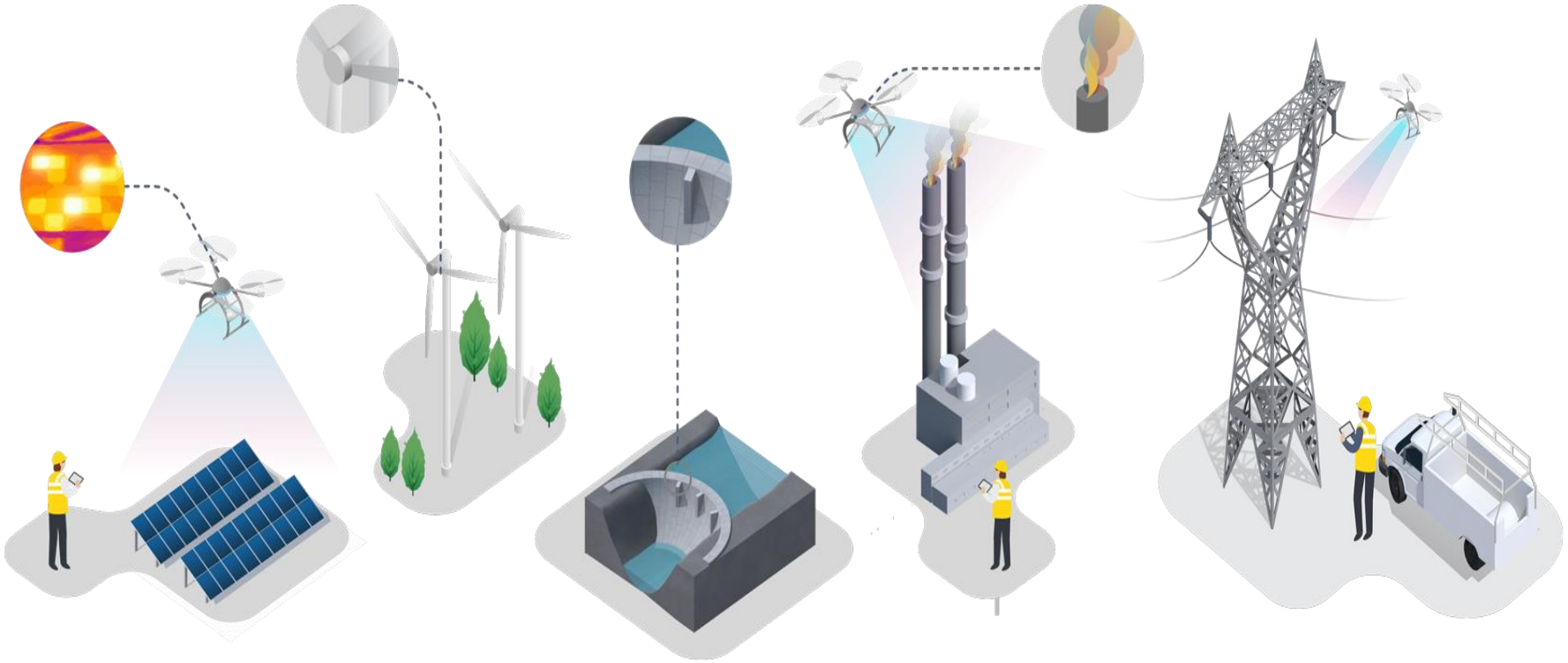
Our Project

Should BE



Monitoring Our Forest Area

We can also apply this project for Solar Plant monitoring , Power Plants Monitoring And High Voltage Power Line Monitoring



Our Project coordinators :



Demetrios Gatziolis .Phd

Research Forester

Portland , Oregon

United States Of America



Mr. Md. Dara Abdus Satter

Assistant Professor & Associate Head

Department of Electrical and Electronic Engineering

Daffodil International University