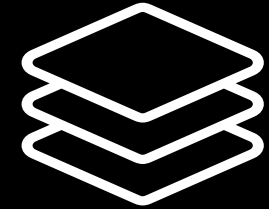
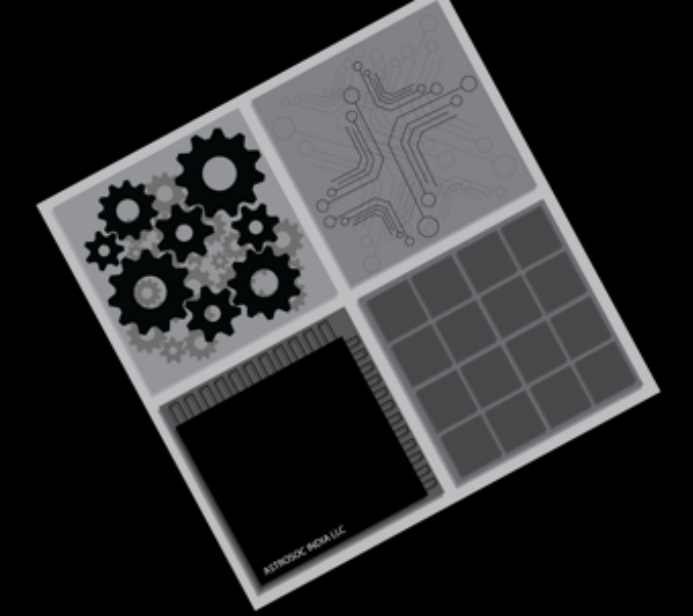


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All Aluminium Airframe

Airframe made with 6063 grade aluminium beams for maximum rigidity and frame lifetime. Multilayer.



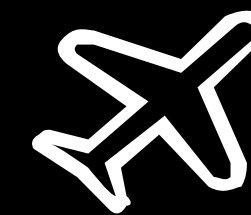
Advanced Power Management Systems

Advanced Lithium based Battery and BMS for best in class flight time performance



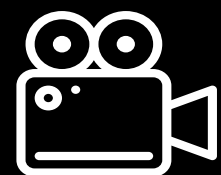
Reliable Radio Systems

Reliable and Lossless Radio systems along with live telemetry to ground station for maximum



Fully Autonomous Flight Planning

Advanced configurations for Autonomous Flights and Navigation and many more add on flight modes for seamless operations.



Surveillance and Data Assimilation

Advanced Surveillance Capability with Data Assimilation to support a multitude of operations using thermal imaging and HD imaging combined.

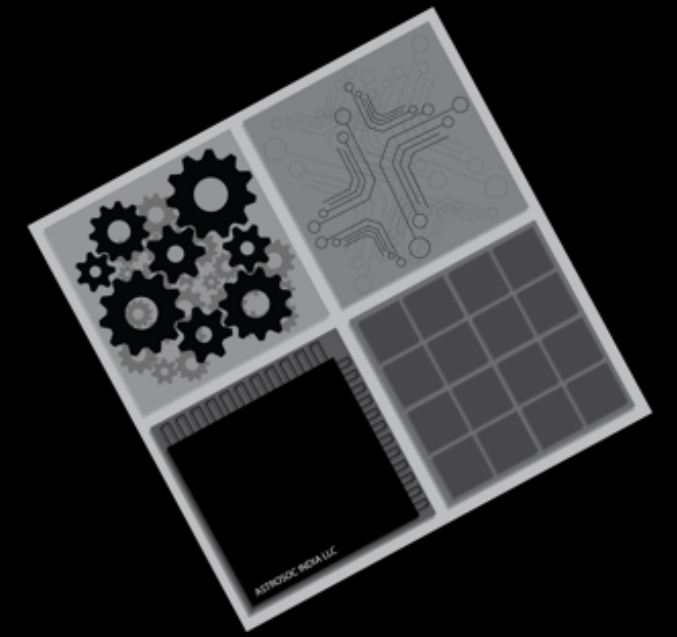


Advanced Computing and GUI

Configured with multiple processors such as primary and assist processors to maintain stability and support many applications. Easy to use UI integration for ease of operation

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Technical Specifications

Flight Processor:

Main FMU Processor:

STM32F765

32 Bit Arm® Cortex®-M7,
216MHz, 2MB memory, 512KB
RAM

IO Processor: STM32F100
32 Bit Arm® Cortex®-M3,
24MHz, 8KB SRAM

On-board sensors:

Accel/Gyro: ICM-20689

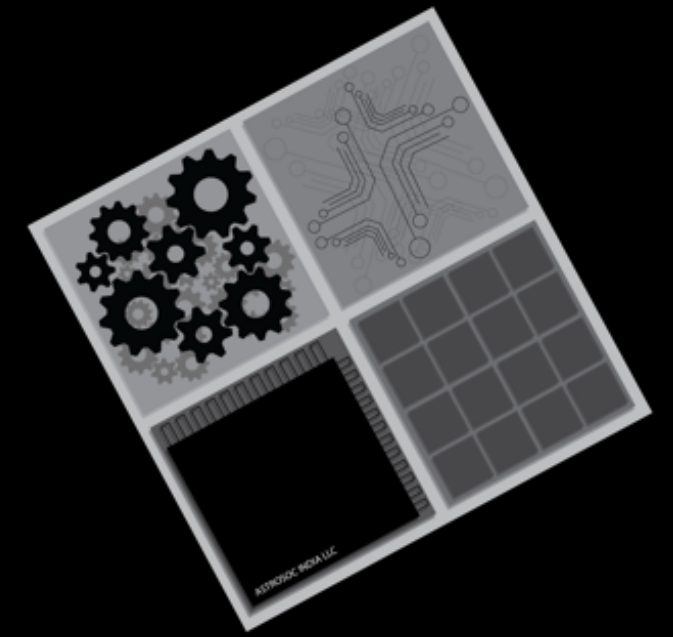
Accel/Gyro: BMI055

Magnetometer: IST8310

Barometer: MS5611

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Technical Specifications

GPS Module:

ublox Neo-M8N GPS/GLONASS receiver; integrated magnetometer IST8310

Interfaces:

8-16 PWM outputs (8 from IO, 8 from FMU)

3 dedicated PWM/Capture inputs on FMU

**Dedicated R/C input for CPM
Dedicated R/C input for Spektrum / DSM and S.Bus with analog / PWM RSSI input**

**Dedicated S.Bus servo output
5 general purpose serial ports**

3 I2C ports

4 SPI buses

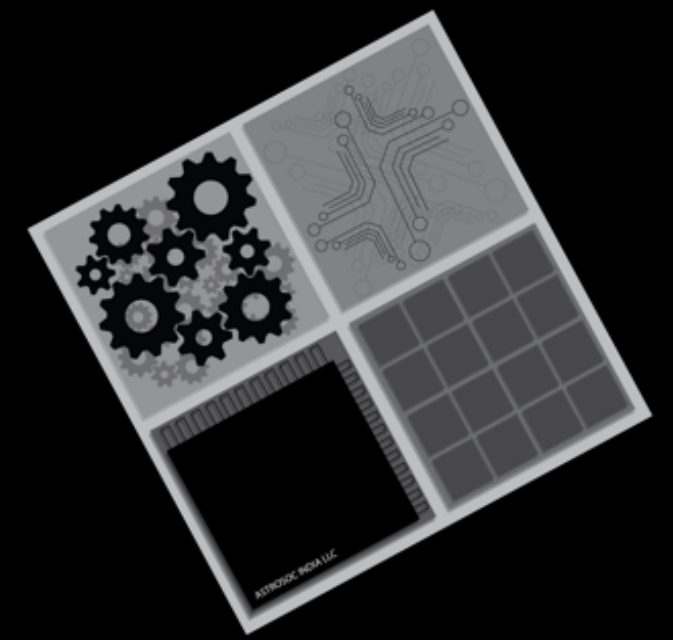
Up to 2 CANBuses for dual CAN with serial ESC

Analog inputs for voltage / current of 2 batteries



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Technical Specifications Motors

**ASCASD developed 390 Kv 3609
bloc motors Motors Waterproof
and dust proof**

Support lithium section number: 6S

Propeller installation diameter:

10MM/12MM/34MM

Propeller: 17-19 inch

Stator diameter: 38MM

No load current: 20V 0.53a

Stator thickness: 8.0

Stator number: 18N

Motor pole number: 24P

Speed: 330KV \pm 5%

Motor external diameter: 44.5MM

Axis diameter: 4MM

Motor height: 22MM

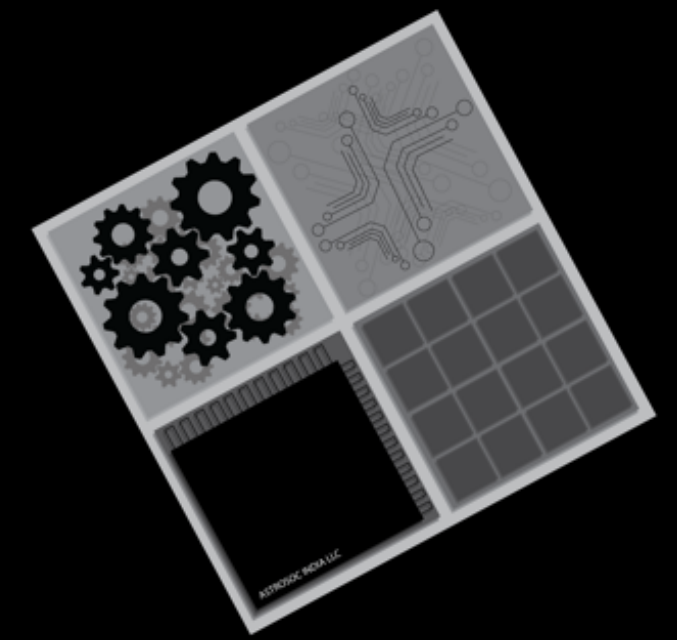
Maximum continuous current: 20A

Maximum continuous power: 497W

**Motor weight: 90g (including the
propeller seat)**

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Surveillance and Data Assimilation UAS



Technical Specifications

Battery and Power Distribution.

Advanced Li-ion/ Li-poly Battery

6S Configuration.

6000 Mah, 75C

Advanced Battery Management Cycle.

Discharge and Short Circuit Protection Circuit .

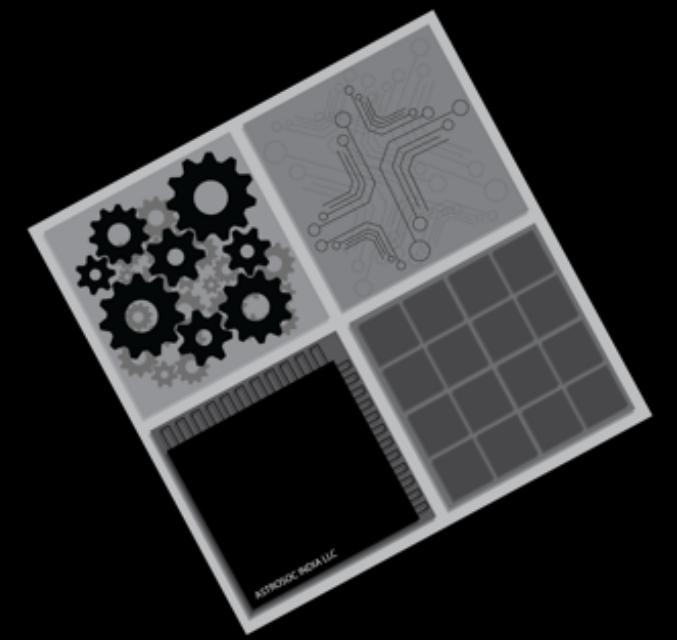
Advanced Power Distribution Board for powering primary and secondary components.

Rapid Electronic speed controllers for precise motor inputs and corrections and flight dynamics.



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Surveillance and Data Assimilation UAS



Technical Specifications

Design and Frame

Designed using 6036 Industrial Grade Duralumin for sturdy and durable frame

All CNC precision manufactured frame for long life cycle.

Sturdy X Design Frame for Impact resistant Flight

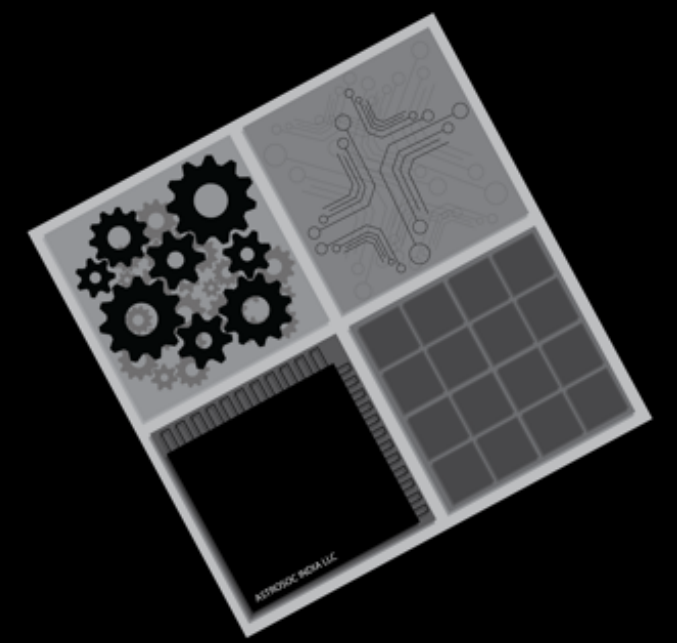
Waterproofing and temperature controlled chambers for housing components. —-Patent Pending.

Easily Servicable both frame and all components with easy replacement and upgrade options.



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Ground Control and Applications:

Stock Ground Control for User configuration.

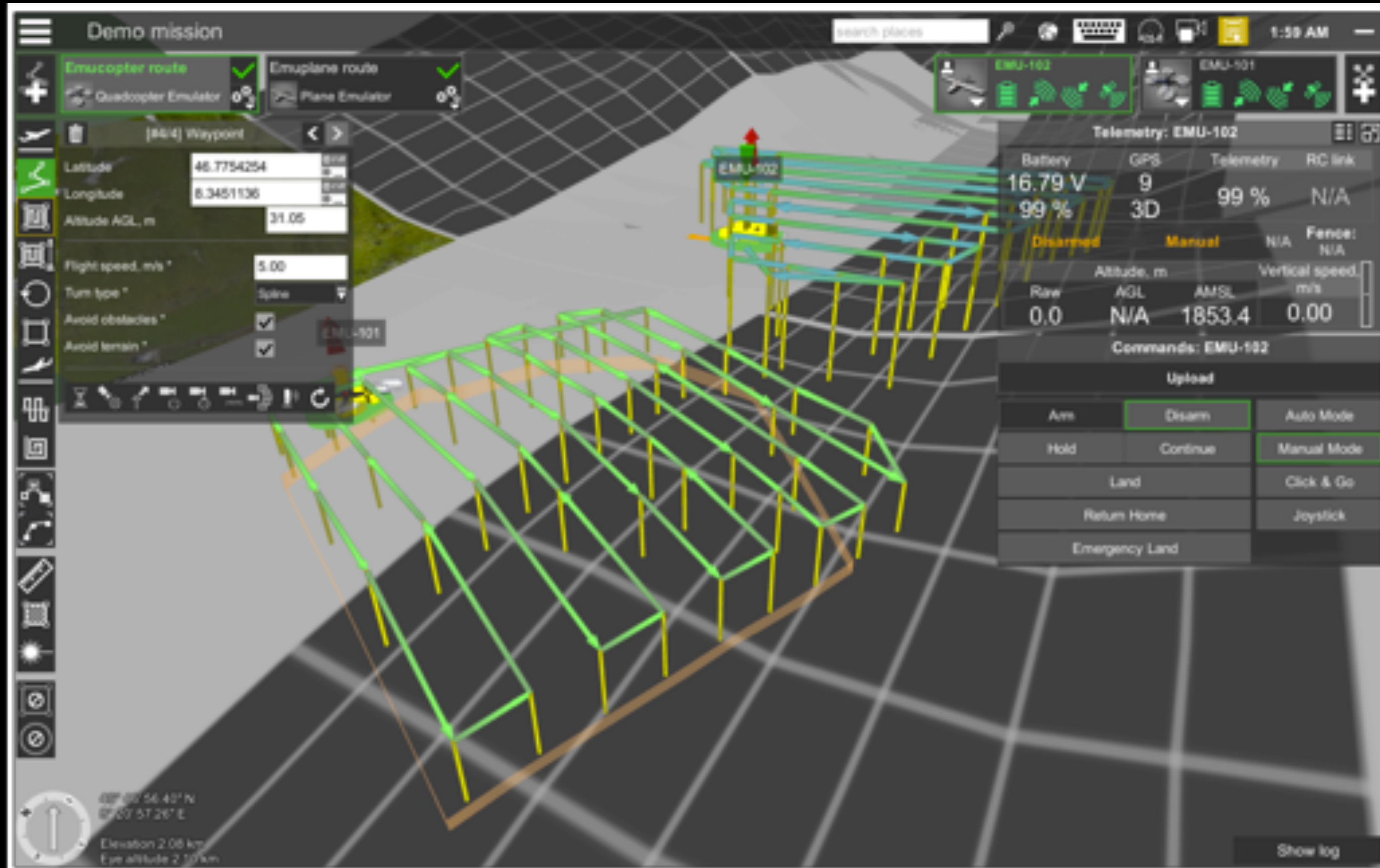
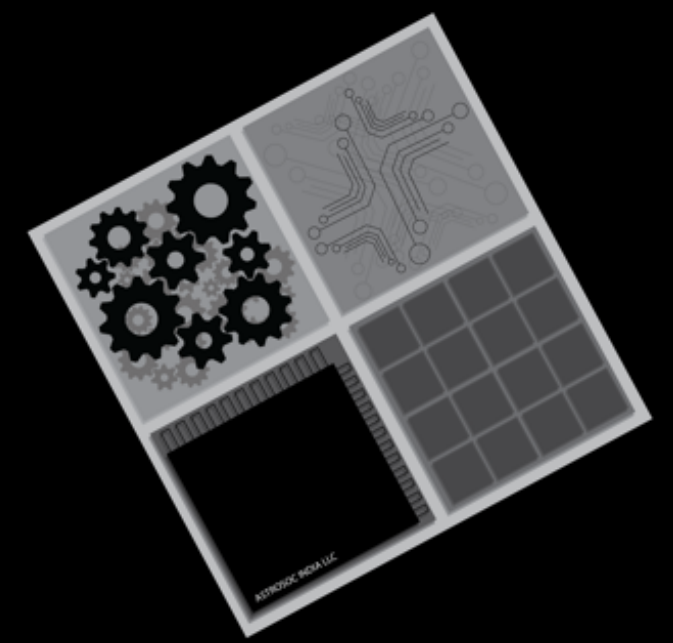
Easy to uses UI for configuring multiple flight settings.

Conduct Surveys and Custom flight plans like waypoints, survey, loiter, follow object and much more

Drone Data management for Agricultural and Construction Sector.

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Ground Control and Applications:

Advanced Surveys

Orthomology

Photogrammetry

Contour Surveys

Crop Yield Cycle

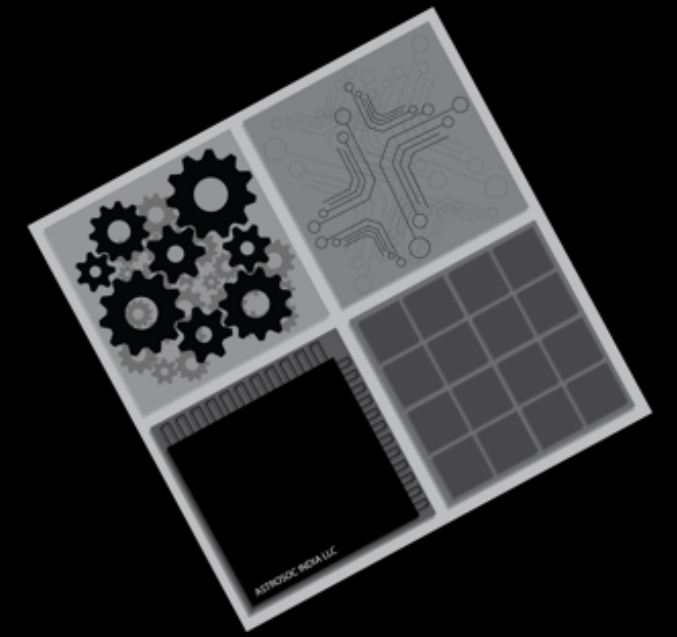
Agricultural Development

Area Scans and Surveys

Design Models for Planning

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Ground Control and Applications:

Software Support and updates.

Available for Android , IOS and multiple operating systems.

Camera Stabilisation Software

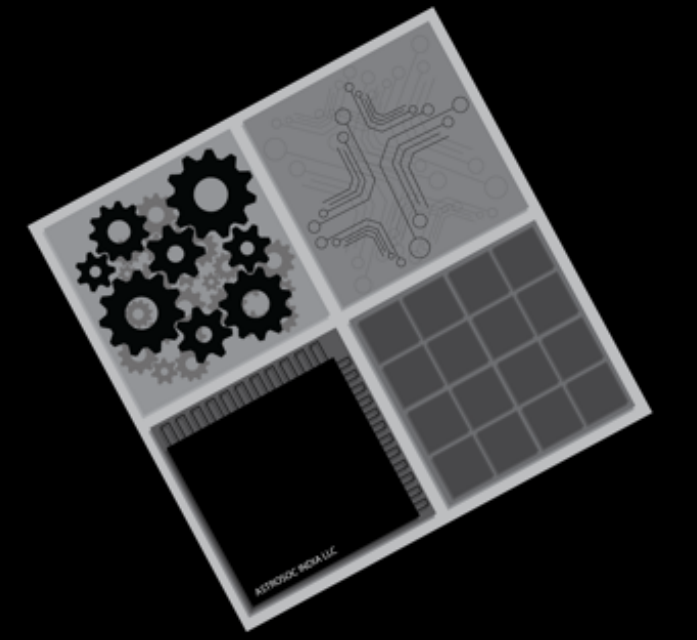
Can be used to Ariel Photography and multiple types of photo and videography.



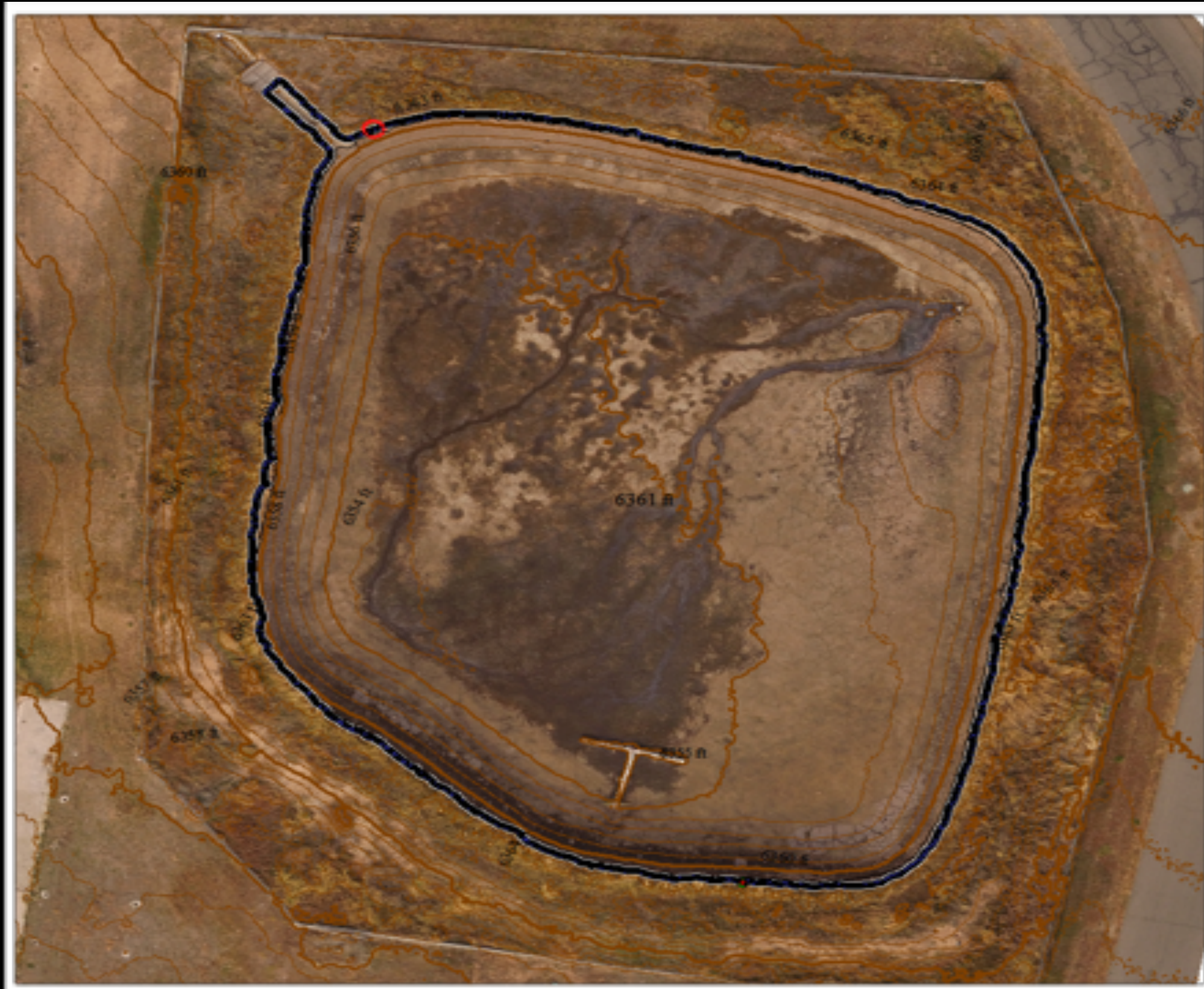


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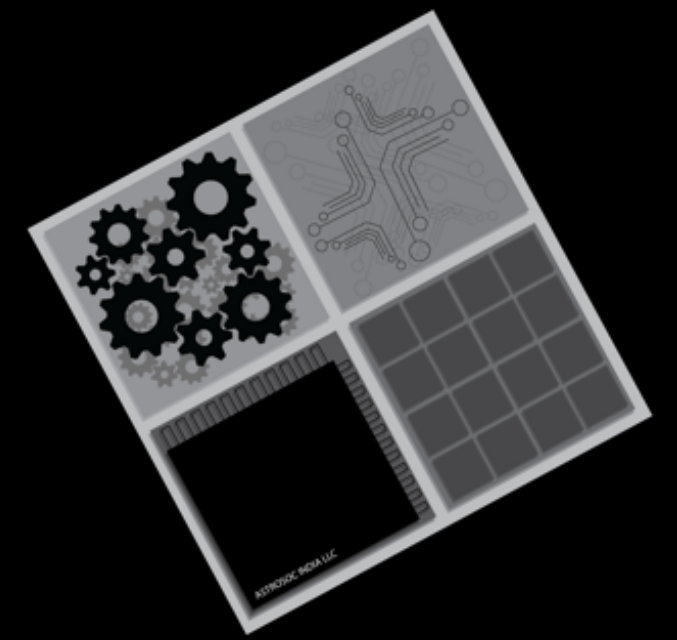
**CAPACITY ESTIMATION OF MINOR IRRIGATION TANKS
USING ASTROSOC ASD DRONE DATA
DATA PROCESSED BY OUR NRSC TEAM
(RESTRICTED DATA UNLESS CLEARED FOR PUBLIC SHARING)**





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Capacity estimation of tanks

Estimation of capacity projects has only two major inputs

1. Surface area estimation.
2. Below-water topographic maps of the storage area.

Traditionally, these maps are prepared with the use of bathymetric instruments like sonar etc. which is time consuming and not cost effective, especially for small tanks.

Survey Overview and Objectives

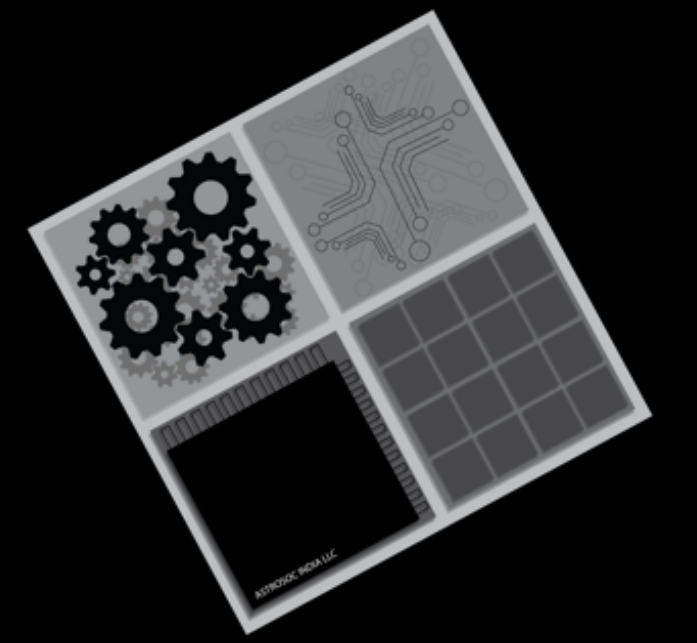
Many major and medium irrigation projects/tanks have Elevation-Area-Capacity (EAC) rating curves to estimate the volume stored in them.

But most of the minor irrigation tanks don't have such estimation factor which makes it very difficult to arrive at live storage capacity from the area estimated through satellite images.



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Methodology

Investigation on feasibility of using such terrain models in making reasonably accurate estimates on live storage capacities will be made. Terrain models from Drone Imagery is used in the project.

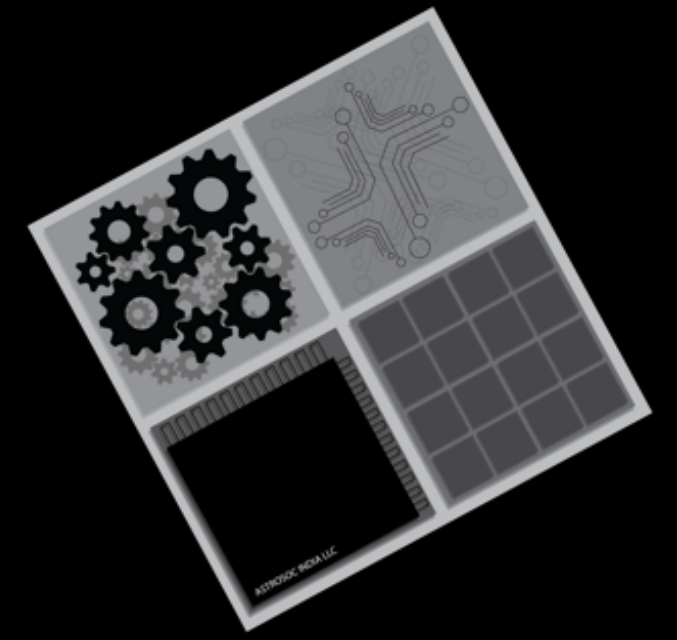
Generated Terrain model is used in contour map creation which is in turn used in generation of EAC curves. Further it is planned to use this EAC curves in estimation of live storage capacities using the Area information obtained from satellite based remote sensing.





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Study Area :

**Godumakunta Lake,
Keesara Mandal,
Telangana.**

**Drone Used:
AstroSoc ASD -
SX-369 XS.**

**Camera: Canon
A2000**

**Softwares used:
Open Drone Map,
Agisoft, Photoscan,
QGIS.**

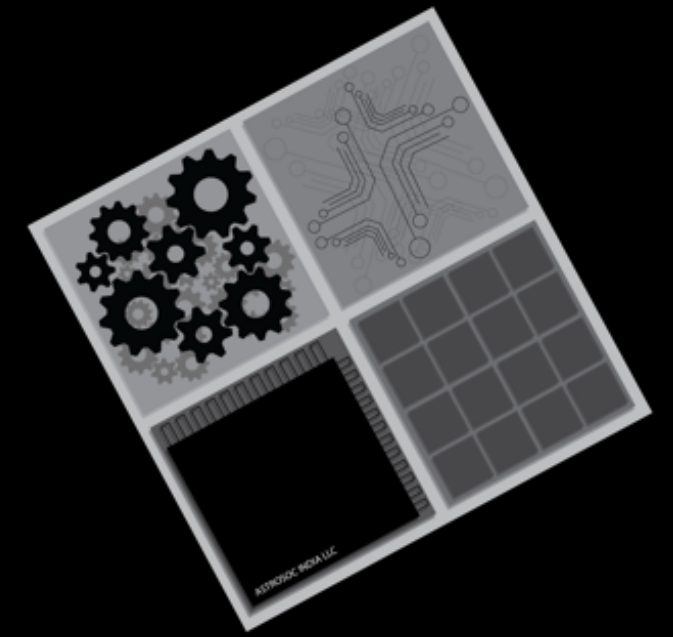
**Orthomosaic
Generated from
Godumakunta Lake
(Keesara Mandal,
Telangana)**





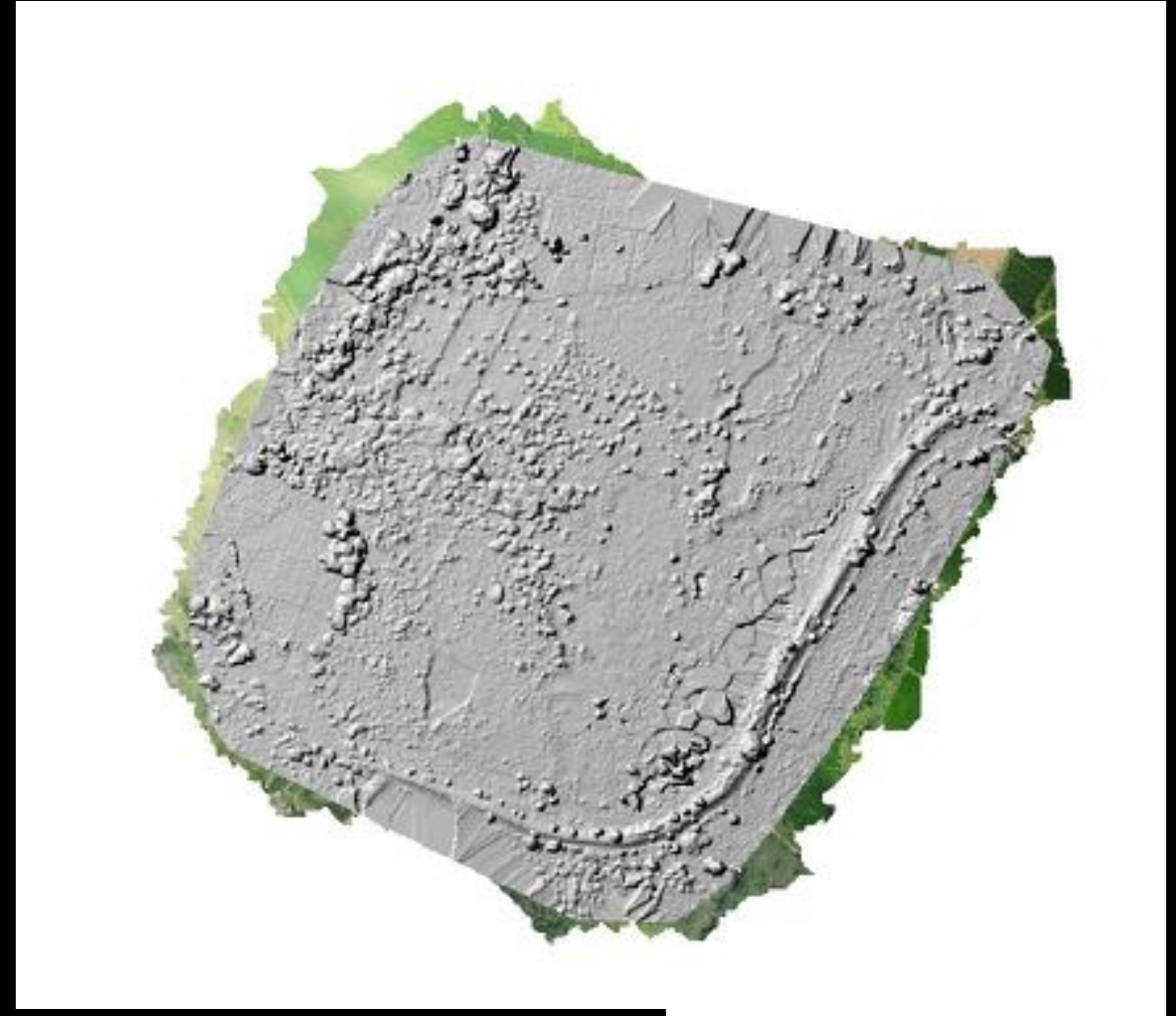
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Digital Surface Model

Structure from Motion photogrammetry with multi-view stereo provides hyperscale landform models using images acquired from a range of digital cameras and optionally a network of ground control points.



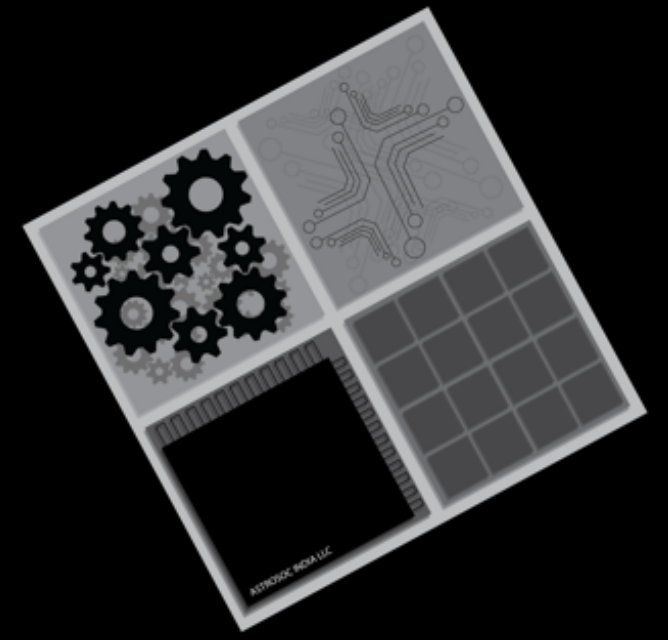
DSM generation processing pipeline:

Images>>3-D Point Cloud>>Meshing>>Texturing>>Orthomosaic Generation>>Digital Surface Model

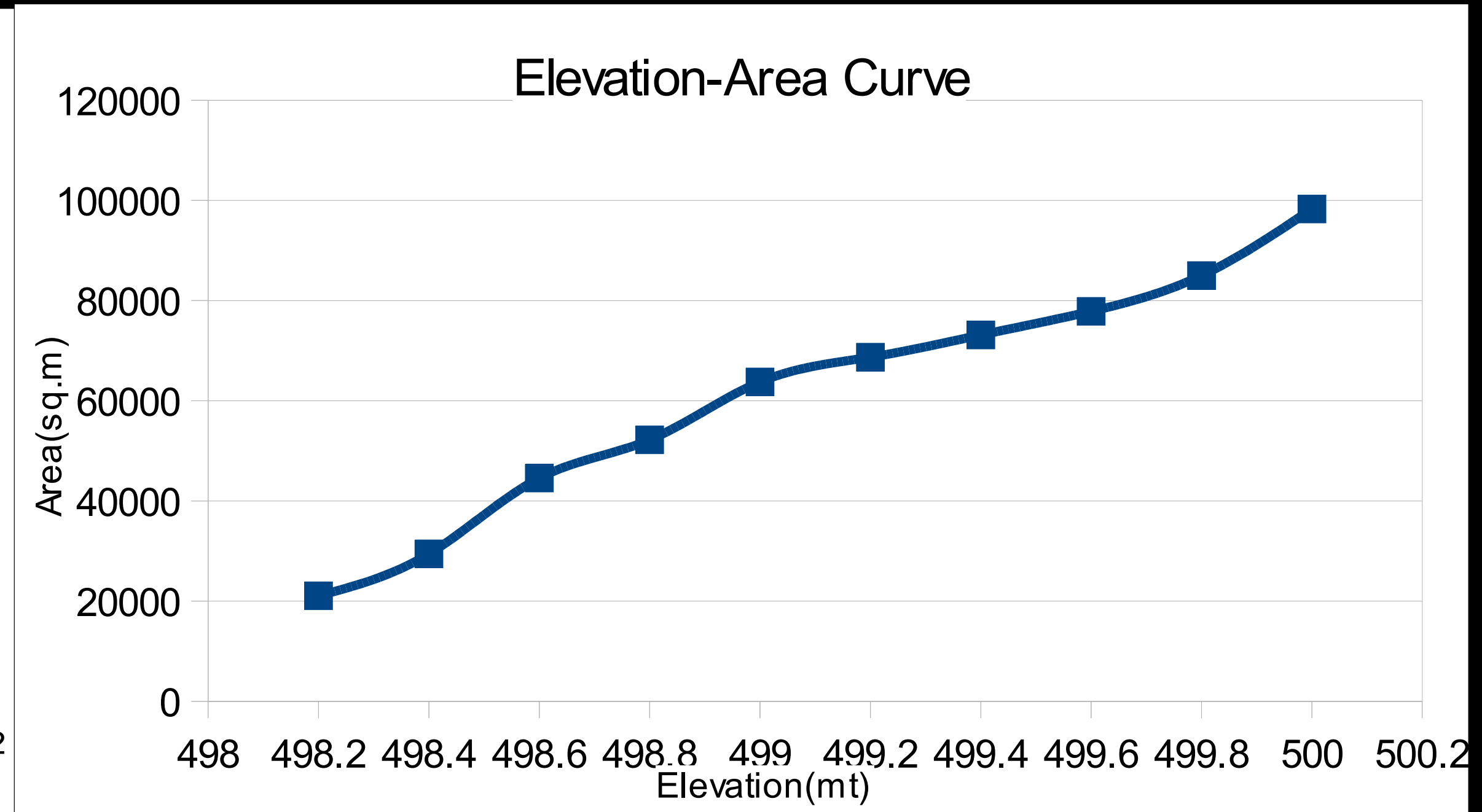
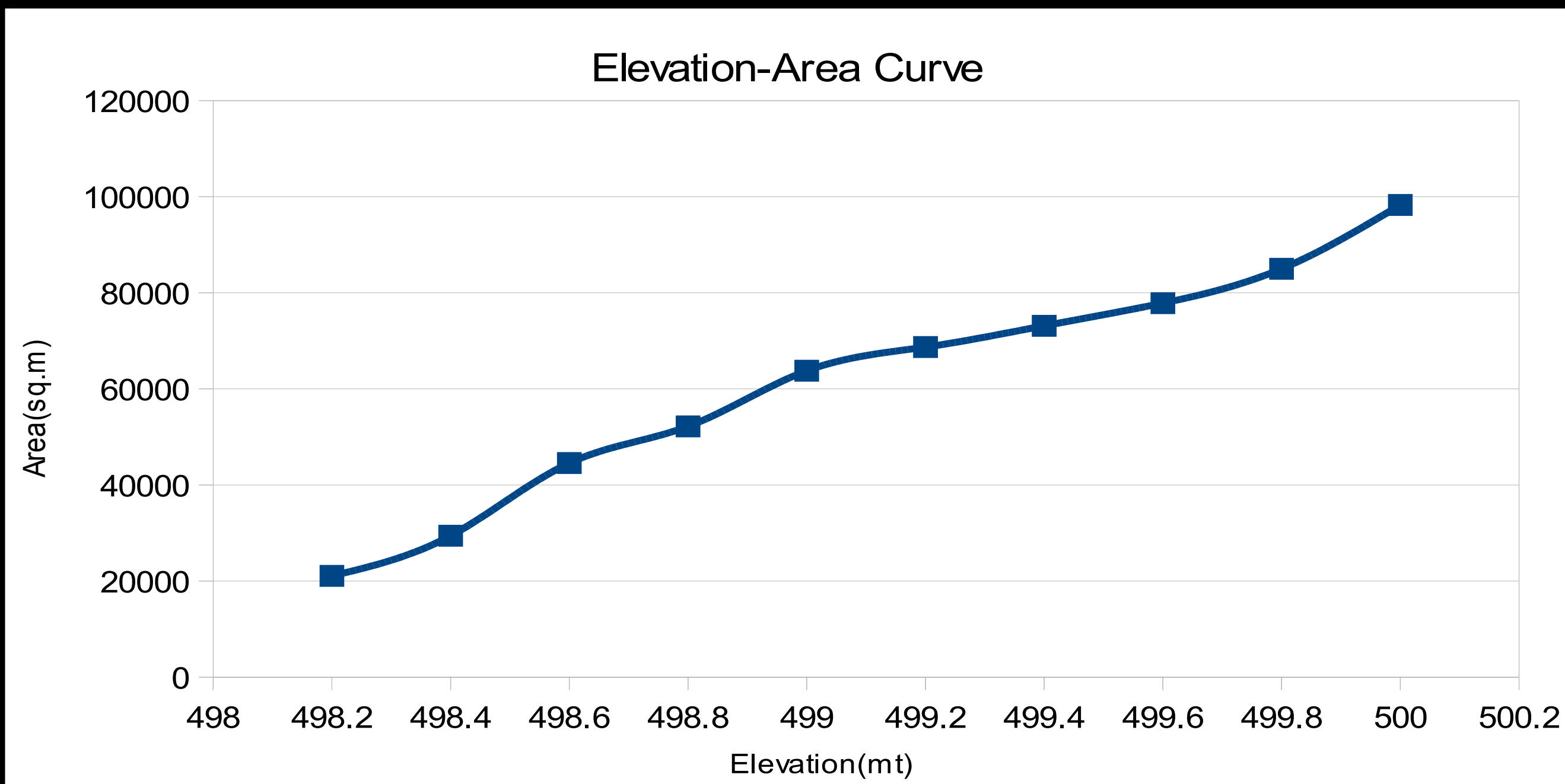


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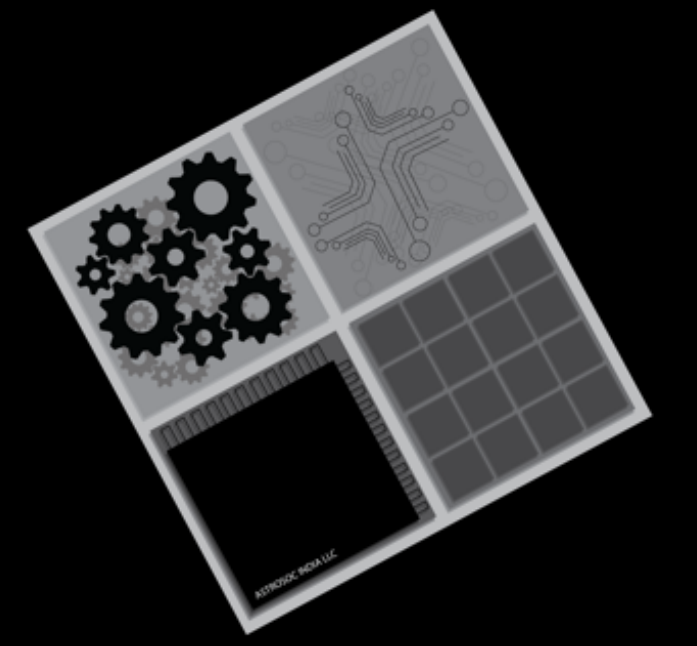
Elevation-Area-Capacity Curves





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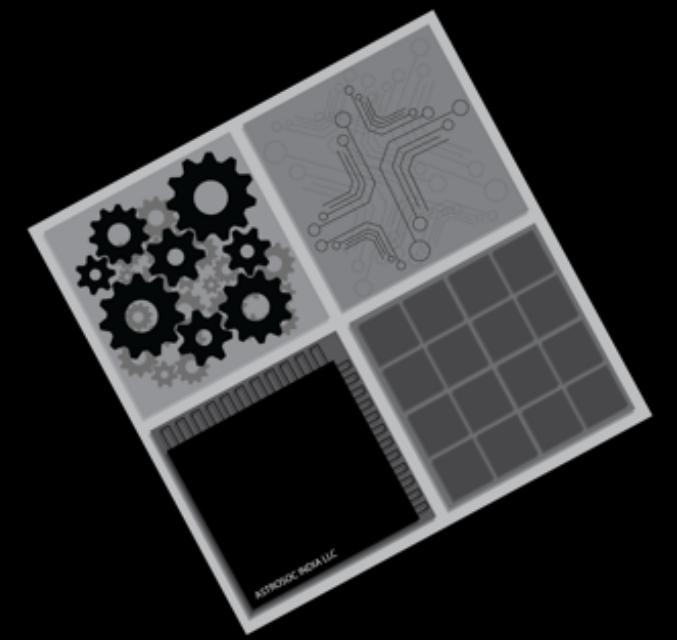


Elevation-Area-Capacity Curves

Elev	Area(sq.m)	Vol b/w intervals(prismoidal)	Capacity (prismoidal)	Vol b/w intervals(trapezoidal)	Capacity (trapezoidal)
498.20	21074.98				
498.40	29430.42	5027.34	5027.34	5050.54	5050.54
498.60	44564.70	7347.37	12374.71	7399.51	12450.05
498.80	52198.57	9666.27	22040.99	9676.33	22126.38
499.00	63769.52	11577.52	33618.51	11596.81	33723.19
499.20	68701.97	13244.09	46862.59	13247.15	46970.34
499.40	73130.01	14180.89	61043.49	14183.20	61153.54
499.60	77851.96	15095.74	76139.22	15098.20	76251.73
499.80	84997.54	16279.72	92418.94	16284.95	92536.68
500.00	98287.17	18312.39	110731.33	18328.47	110865.15

ASD- SX-369 XS

Surveillance and Data Assimilation UAS



Custom Made UAV solutions developed in India for a multitude of applications.

Surveillance and Irrigation Data Assimilation Unit.

Model Number ASD-SX-369-XS

Status : Operational and pilot project complete.

Application for Model Approval with DGCA in process.

Manufacturers Registration done on DGCA Digital Sky Platform.

Emergency Services

Model Number ASD-SX-369-XL

Status : Currently Under Development. Test Pending

Application for Model Approval with DGCA yet to be done.

Manufacturers Registration done on DGCA Digital Sky Platform.

Agricultural automated sprayers

Status : Currently Under testing and waiting for pilot project.

Application for Model Approval with DGCA in process.

Manufacturers Registration done on DGCA Digital Sky Platform.