

An aerial photograph of an urban landscape. A wide river flows from the top left towards the bottom left. A large, dense green forested area runs along the right bank of the river. In the foreground, a white truss bridge spans across the river. To the right of the bridge, a multi-lane road with traffic is visible. Various buildings, including a tall white apartment building and several smaller structures with red and blue roofs, are scattered throughout the urban area. The text "Application of Unmanned Aerial Vehicle in Spatial Mapping of Urban Forest Cover" is overlaid in white on the image.

# Application of Unmanned Aerial Vehicle in Spatial Mapping of Urban Forest Cover

# Arroceros Forest Park



- City of Manila
- Near LRT Central Station
- Estimated area = 2.2 ha
- Manila's last lung
- Proposal of building a Gym

# Mapping and Survey Objectives

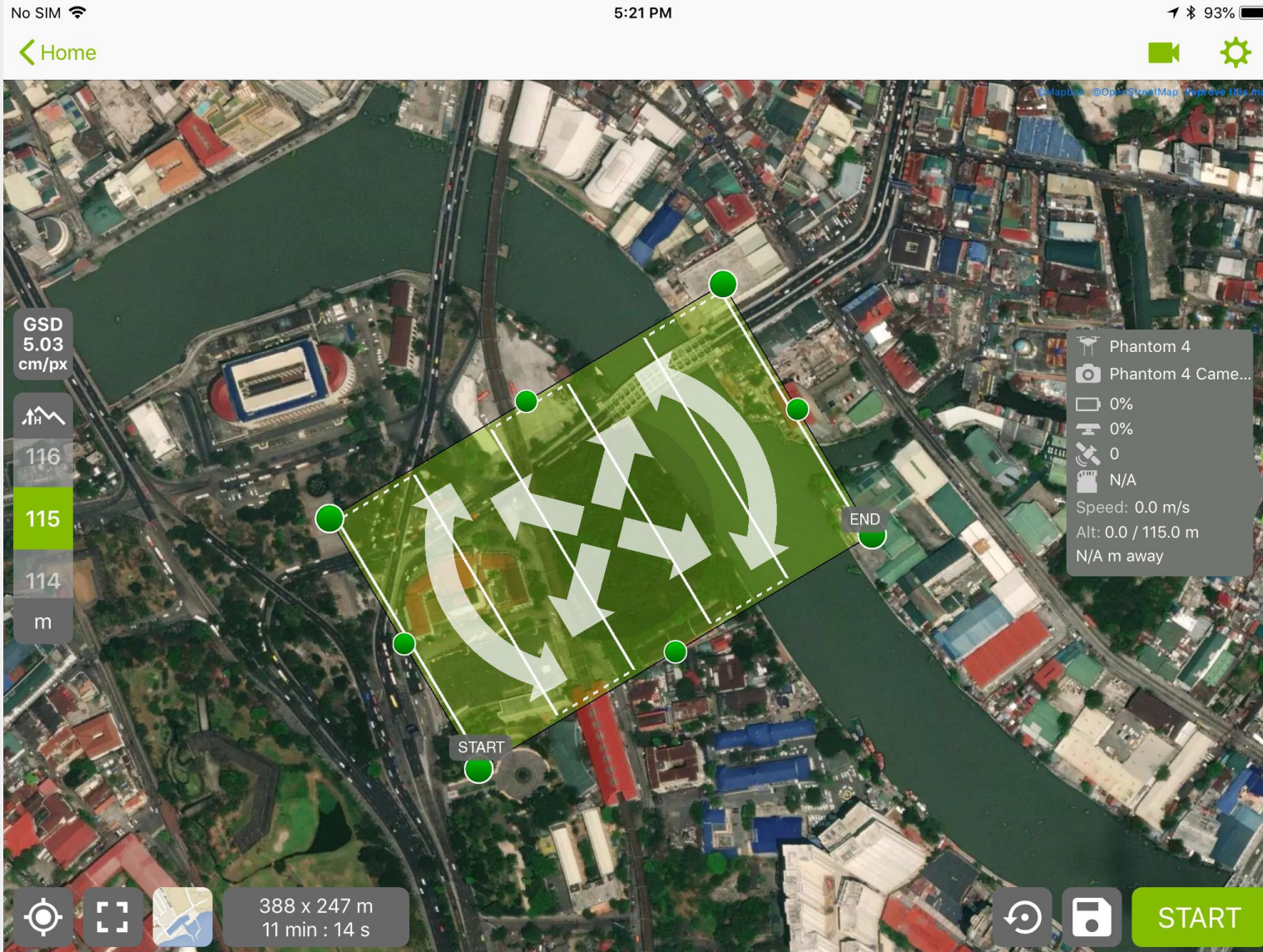
- To conduct a flyover of Arroceros forest park using an unmanned aerial vehicle (UAV) or drone
- To provide aerial images, maps and spatial information to groups who are campaigning for the preservation of Arroceros Forest Park

# UAV/DRONES



- An aircraft system that may be remotely controlled or flown autonomously through software controlled flight plans in their embedded systems working in conjunction with GPS (Global Positioning System).

# Flyover Mission Plan



- 81 images
- Altitude 115 meters
- Flying time = 11 mins
- Area covered = 9.5 km<sup>2</sup>
- GSD = 5.03 cm/px
- Certified drone pilot

# Aerial Flight No 1



# Actual Flyover

# Sample Aerial Image 1/81





# Zoom to Native Resolution (100%)



# Orthomosaic Image



# Open Aerial Map

The screenshot displays the OpenAerialMap web application. The main map shows a street grid in Manila, Philippines, with a large aerial photograph of Arroceros Forest Park overlaid. The park is situated near the Pasig River and the Jones Bridge. The interface includes a search bar at the top, navigation controls, and a metadata panel on the left. The metadata panel shows the map was uploaded by Leonard Soriano on 2018-08-07, with a resolution of 5 cm and provided by Leonard G. Soriano and Ian Gongona.

**Arroceros Forest Park**

UPLOADED BY  
**Leonard Soriano**

Display as **TMS** Thumbnail

Open in [iD editor](#) | [JOSM](#)

Copy image URL [TMS](#) | [WMTS](#)

DATE	2018-08-07
RESOLUTION	5 cm
PROVIDER	Leonard G. Soriano and Ian Gongona

Search location or coordinates

Sign In

Leaflet | © Mapbox © OpenStreetMap | Report an issue with this map

OpenAerialMap (OAM) is a set of tools for searching, sharing, and using openly licensed satellite and unmanned aerial vehicle (UAV) imagery.

[https://map.openaerialmap.org/#/120.98181545734406,14.594516659052534,17/square/1323031220001002222/5b90f92da0d7280005fab355?\\_k=nypdhub](https://map.openaerialmap.org/#/120.98181545734406,14.594516659052534,17/square/1323031220001002222/5b90f92da0d7280005fab355?_k=nypdhub)

# Tree Count Estimate



# Tree Height Estimates



Properties

**Selection**

**Densified Point**

Number of Images Visible In: 20

Computed Position [m]: 282636.97, 1614360.30, 79.95

Help

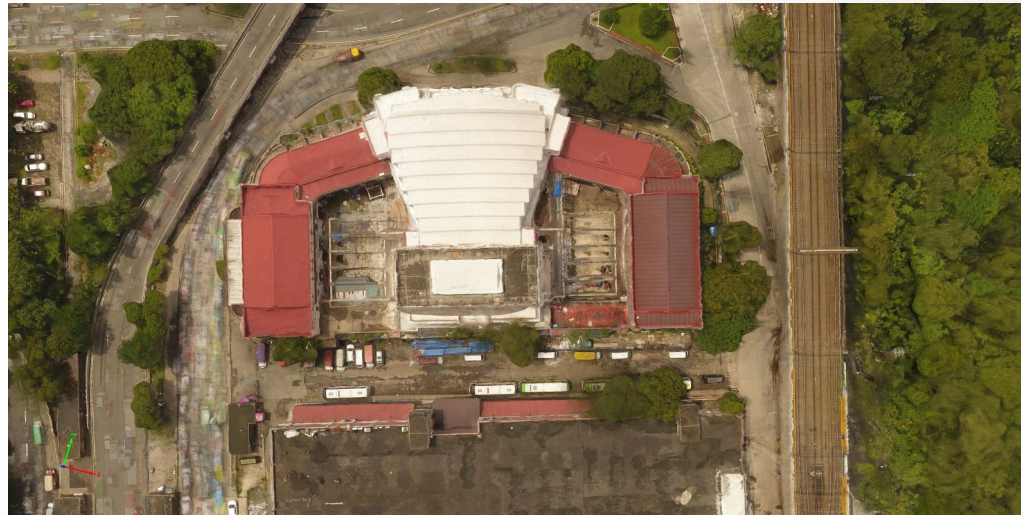
**Images**

Image Size    Zoom Level

DJI_0173.JPG	DJI_0121.JPG	DJI_0122.JPG
DJI_0172.JPG	DJI_0174.JPG	DJI_0120.JPG
DJI_0171.JPG	DJI_0106.JPG	DJI_0105.JPG
DJI_0176.JPG	DJI_0107.JPG	DJI_0119.JPG
DJI_0177.JPG	DJI_0158.JPG	DJI_0170.JPG

WGS 84 / UTM zone 51N (egm96) - (282636.97, 1614360.30, 79.95) [m]

# 3D Rendering of Metropolitan Theater



# Next steps?

- Conduct of forest inventory of Arroceros to quantify above ground biomass
- Expand and scale up the study on urban forest to other parts of Metro Manila
- Carry out survey and mapping for the public interest
- Continue supporting open data

Thank you for listening!

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