

## Mapping areas of interest for World Youth Day (WYD) 2019



*The team doing last checks before take-off*



*Orthomosaic of Cinta Costera*



*The overflowed area of Metro Park*

### OVERVIEW

<b>Flying Labs</b>	Panama Flying Labs
<b>Geographic area</b>	Cinta Costera, City of Panamá (Panamá)
<b>Date</b>	November - December 2018
<b>Sector program</b>	DevRobotics

### SCOPE

<b>Stakeholders (clients)</b>	Fuerza de Tarea Conjunta (Joint Task Force), SENAFRONT
<b>Challenge</b>	Every two years, the World Youth Day (WYD) selects a country to gather all the parishioners of the Catholic faith. At the end of WYD 2016 organized in Poland, Panama was selected to be the next hosting country for the WYD 2019. The location and distribution of participants required a great amount of logistics

	and planning. One of the main challenges was finding potential areas, where the event could take place.
<b>Scope</b>	Show how drones could be used to plan the distribution in the areas of interest for WYD 2019 by generating orthomosaics
<b>Outcome</b>	<p>The WYD-2019 team had identified two very wide and extensive areas, where massive gatherings of people could take place: the Coastal Belt and Metro Park.</p> <p>Phase 1: Checkpoints were located. Thanks to the relations between Flying Labs Panama and the Technological University of Panama, the Civil Engineering faculty provided ground control points to perform the flight and create georeferenced results.</p> <p>Phase 2: Drone flights over the desired areas.</p> <p>Phase 3: Processing and analysis of the data captured by the drone</p> <p>The use of the drones for this task proved to be an efficient method since it made the data acquisition process faster and more feasible. By using the orthomosaics as a final product helped the organizers to visualize these areas in order to make better predictions of the people distribution they should plan for.</p>
<b>Next steps</b>	The use of drones in this project opens an opportunity for more tasks like these in the future. It was proven that it is faster and more feasible to use drones for activities that require logistics of specific areas. This project also helps to promote the Technological University of Panama in the advancement and acquisition of technologies.

DATA ACQUISITION	
<b>Size of area</b>	588.56 ha (5.88 km <sup>2</sup> )
<b>Drone</b>	DJI Phantom 4 Pro V2
<b>Sensor(s)</b>	RGB camera
<b>Flight plan software</b>	Pix4Dcapture
<b>Flight height</b>	350m (Cinta Costera) and 61m (Metro Park) above ground level
<b>GSD (Accuracy)</b>	10.78 cm/pix
<b>Number of images acquired</b>	3002
<b>Number of flights</b>	11
<b>Time invested in data acquisition</b>	6h 28min
<b>Georeferencing</b>	Ground Control Points

<b>DATA PROCESSING &amp; ANALYSIS</b>	
<b>Processing software</b>	Pix4Dmapper
<b>Processing time</b>	5 hours
<b>Data products</b>	Orthomosaic
<b>Analysis tools</b>	-
<b>Analysis outputs</b>	-
<b>Final outputs shared with stakeholders</b>	Orthomosaic
<b>Data sharing</b>	Hard drive