

Team Building with Drones for an Inaugural Hack4Change Event

Reference: [Blog](#)



Group shot of Hack4Change hacking teams and mentors with trainers from PNG Flying Labs



Kevin and Sophia Soli of PNG Flying Labs promoting the spirit of 'Teamwork'

OVERVIEW	
Flying Labs	Papua New Guinea Flying Labs
Location	Port Moresby, Papua New Guinea
Date	July 25, 2020
Length (number of days)	One Day Drone Outreach and Education (1 hour)

Sector program (optional)	YouthRobotics
Format	In-Person
Co-organizer if applicable	PNG ICT Cluster (https://www.ictcluster.org.pg/)
SDGs	<u>GOAL 8: Decent Work and Economic Growth</u> <u>GOAL 9: Industry, Innovation and Infrastructure</u>

SCOPE & OUTCOMES	
Type of training	Team building with drones
Goal of the training	Increase drone outreach and education
Expected outcome for participants	<p>1. Completed a one-page baseline survey to capture their understanding of drone technology, <u>PNG drone rules and regulations</u>, and market for consumer drones.</p> <p>2. Understood why PNG Flying Labs is in the drone space.</p> <p>3. Understood how to address these questions: (1) What is drone technology and drone safety? (2) How do we use drone technology? and (3) Benefits of drone technology.</p> <p>34 participants divided into 3 teams. Each team (11-12 members) moved from build, fly to pitch stations.</p> <p>Station 1: BUILD [Drone Support] Teams identified a specific problem in PNG to be addressed by cargo drones. They used simple craft items to showcase the structure and function of their drones to address the problem. Upon completion, the team presented the drone and highlighted the technical capabilities of the drone hardware and software and how they would support a drone operation.</p> <p>Station 2: FLY [Drone Operation] Before teams took their first flights on a predefined path, we briefly demonstrated to them the basic drone maneuvers (up, down, forward, backward, left, right, turning</p>

	<p>clockwise/counter-clockwise) and drone safety. We also highlighted the importance of the roles of: 1) a pilot in command (PIC), 2) a visual observer (VO), and 3) a recorder. The PIC flies the mini drone; the VO assists the PIC with situational awareness while the recorder documents the mission.</p> <p>Station 3: PITCH [Value Proposition] Teams identified a specific problem in PNG to be addressed by drones. Next, they identified their business reps to pitch the technical capabilities of the drone hardware and software including improvements in the local supply chain as their value proposition.</p>
<p>Confirmed outcome after training</p>	<p>Building, flying and pitching in teams enabled the hackers and their mentors to work collaboratively to effectively communicate, analyse and build a prototype or complete a flight mission. Key lessons are: (1) Without a local drone technical support team (build), a drone operation (fly) lacks maintenance, and an enabling environment for a safe and successful mission; and (2) Without a market for a product or service and viable business model (pitch), it will be hard to make a sale. Fundamentally, it is not about a drone but having a unified system to address a problem leveraging cloud-based technology and AI all working within PNG Civil Aviation and Safety Authority.</p>
<p>Eventual next steps</p>	<p>We are working on a partnership for Hackathon development activities as pioneer Team Building mentors. COVID-19 has disrupted and delayed this proposed activity.</p>

PARTICIPANTS	
<p>Profiles and number of participants</p>	<p>A total of 34 participants (28 hackers, 6 mentors).</p>
<p>Gender ratio</p>	<p>18 Male participants (53%) to 16 Female participants (47%).</p>

Who paid for the training?	PNG ICT Cluster.
Participant fee rate (if applicable)	USD280 for one group session (80% discount off our 1-day crash course).

CONTENT	
Training components	<p>Baseline survey (1-page printed questionnaire). Interactive Powerpoint presentations Section (1): Drone Safety (CASA regulations) and UTM. Section (2): (a) What is drone technology and drone safety? (b) How do we use drone technology? and (b) Benefits of drone technology? Section (3): PNG Flying Labs Milestones (209-2020).</p>
Training resources used	<p>Props for display: DJI Quadcopters (Phantom, Mavic, Tello). Presentation tools: Laptops, tablets, projector. Photographs: Camera and tripod.</p>
Approaches and methods used	<p><u>Interactive Powerpoint presentations</u> Our awareness comprised three sections. After each section there were discussions with the audience. We answered any questions and provided advice or recommendations where needed.</p>