

Wings for the Future: Transforming the Future of Children and Youth with Drone Technology in Villa El Salvador



Participants in the theoretical session of the program



Participants in the practical session of the program



Final photo with all participants and instructors

OVERVIEW	
Flying Labs	Peru Flying Labs
Location	Villa el Salvador, Lima, Peru
Date	22th December, 2024
Length (number of days)	1 day
Sector program (optional)	YouthRobotics
Format	In-person

Co-organizer if applicable	<ul style="list-style-type: none"> ● UAV Latam Peru ● Local leaders
SDGs	GOAL 4: Quality Education GOAL 10: Reduced Inequalities

SCOPE & OUTCOMES	
Type of training	<ol style="list-style-type: none"> 1. Youth/STEM training
Goal of the training	<ol style="list-style-type: none"> 1. To create spaces of inclusion and offer opportunities through the use of technology. 2. To create drone awareness. 3. To train and empower youth and the workforce of the future. 4. To develop drone data acquisition and analysis skills.
Expected outcome for participants	<ul style="list-style-type: none"> ● To understand drones, their utility, and safe operations. ● To gain basic practical flight training with Tello educational drones and professional drones (Skydio 2+). ● To gain proper insight on how to be a good drone pilot and follow the proper security steps. ● 3D Mapping and analysis of the community
Confirmed outcome after training	<ul style="list-style-type: none"> ● Participants gained basic skills and competencies in drone technology. ● Participants were able not only to learn about drones theoretically but also have practice flights. ● Children and youth gained an understanding of the risks and safety measures involved in operating drones. ● By the end of the training, students gained new skills and learned about the multiple uses of drones in different initiatives.
Eventual next steps	<ul style="list-style-type: none"> ● To replicate the training program within more communities in the future.

PARTICIPANTS	
Profiles and number of participants	<ul style="list-style-type: none"> ● 2 university students (as instructors) ● 20 youths (7 - 17 years old).

Name of participants' organizations	Sector 3 Grupo 10
Gender ratio	15 Males : 5 Females
Who paid for the training?	This was a free training sponsored by UAV Latam Peru and local leaders
Participant fee rate (if applicable)	N/A
Scholarships offered?	The course was completely free.

CONTENT	
Training components	<p>The students were divided into 2 groups to make the training much more personalized. Both phases used the same resources and activities during the first 3 modules:</p> <p>Module 1: Introduction to Drones (45 minutes)</p> <ul style="list-style-type: none"> ● Introducing drone technology and its applications in various industries. ● Explaining the role of the Flying Labs with a special focus on the local models. ● Discussing common safety rules for drones. <p>Module 2: Security Measures (45 minutes)</p> <ul style="list-style-type: none"> ● Understanding the importance of teamwork, roles, and responsibilities. ● Preflight Checklist. <p>Module 3: Manual Flights (90 minutes)</p> <ul style="list-style-type: none"> ● Indoor flights with the DJI Tello ● Mounting a multi-rotor and flying safely. ● Reviewing the rules of thumb: first the right and then the left. ● Carrying outdoor flights at 5 meters altitude. <p>Then group 1 performed:</p> <p>Module 4: Aerial Photography and Video (1 hour)</p> <ul style="list-style-type: none"> ● Teaching Flight Modes (Throw & Go, Flips, Up & Away) ● Teaching how to take photos and videos from the air using the drone's camera

	<ul style="list-style-type: none"> ● Teaching how to adjust camera settings, how to frame a shot, and how to download and edit captured images <p>Module 5: Block Programming (105 minutes)</p> <ul style="list-style-type: none"> ● Explaining the basics of Block Programming with DroneBlocks ● Learn how to program the Tello to perform specific tasks ● Perform flights and set challenges for them to put what they've learned into practice <p>And group 2:</p> <p>Module 4: 3D Flight Plan and Data Collection (1 hour)</p> <ul style="list-style-type: none"> ● Show how data is collected with drones. ● Create 3D Scan flight plans for photogrammetry. <p>Module 5: Data Processing (120 minutes)</p> <ul style="list-style-type: none"> ● Use Pix4Dmapper to show data processing. ● Generate high-precision 2D and 3D models to represent the environment. ● Use the generated models to identify environmental risks in the locality.
<p>Training resources used</p>	<ul style="list-style-type: none"> ● Drones: Skydio 2+, Mavic 2 Pro, DJI Tello. ● Devices: iPads, smartphones and laptops ● Material: PowerPoints and Videos ● Software: DroneBlocks, PIX4Dmapper, PIX4Dcapture, 3D Scan, Skydio App
<p>Approaches and methods used</p>	<ul style="list-style-type: none"> ● We also separated the participants into smaller groups of between 3-4 students per instructor for more personalized training. ● The first part of the training was theoretical with PowerPoint presentations on drones and security. The second part took a practical format as students assembled the drones themselves and flew them with the guidance of their instructor.