

Wings for the Future Program: Empowering Children and Youth with Muscular Dystrophy



Participants in the theoretical session of the program



Participants in the practical session of the program



Briefing with all the instructors before manual flights

OVERVIEW	
Flying Labs	Peru Flying Labs
Location	Barranco, Lima, Peru
Date	7th to 11th and 19th August, 2023
Length (number of days)	6 days
Sector program (optional)	YouthRobotics

Format	Hybrid
Co-organizer if applicable	<ul style="list-style-type: none"> ● University of Engineering and Technology - UTEC ● Ruedas Mágicas Foundation ● UAV Latam Peru ● The Municipalidad de Barranco
SDGs	GOAL 4: Quality Education GOAL 10: Reduced Inequalities

SCOPE & OUTCOMES	
Type of training	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 certify drone instructors for the "Wings for the Future" program. 3. To create drone awareness. 4. To train and empower youth and the workforce of the future. 5. Develop drone data acquisition and analysis skills.
Expected outcome for participants	<ul style="list-style-type: none"> ● Understand drones, their utility and safe operations. ● Gain basic practical flight training with Tello educational drones and professional drones (DJI Phantom 4, DJI Mavic 2 Pro, DJI Mavic 2 Enterprise, Mavic 3 Enterprise). ● Gain proper insight on how to be a good drone pilot and follow the proper security steps.
Confirmed outcome after training	<ul style="list-style-type: none"> ● Drone instructors were successfully trained on the uses and applications of drones, as they gained experience in drone handling and data collection. ● Participants gained basic skills and competencies in drone technology. ● Participants were able not only to learn about drones theoretically, but also have practice flights. The practical flights were conducted outside the classroom in the Barranco stadium "Luis Galvez Chipoco". ● Instructors and children gained the understanding of the risks and safety measures involved in operating drones.

	<ul style="list-style-type: none"> ● 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 encourage participants to pursue STEM careers in future. ● To replicate the training program within more communities in future.

PARTICIPANTS	
Profiles and number of participants	<ul style="list-style-type: none"> ● 5 university students (as instructors). ● 18 children and youth (13 - 36 years old).
Name of participants' organizations	Ruedas Mágicas Foundation
Gender ratio	18 Males : 0 Females
Who paid for the training?	This was a free training paid by UAV Latam Peru.
Participant fee rate (if applicable)	N/A
Scholarships offered?	The course was completely free.

CONTENT	
Training components	<p>The first phase of the project was to complement the training of 5 university students that became instructors in the past edition of "Wings for the Future"</p> <p>In the second phase, the students were divided into 2 groups to make the training much more personalized. Both phases used the same resources and activities during the course.</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 (30 minutes)</p> <ul style="list-style-type: none"> ● Understanding the importance of teamwork, roles and responsibilities. ● Preflight Checklist. <p>Module 3: Flight Plan and Collecting Data (1 hour)</p> <ul style="list-style-type: none"> ● Demonstrating how data is collected with drones. ● Creating flight plans for mapping the location. <p>Module 4: Manual Flights (2 hour 30 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>Module 5: Processing Data and Map Creation (1 hour)</p> <ul style="list-style-type: none"> ● Creating a map from scratch, using the orthomosaic generated from the collected data. ● Teaching the fundamentals of cartography – DOGSTAIL.
<p>Training resources used</p>	<ul style="list-style-type: none"> ● Drones: Phantom 4 Pro, Mavic 2 Pro, Mavic 2 Enterprise Dual, Mavic 3 Enterprise, DJI Tello. ● Devices: iPads, Smartphones and projectors ● Material: PowerPoints and Videos ● Software: Tello App, PIX4Dreact, PIX4Dcapture
<p>Approaches and methods used</p>	<ul style="list-style-type: none"> ● In the first phase, we completed the training of the 5 university instructors of the Wings for the Future program for a whole week. ● We also separated the participants into smaller groups of between 3-4 students per instructor for a 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.