

## 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	
<b>Flying Labs</b>	Peru Flying Labs
<b>Location</b>	Barranco, Lima, Peru
<b>Date</b>	7th to 11th and 19th August, 2023
<b>Length (number of days)</b>	6 days
<b>Sector program (optional)</b>	<a href="#">YouthRobotics</a>

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

SCOPE & OUTCOMES	
<b>Type of training</b>	1. Youth/STEM training
<b>Goal of the training</b>	<ol style="list-style-type: none"> <li>1. To create spaces of inclusion and offer opportunities through the use of technology.</li> <li>2. To certify drone instructors for the "Wings for the Future" program.</li> <li>3. To create drone awareness.</li> <li>4. To train and empower youth and the workforce of the future.</li> <li>5. Develop drone data acquisition and analysis skills.</li> </ol>
<b>Expected outcome for participants</b>	<ul style="list-style-type: none"> <li>● Understand drones, their utility and safe operations.</li> <li>● 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).</li> <li>● Gain proper insight on how to be a good drone pilot and follow the proper security steps.</li> </ul>
<b>Confirmed outcome after training</b>	<ul style="list-style-type: none"> <li>● Drone instructors were successfully trained on the uses and applications of drones, as they gained experience in drone handling and data collection.</li> <li>● Participants gained basic skills and competencies in drone technology.</li> <li>● 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".</li> <li>● Instructors and children gained the understanding of the risks and safety measures involved in operating drones.</li> </ul>

	<ul style="list-style-type: none"> <li>● By the end of the training, students gained new skills and learned about the multiple uses of drones in different initiatives.</li> </ul>
<b>Eventual next steps</b>	<ul style="list-style-type: none"> <li>● To encourage participants to pursue STEM careers in future.</li> <li>● To replicate the training program within more communities in future.</li> </ul>

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

CONTENT	
<b>Training components</b>	<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"> <li>● Introducing drone technology and its applications in various industries.</li> <li>● Explaining the role of the Flying Labs with a special focus on the local models.</li> <li>● Discussing common safety rules for drones.</li> </ul>

	<p>Module 2: Security Measures (30 minutes)</p> <ul style="list-style-type: none"> <li>● Understanding the importance of teamwork, roles and responsibilities.</li> <li>● Preflight Checklist.</li> </ul> <p>Module 3: Flight Plan and Collecting Data (1 hour)</p> <ul style="list-style-type: none"> <li>● Demonstrating how data is collected with drones.</li> <li>● Creating flight plans for mapping the location.</li> </ul> <p>Module 4: Manual Flights (2 hour 30 minutes)</p> <ul style="list-style-type: none"> <li>● Indoor flights with the DJI Tello</li> <li>● Mounting a multi rotor and flying safely.</li> <li>● Reviewing the rules of thumb: first the right and then the left.</li> <li>● Carrying outdoor flights at 5 meters altitude.</li> </ul> <p>Module 5: Processing Data and Map Creation (1 hour)</p> <ul style="list-style-type: none"> <li>● Creating a map from scratch, using the orthomosaic generated from the collected data.</li> <li>● Teaching the fundamentals of cartography – DOGSTAIL.</li> </ul>
<p><b>Training resources used</b></p>	<ul style="list-style-type: none"> <li>● Drones: Phantom 4 Pro, Mavic 2 Pro, Mavic 2 Enterprise Dual, Mavic 3 Enterprise, DJI Tello.</li> <li>● Devices: iPads, Smartphones and projectors</li> <li>● Material: PowerPoints and Videos</li> <li>● Software: Tello App, PIX4Dreact, PIX4Dcapture</li> </ul>
<p><b>Approaches and methods used</b></p>	<ul style="list-style-type: none"> <li>● In the first phase, we completed the training of the 5 university instructors of the Wings for the Future program for a whole week.</li> <li>● We also separated the participants into smaller groups of between 3-4 students per instructor for a more personalized training.</li> <li>● 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.</li> </ul>