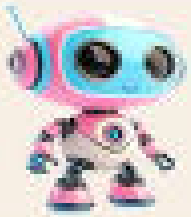
Daily Activities Overview

Age Group **12-16** , Course Learn AI with Quarky

Day #1



Concepts Covered

Introduction to Robotics and Quarky

Activities

Understanding the basics of robotics

Assembling the Quarky robot

Exploring the PictoBlox coding environment

Projects

Assemble the Quarky robot and familiarize with its components

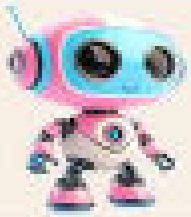
Program Quarky to perform basic movements, such as moving in a square pattern

Introduce emotions to Quarky using LED expressions

Daily Activities Overview

Age Group **12-16** , Course Learn AI with Quarky

Day #2



Concepts Covered

Wireless Control and Line Following

Activities

Implementing wireless control mechanisms

Understanding and calibrating IR sensors

Developing line-following capabilities

Projects

Program Quarky to move in a circular path using wireless controls

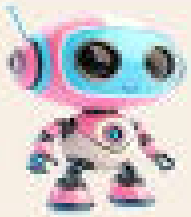
Calibrate IR sensors for accurate line detection

Develop a line-following robot that can navigate predefined paths

Daily Activities Overview

Age Group **12-16** , Course Learn AI with Quarky

Day #3



Concepts Covered

AI Integration - Delivery Bot

Activities

Introduction to Artificial Intelligence concepts

Detecting numerical data using AI

Navigating through checkpoints autonomously

Projects

Train Quarky to recognize and detect numbers

Program Quarky to navigate to multiple checkpoints based on detected numbers

Discuss real-world applications of AI in delivery systems

Daily Activities Overview

Age Group **12-16** , Course Learn AI with Quarky

Day #4

Concepts Covered

AI Integration - Waste Collector Bot

Activities

Understanding waste management challenges

Developing AI models for waste identification

Building a functional waste-collecting robot

Projects

Train an AI model to identify different types of waste

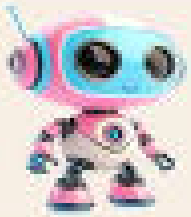
Integrate the AI model with Quarky to sort waste items

Construct a robot capable of collecting and sorting waste autonomously

Daily Activities Overview

Age Group **12-16** , Course Learn AI with Quarky

Day #5



Concepts Covered

Self-Driving Car

Activities

Exploring the fundamentals of self-driving technology

Detecting traffic signs and landmarks

Handling multiple AI inputs for decision-making

Projects

Train Quarky to recognize various traffic signs

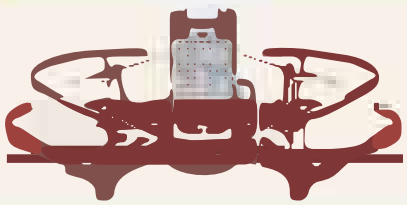
Program Quarky to navigate a course using detected signs and landmarks

Combine all learned concepts to build a self-driving car prototype

Daily Activities Overview

Tello Drone Programming Course

Day #1



Concepts Covered

Introduction to Drones & Tello

Learning Objectives

- Understand the basic principles of drone flight
- Learn about Tello drones and their features
- Setup and prepare the Tello drone for flight

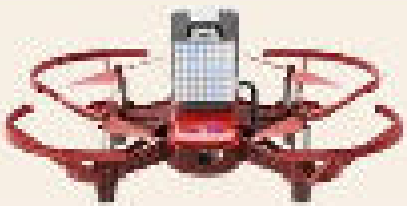
Activities

- Overview of drones
- key components
- Explore Tello's features
- Flying Fundamentals
  Learn to take off, land, hover, and steer using the Tello app
- Understand flight safety rules, no-fly zones, and responsible usage. Drone Safety

Daily Activities Overview

Tello Drone Programming Course

Day #2



Concepts Covered

Basic Drone Programming with Scratch

Learning Objectives

- Learn how to program the Tello drone using Scratch
- Understand basic commands for controlling the drone's movements

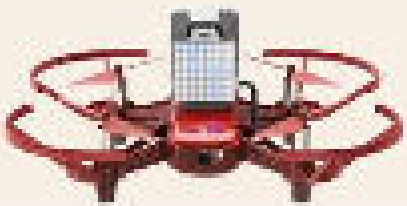
Activities

- Introduction to the Scratch interface and using it to code Tello drones via the Tello SDK
- Build Your First Flight Program
- Code & Fly
  Students design and test their own flight programs, then watch their code come to life in real-time

Daily Activities Overview

Tello Drone Programming Course

Day #3



Concepts Covered

Advanced Flight Maneuvers and Loops

Learning Objectives

- Learn more complex drone movements using loops and conditional logic
- Program the drone to perform a series of commands in sequence

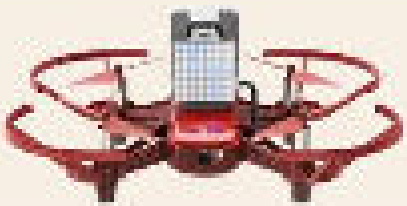
Activities

- Quick Recap
  Review Day 2 basics and troubleshoot common coding errors
- Next-Level Coding
  Learn loops and conditionals to create smarter flight patterns (e.g., flying in a square)
- Creative Flight Practice
  Students tweak their code to fly in custom patterns using loops and timing for smoother moves

Daily Activities Overview

Tello Drone Programming Course

Day #4



Concepts Covered

Aerial Photography and Video

Learning Objectives

- Learn how to use the Tello drone's camera for aerial photography and video capture
- Program the drone to capture photos and videos while flying

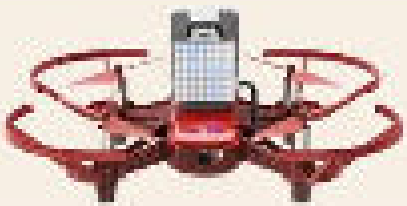
Activities

- Explore how drones are used for capturing stunning photos and videos
- Learn about the Tello's 720p HD camera and video capabilities
- Use Scratch to program the drone to take photos or videos mid-flight
- Students code flight paths with timed shots and experiment with capturing aerial footage

Daily Activities Overview

Tello Drone Programming Course

Day #5



Concepts Covered

Drone Obstacle Course

Learning Objectives

- Apply everything learned in the course to complete a fun, interactive challenge
- Enhance problem-solving and creative thinking with drone programming

Activities

- Introduce the idea of navigating drones through hoops, cones, and turns indoors
- Students design and code a flight path using learned commands to complete the course
- Test the programs in the obstacle course, refine them, and celebrate the final flight achievements